

2013

## Undergraduate Catalog of Studies, 2012-2013

University of Arkansas, Fayetteville

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2012-13  
UNDERGRADUATE  
Catalog of Studies



UNIVERSITY OF  
ARKANSAS®

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Area Code: 479

## Admissions

Undergraduate Admissions, 232 Silas H. Hunt Hall .....	575-5346
School of Law Admissions, 110 Waterman Hall.....	575-3102
Graduate School Admissions, 346 N. Arkansas Ave.....	575-6246
(Stone House North)	
International Admissions, 346 N. Arkansas Ave. ....	575-6246
(Stone House North)	

## Campus Tours & Visits

Office of Admissions, 232 Silas H. Hunt Hall .....	575-5346
Graduate School Admissions, 346 N. Arkansas Ave.....	575-6246

## Correspondence Courses

Independent Study	
Center for Continuing Education .....	575-3647
Toll-free.....	1-800-638-1217

## Deans' Offices

Honors College.....	575-7678
418 Administration Building	
Dale Bumpers College of Agricultural, Food and Life Sciences	
E-108 Agricultural, Food and Life Sciences Bldg.....	575-2252
Fay Jones School of Architecture	
112 W. Center St., Suite 700 .....	575-4945
J. William Fulbright College of Arts & Sciences	
525 Old Main .....	575-4801
Sam M. Walton College of Business	
301 Business Building.....	575-5949
College of Education and Health Professions	
324 Graduate Education Bldg. ....	575-3208
College of Engineering	
4183 Bell Engineering Center .....	575-3051
Graduate School and International Education	
346 N. Arkansas Avenue (Stone House North) .....	575-4401
School of Law	
110 Waterman Hall .....	575-5601

## Enrollment Services

Vice Provost of Enrollment and Dean of Admissions	
232 Silas H. Hunt Hall.....	575-3771

## Fee Payments

Student Accounts	
Arkansas Union Room 213 .....	575-5651

## Financial Aid and Scholarships

Office of Financial Aid	
114 Silas H. Hunt Hall.....	575-3806
Academic Scholarship Office	
101 Old Main .....	575-4464

## Greek Life

Arkansas Union A687 .....	575-5001
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## Honors Programs

Honors College.....	575-7678
ADMN 418	
Dale Bumpers College of Agricultural, Food and Life Sciences	
Dean's Office AFLS E-108 .....	575-2252
Fay Jones School of Architecture	
112 W. Center St., Suite 700 .....	575-4945
J. William Fulbright College of Arts & Sciences	
517 Old Main .....	575-2509

Sam M. Walton College of Business	
WCOB 328.....	575-4622
College of Education and Health Professions	
Office of the Associate Dean, GRAD 317 .....	575-4205
College of Engineering	
BELL 3189.....	575-5412

## Housing

University Housing, 900 Hotz Hall .....	575-3951
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## International Students

International Admissions, 346 N. Arkansas Ave. ....	575-6246
(Stone House North)	
International Students and Scholars, 104 Holcombe Hall...	575-5003

## New Student Orientation

Admissions, 232 Silas H. Hunt Hall.....	575-4200
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## Registration

Office of the Registrar, 146 Silas H. Hunt Hall.....	575-5451
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## ROTC

Air Force ROTC, 319 Memorial Hall.....	575-3651
Army ROTC, 207 Military Science Building.....	575-4251

## Student Affairs

Vice Provost for Student Affairs and Dean of Students	
325 Administration Building.....	575-5007

## Testing (ACT, CLEP, LSAT, GRE, etc.)

Testing Services, 730 Hotz Hall.....	575-3948
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## Toll-Free Number .....

1-800-377-8632  
The following offices may be reached by dialing this toll-free number between 8 a.m. and 4:30 p.m. each weekday:

Office of Admissions (undergraduate)	
Office of Scholarships and Financial Aid	
New Student Orientation	

## Transcripts, Academic Records

Office of the Registrar	
146 Silas H. Hunt Hall.....	575-5451

## University Switchboard .....

## Veterans Affairs

Veterans Certification Officer	
146 Silas H. Hunt Hall.....	575-5454
Veterans Resource and Information Center	
632 Arkansas Union .....	575-8742

## University of Arkansas

Mailing Address:

Use an office and building address from above, plus:

1 University of Arkansas  
Fayetteville, AR 72701

Telephone Area Code: 479

VOLUME 105, UNIVERSITY OF ARKANSAS CATALOGS — JUNE 2012

Editor: Charlie Alison

Published by University Relations, 106 Davis Hall,  
University of Arkansas, Fayetteville, AR 72701.

**ON THE COVER:** The front entrance to Old Main is framed by maple leaves, crisp and yellow at the peak of autumn. The University of Arkansas is a four-season campus, so expect to see those limbs covered with a dusting of snow, verdant buds in the spring and thick, green foliage in the summer. (Photo by Russell Cothren)

The Office of Affirmative Action, Room 4, West Avenue Annex, has been designated to coordinate efforts to comply with the provisions of Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, and the Civil Rights Act of 1991.

# UNIVERSITY OF ARKANSAS 2012-2013 Catalog of Studies

## **Welcome to the University of Arkansas**

This catalog of studies is a comprehensive reference for your years of study – a list of degrees, degree programs and courses offered at the University of Arkansas. In addition, it gives you valuable information such as suggested and required degree plans and information about costs, scholarships and financial assistance, and campus resources. Read it with pleasure and with care.

Take every opportunity to consult your academic adviser to ensure that you are taking advantage of courses and University resources that will help you reach your educational and career goals and graduate on time. If you are not sure where to find your academic adviser, contact the dean's office of your college; the phone numbers are listed on the preceding page. If your major is "undecided," contact the advising office in the J. William Fulbright College of Arts and Sciences at 479-575-3307. Otherwise, call the dean's office in the college or school of your interest.

Remember, the University of Arkansas is committed to your success. The faculty and staff are here to support you as you work to achieve your goals. Ask for help and advice whenever you need it.

The University of Arkansas is committed to the policy of providing educational opportunities to all qualified students regardless of their economic or social status and will not discriminate on the basis of race, color, sex, creed, sexual orientation, disability, veteran's status, age, marital or parental status, or national origin.

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Volume 106; Publication Date: June 2012

The Catalog of Studies is published one time each summer by the Office of University Relations and the Office of Academic Affairs.

This catalog and archived versions of the catalogs from previous years are available online at <http://catalogofstudies.uark.edu/>.

Students who enter a college within the University of Arkansas in the academic year of this catalog generally may expect to follow the graduation requirements set forth by that college in this catalog. Because the faculty of each college reserves the right to change graduation requirements, students should meet with their college advisers regularly to be certain that they are aware of any changes in graduation requirements that may apply to them.

Acceptance of registration by the University of Arkansas and admission to any educational program of the University does not constitute a contract or warranty that the University will continue indefinitely to offer the program in which a student is enrolled. The University expressly reserves the right to change, phase out, or discontinue any program.

The listing of courses contained in any University bulletin, catalog, or schedule is by way of announcement only and shall not be regarded as an offer of contract. The University expressly reserves the right to 1) add or delete courses or programs from its offerings, 2) change times or locations of courses or programs, 3) change academic calendars without notice, 4) cancel any course for insufficient registrations, or 5) revise or change rules, charges, fees, schedules, courses, requirements for degrees and any other policy or regulation affecting students, including, but not limited to, evaluation standards, whenever the same is considered to be in the best interests of the University of Arkansas.

*Fayetteville, Arkansas*

# Contents

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	<b>Page</b>
Academic Calendar .....	4
Board of Trustees.....	6
Administrative Officers.....	7
A Message from the Chancellor .....	8
University Profile .....	9
Undergraduate Fields of Study.....	10
Enrollment Services .....	15
Financial Aid and Scholarships .....	20
Orientation and Registration .....	25
Fees and Cost Estimates.....	28
Academic Regulations.....	34
Academic Facilities and Resources.....	48
University Centers and Research Units.....	51
Student Affairs.....	63
Honors College .....	68
Interdisciplinary Studies .....	70
Dale Bumpers College of Agricultural, Food and Life Sciences .....	73
School of Human Environmental Sciences .....	102
Fay Jones School of Architecture .....	106
J. William Fulbright College of Arts and Sciences .....	123
Sam M. Walton College of Business .....	203
College of Education and Health Professions.....	235
School of Nursing .....	249
College of Engineering.....	261
School of Law .....	279
Reserve Officer Training Corps.....	282
University Faculty.....	284
Glossary.....	305
Course Descriptions.....	307
Index.....	409

# 2012 Academic Calendar

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## Summer Session I 2012 - First Six Weeks (29 Class Days)

May 21	Classes begin
May 22	Last day to register, add a course, or change from audit to credit
May 24	Last day to drop without a mark of "W" or change from credit to audit
May 28	Memorial Day Holiday
June 18	Last day to drop a Session I class
June 29	Last day to officially withdraw from Session I
June 29	Last day of classes for Session I

## Summer Session II 2012 - Second Six Weeks (29 Class Days)

July 2	Classes begin
July 3	Last day to register, add a course, or change from audit to credit
July 4	Independence Day Holiday
July 6	Last day to drop without a mark of "W" or change from credit to audit
Jul 30	Last day to drop a Session II class
August 10	Last day to officially withdraw from Session II
August 10	Last day of classes for Session II

## Summer Session III 2012 - Twelve Weeks (58 Class Days)

May 21	Classes begin
May 24	Last day to register, add a course, or change from audit to credit
May 28	Memorial Day Holiday
May 31	Last day to drop without a mark of "W" or change from credit to audit
July 4	Independence Day Holiday
July 17	Last day to drop a Session III class
August 10	Last day to officially withdraw from Session III
August 10	Last day of classes for Session III

## Summer Session IV 2012 - Ten Weeks (49 Class Days)

June 4	Classes begin
June 6	Last day to register, add a course, or change from audit to credit
June 12	Last day to drop without a mark of "W" or change from credit to audit
July 4	Independence Day Holiday
July 19	Last day to drop a Session IV class
August 10	Last day to officially withdraw from Session IV
August 10	Last day of classes for Session IV

## Summer Session V 2012 - First Five Weeks (24 Class Days)

June 4	Classes begin
June 5	Last day to register, add a course, or change from audit to credit
June 6	Last day to drop without a mark of "W" or change from credit to audit
June 26	Last day to drop a Session V class
July 4	Independence Day Holiday
July 6	Last day to officially withdraw from Session V
July 6	Last day of classes for Session V

## Summer Session VI 2012 - Second Five Weeks (25 Class Days)

July 9	Classes begin
July 10	Last day to register, add a course, or change from audit to credit
July 11	Last day to drop without a mark of "W" or change from credit to audit
July 31	Last day to drop a Session VI class
August 10	Last day to officially withdraw from Session VI
August 10	Last day of classes for Session VI

## Fall 2012 (74 Class Days; 44 MWF, 30 TT)

August 20	Classes begin
August 24	Last day to register, add a course, or change from audit to credit
August 31	Last day to drop without a mark of "W" or change from credit to audit
September 3	Labor Day Holiday
October 15-16	Fall Break (administrative offices will be open)
Oct. 29-Nov. 9	Priority Registration for Spring 2012
November 16	Last day to drop a full semester class
November 21	Thanksgiving Break (administrative offices open)
November 22-23	Thanksgiving Holiday
December 6	Last day to officially withdraw from all classes
December 6	Last day of classes for fall semester
December 7	Dead Day
December 10-14	Final exams
December 15	Commencement

# 2013 Academic Calendar

## Spring 2013 (73 Class Days; 43 MWF, 30 TT)

January 14	Classes begin
January 18	Last day to register, add a course, or change from audit to credit
January 21	Martin Luther King Day
January 28	Last day to drop without a mark of "W" or change from credit to audit
March 18-22	Spring Break Week
April 19	Last day to drop a full semester class
May 2	Last day to officially withdraw from all classes
May 2	Last day of classes for spring semester
May 3	Dead Day
May 6-10	Final exams
May 11	Commencement
May 18	Law School Commencement

## Summer Session I 2013 - First Six Weeks (29 Class Days)

May 20	Classes begin
May 27	Memorial Day Holiday
June 28	Last day of classes for Session I

## Summer Session II 2013 - Second Six Weeks (29 Class Days)

July 1	Classes begin
July 4	Independence Day Holiday
August 9	Last day of classes for Session II

## Summer Session III 2013 - Twelve Weeks (58 Class Days)

May 20	Classes begin
May 27	Memorial Day Holiday
July 4	Independence Day Holiday
August 9	Last day of classes for Session III

## Summer Session IV 2013 - Ten Weeks (49 Class Days)

June 3	Classes begin
July 4	Independence Day Holiday
August 9	Last day of classes for Session IV

## Summer Session V 2013 - First Five Weeks (24 Class Days)

June 3	Classes begin
July 4	Independence Day Holiday
July 5	Last day of classes for Session V

## Summer Session VI 2013 - Second Five Weeks (25 Class Days)

July 8	Classes begin
August 9	Last day of classes for Session VI

MAY 2012						
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31						



# UNIVERSITY OF ARKANSAS Board of Trustees

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**Mike Akin**  
Chair  
Monticello  
Term Expires 2013



**Jane Rogers**  
Vice Chair  
Little Rock  
Term Expires 2016



**Jim von Grempe**  
Secretary  
Rogers  
Term Expires 2015



**Ben Hyneman**  
Assistant Secretary  
Jonesboro  
Term Expires 2018



**Sam Hilburn**  
Little Rock  
Term Expires 2014



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Springdale  
Term Expires 2017



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Fayetteville  
Term Expires 2019



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Moro  
Term Expires 2020



**John Goodson**  
Texarkana  
Term Expires 2021



**Steve Broughton**  
Pine Bluff  
Term Expires 2022

# Administrative Officers

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## SYSTEM ADMINISTRATION

President, University of Arkansas Donald Bobbitt, B.S., Ph.D.

## CHANCELLOR AND VICE CHANCELLORS

Chancellor, University of Arkansas, Fayetteville	G. David Gearhart, B.A., J.D., Ed.D.
Provost and Vice Chancellor for Academic Affairs	Sharon L. Gaber, B.A., M.P.I., Ph.D.
Vice Chancellor for Finance and Administration	Donald O. Pederson, B.S., Ph.D.
Vice Chancellor for Government and Community Relations	Richard Hudson, B.A., M.A.
Vice Chancellor for University Advancement	Brad Choate, B.A., M.S.E.
Vice Chancellor for Intercollegiate Athletics	Jeff Long, B.A., M.A.

## DEANS AND VICE PROVOSTS

Dean of Honors College	Bob McMath, B.A., M.A., Ph.D.
Dean of Dale Bumpers College of Agricultural, Food and Life Sciences	Michael Vayda, B.A., B.S., M.A., Ph.D.
Dean of Fay Jones School of Architecture	Graham F. Shannon, B.A., B.Arch., M.Arch.
Dean of J. William Fulbright College of Arts and Sciences	Robin Roberts, B.A., M.A., Ph.D.
Dean of Sam M. Walton College of Business	Eli Jones, B.S., M.B.A., Ph.D.
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Dean of College of Engineering	Terry Martin, B.S.E.E., M.S.E.E., Ph.D., interim
Dean of School of Law	Stacy L. Leeds, B.A., M.B.A., LL.M., J.D.
Dean of Graduate School and International Education	Todd Shields, B.A., M.A., Ph.D.
Dean of University Libraries	Carolyn Henderson Allen, B.S., M.S.
Dean of Students and Vice Provost for Student Affairs	Daniel J. Pugh, B.S., M.S., Ph.D.
Dean of Admissions and Vice Provost for Enrollment Services	Suzanne McCray, B.A., M.A., Ph.D.
Vice Provost for Academic Affairs	Ro DiBrezzo, B.S., M.S., Ph.D., interim
Vice Provost for Distance Education	Javier Arturo Reyes, B.A., Ph.D.
Vice Provost for Diversity Affairs	Charles F. Robinson II, B.A., M.A., Ph.D.
Vice Provost for Planning	Kathy Van Laningham, B.A., M.A., Ph.D.
Vice Provost for Research and Economic Development	James Rankin, B.S.E.E., M.S.E.E., Ph.D.

# Message from the Chancellor

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Congratulations on your decision to study at the University of Arkansas. You've made a superb choice. If a world-class education is what you are seeking, then there probably has never been a better time in our 140-year history to study here. The spectacular success of the Campaign for the Twenty-First Century has allowed us to provide you with fantastic new educational, recreational, and residential facilities to accommodate the needs of today's student. The 132 newly endowed faculty positions created by the campaign also have allowed us to both retain and attract some of the best teachers, scholars, and researchers found anywhere in the world. More importantly, the 1,738 new student scholarship and fellowship funds created by the campaign have allowed us to attract some of the most academically accomplished students we have ever had. The nation's top students are now choosing the University of Arkansas in record numbers.

So pat yourself on the back. You're part of our university's trend toward excellence. I hope you're as happy to be here as we are to have you. Our top priority at the University of Arkansas is putting you, the student, first. This means providing cutting edge curriculum that is relevant to current needs. This means reducing bureaucratic roadblocks and red tape, and doing everything we can to keep tuition and fee increases to an absolute minimum. We want you to have not only a great education, but a great experience, one you will value for the rest of your life.

I invite you to use this catalog of the University of Arkansas and become better acquainted with who we are and where we're going. On behalf of the university community, we wish you all the best, and we hope this catalog encourages you to take advantage of the lifetime of opportunities awaiting you at the University of Arkansas.

Sincerely,



G. David Gearhart  
Chancellor

# University Profile

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## Vision

The University of Arkansas is a flagship university for the integration of student engagement, scholarship and research, and innovation that collectively transforms lives and inspires leadership for a global society.

## History

Founded as a land-grant college and state university in 1871, the University of Arkansas opened its doors to students on January 22, 1872. Under the Morrill Land-Grant College Act of 1862, federal land sales provided funds for the new university, which was charged with teaching “agricultural and the mechanic arts,” “scientific and classical studies,” and “military tactics” to Arkansas scholars.

Statewide elections, held to establish bonds to help finance the University, eventually determined the school’s location. Washington County and the city of Fayetteville submitted the highest bid, a total of \$130,000, to which was added a \$50,000 state appropriation for the benefit of the institution and \$135,000 from the sale of federal lands. With \$12,000 of this money, the University purchased a 160-acre farm, the homestead of William McLroy, and established its campus on a hilltop overlooking the Ozark Mountains.

There were few facilities and little money that first academic year, but the eight students and three faculty members who gathered for classes in 1872 showed the same dedication to learning and commitment to excellence that has carried the University of Arkansas into the 21st century. Over the past 140 years, the University has developed into a mature institution with nine schools and colleges, more than 950 faculty members, and 23,000 students. It serves as the major provider of graduate-level instruction in Arkansas. The research and scholarly endeavors of its faculty make it an economic and cultural engine for the state. And its public service activities reach every county in Arkansas, throughout the nation, and around the world.

## Mission

As a land-grant university, the University of Arkansas strives to fulfill a three-fold mission of teaching, research, and service. In addition, as the flagship campus of the University of Arkansas System, the University of Arkansas in Fayetteville serves as the state’s major center of liberal and professional education and as Arkansas’ main source of theoretical and applied research.

Students pursue a broad spectrum of academic programs leading to baccalaureate, master’s, doctoral, and professional degrees, not only in traditional disciplines within arts, humanities, social sciences, and natural sciences, but also in the core professional areas of agricultural, food and life sciences; architecture; business; education; engineering; nursing; human environmental sciences; and law.

The University of Arkansas houses more than 200 academic programs and offers bachelor’s degrees in 75 fields of study. Students may also pursue a wide range of graduate degrees, including the Master’s, the Educational Specialist, the Doctor of Education, and the Doctor of Philosophy. Information about graduate programs can be found in the Graduate School Catalog or on the World Wide Web at <http://grad.uark.edu/>.

The Carnegie Foundation categorizes the University of Arkansas as a research institution with “very high research activity,” placing the University among the top

108 universities nationwide and in a class by itself within the state of Arkansas. In its 2011 edition, *U.S. News and World Report* ranked the University among the top tier of institutions of higher education. Faculty members perform cutting-edge research for which they annually win prestigious grants and awards, and the University encourages undergraduates to participate in the research process. Such opportunities enhance the learning process by providing hands-on experience in lab and research techniques, by developing students’ abilities to implement, experiment, discover and teach, and by fostering a mentoring relationship early in students’ academic careers.

Research programs involving both faculty and students serve as vital sources of information on the economic and social needs of Arkansas. In many fields, research performed at the University of Arkansas reaches beyond the state to provide insight and guidance on issues of national and international concern. The University provides extensive technical and professional services to varied groups and individuals throughout the state, helping to further Arkansas’ economic growth. The University operates nationally respected high school and college-level correspondence programs; it assists other institutions in developing educational programs; it offers graduate programs, both cooperatively and singly, throughout the state; and it makes specialized campus resources such as computing services and library holdings available to other institutions in the state.

Classes at the university maintain a 17-to-1 average ratio of students to instructor, although individual classes may range from a large general-lecture class of 200 to a focused special-topics class of 4 or 5 students. University of Arkansas students are given the tools and encouragement needed to excel. Over the last 15 years, Arkansas students have become Rhodes, Gates Cambridge, Madison, Marshall, Goldwater, Fulbright, Boren, Gilman and Truman scholars. Forty students have received National Science Foundation Graduate Research Fellowships

## Location

Fayetteville, a thriving city of 73,000 in the northwest corner of the state, is home to the University of Arkansas. Lying on the hilly western edge of the Ozark Mountains, the city boasts a lively cultural scene and easy access to outdoor recreation. The newly opened Crystal Bridges Museum of American Art in nearby Bentonville is the first major American art museum opened in the last 40 years and gives visitors a look at the most influential artists of the 18th, 19th and 20th centuries.

Northwest Arkansas remains one of the most economically stable regions in the nation, according to the U.S. Census, and was recently included among the top four “Best Places for Work” by CNN/Money. The region is the base of operations for Walmart Stores Inc., Tyson Foods Inc. and J.B. Hunt Transport Services, industry leaders in their respective fields.

Fayetteville’s temperate climate ensures beautiful seasons year-round. Major cultural amenities include the Walton Arts Center, just two blocks from campus, and the Crystal Bridges Museum of American Art in nearby Bentonville.

The Northwest Arkansas Regional Airport has direct flights to most major metropolitan areas, including Atlanta, Chicago, Cincinnati, Charlotte, Dallas, Denver, Houston, Las Vegas, Los Angeles, Minneapolis, New York and Orlando, and the city is within a day’s drive of several larger metropolitan areas, including Dallas, Kansas City, Little Rock, Memphis, St. Louis and Tulsa.

# Undergraduate Fields of Study

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The academic units of the University of Arkansas, Fayetteville, include nine colleges and schools and two military departments: the Dale Bumpers College of Agricultural, Food and Life Sciences, which includes the School of Human Environmental Sciences; the Fay Jones School of Architecture; the J. William Fulbright College of Arts and Sciences, which includes the School of Social Work; the Sam M. Walton College of Business; the College of Education and Health Professions, which includes the Eleanor Mann School of Nursing; the College of Engineering; the School of Law; the Graduate School; the Honors College; and the Departments of Army and Air Force ROTC. In addition, the Division of Continuing Education offers non-credit course work, correspondence courses for credit, and off-campus credit courses in cooperation with colleges and schools at Fayetteville.

The School of Law and the Graduate School offer professional and graduate degrees. See the *Graduate Catalog* and the *Law School Catalog* for more information.

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## FIELDS OF STUDY BY COLLEGE AND SCHOOL

Following is a list of major fields of undergraduate study offered at the University of Arkansas, followed by a list of minors.

### Dale Bumpers College of Agricultural, Food and Life Sciences

- Agricultural Business
- Agricultural Education, Communication and Technology
- Animal Science
- Biological Engineering (joint program with the College of Engineering)
- Crop Management
- Environmental, Soil, and Water Science
- Food Science
- Horticulture, Landscape and Turf Sciences
- Poultry Science

### School of Human Environmental Sciences

- Apparel Studies
- Foods, Human Nutrition, and Hospitality
- General Human Environmental Sciences
- Human Development, Family Sciences, and Rural Sociology

### Fay Jones School of Architecture

- Architecture
- Architectural Studies
- Interior Design
- Landscape Architecture
- Landscape Architectural Studies

### J. William Fulbright College of Arts and Sciences

- American Studies
- Anthropology
- Art

- Biology
- Chemistry
- Classical Studies
- Communication
- Criminal Justice
- Drama
- Earth Science
- Economics (B.A.)
- English
- French
- Geography
- Geology
- German
- History
- International Relations
- Journalism
- Mathematics
- Music
- Philosophy
- Physics
- Political Science
- Psychology
- Social Work
- Sociology
- Spanish

### Second (or dependent) Majors\*

- African and African American Studies
- Asian Studies
- European Studies
- Latin American and Latino Studies
- Middle East Studies

\*A student may pursue a second (or dependent) major if he or she is already pursuing a first major authorized to be given independently.

### Sam M. Walton College of Business

- Accounting
- Business Economics
- Finance
- General Business
- Information Systems
- International Business
- Management
- Marketing
- Retail
- Supply Chain Management

**College of Education and Health Professions**

Career and Technical Education  
 Childhood Education  
 Communication Disorders  
 Community Health Promotion  
 Elementary Education  
 Human Resource Development  
 Kinesiology  
 Nursing  
 Recreation and Sport Management

**College of Engineering**

Biological Engineering  
 Biomedical Engineering  
 Chemical Engineering  
 Civil Engineering  
 Computer Engineering  
 Computer Science  
 Electrical Engineering  
 Industrial Engineering  
 Mechanical Engineering

**Undeclared Major**

Certain degree-seeking students who are temporarily undecided about their choice of a major field of study may select the undeclared major. However, all undergraduate students still must enroll in one of the colleges or schools. Each of these academic units makes provisions for undeclared majors and each has its own rules for the point at which a student must declare a major.

**Minors**

Each college and school of the University of Arkansas can determine whether to offer minors within their respective departments and whether to allow a student to pursue a minor in another college or school. Most, but not all, minors are offered in fields in which a major is also offered. Students should check with academic advisers in their college or school to determine the eligibility and requirements of a minor. They are listed below.

**Interdisciplinary**

Microelectronics-Photonics (administered by the Graduate School)  
 Sustainability (administered by the Provost's Office)

**Dale Bumpers College of Agricultural, Food and Life Sciences**

Agricultural Business  
 Agricultural Communications  
 Agricultural Education  
 Agricultural Systems Technology Management  
 Animal Science  
 Crop Biotechnology  
 Crop Management  
 Entomology  
 Environmental, Soil, and Water Science  
 Equine Science  
 Food Science  
 Human Development and Family Sciences  
 General Foods and Nutrition  
 Global Agricultural, Food and Life Sciences  
 Horticulture  
 Journalism  
 Landscape Horticulture  
 Pest Management  
 Plant Pathology  
 Poultry Science

Turf Management  
 Wildlife Habitat

Minors offered by the J. William Fulbright College of Arts and Sciences  
 Minors offered by the Sam M. Walton College of Business

**Fay Jones School of Architecture**

Interior Design  
 Planting Design  
 Minors offered by any other UA college or school

**J. William Fulbright College of Arts and Sciences**

African and African American Studies  
 Anthropology  
 Arabic  
 Art History  
 Asian Studies  
 Biology  
 Business  
 Chemistry  
 Classical Studies  
 Communication  
 Drama  
 Economics  
 English  
 European Studies  
 French  
 Gender Studies  
 Geography  
 Geology  
 German  
 Historic Preservation  
 History  
 Japanese  
 Latin American and Latino Studies  
 Legal Studies  
 Mathematics  
 Medieval and Renaissance Studies  
 Middle East Studies  
 Music  
 Philosophy  
 Physics  
 Political Science  
 Psychology  
 Religious Studies  
 Social Work  
 Sociology  
 Spanish  
 Statistics

**Sam M. Walton College of Business**

Accounting  
 Banking/Financial Management/Investment  
 Business Economics  
 Enterprise Resource Planning  
 Finance  
 Financial Economics  
 Information Systems  
 Insurance/Real Estate  
 International Business  
 Management  
 Marketing  
 Retail  
 Supply Chain Management

Minors offered by the J. William Fulbright College of Arts and Sciences

### **College of Education and Health Professions**

Recreation and Sport Management

Minors offered by any other UA college or school

### **College of Engineering**

Minors offered by any other UA college or school

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## **PRE-PROFESSIONAL PROGRAMS**

### **Pre-Law**

The University of Arkansas School of Law does not prescribe a specific pre-law curriculum and does not require any single "pre-law major." Prospective students are encouraged to select baccalaureate majors best suited to individual interests and abilities, and writing courses are often very valuable.

A baccalaureate degree is required for admission to the University of Arkansas School of Law, except for those students in the Dale Bumpers College of Agricultural, Food and Life Sciences or the Fulbright College of Arts and Sciences who are admitted to the special six-year program. All applicants for admission are required to take the Law School Admission Test.

### **Other Pre-Professional Programs**

Fulbright College offers pre-professional programs and advisers in law, medicine, dentistry, optometry, medical technology, chiropractic, physical therapy, pharmacy, dental hygiene, occupational therapy, social work, and theology. The Dale Bumpers College of Agricultural, Food and Life Sciences coordinates the pre-veterinary medicine program.

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## **ACCREDITATIONS**

The University of Arkansas, Fayetteville, is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools, available at (312) 263-0456, at <http://www.ncahigherlearningcommission.org/> or by mail at 30 North LaSalle Street, Suite 2400, Chicago, IL 60602. Some colleges and programs are also accredited by other agencies, associations, or professional organizations, including those listed below.

### **Dale Bumpers College of Agricultural, Food and Life Sciences**

The Bachelor of Science in Human Environmental Sciences (B.S.H.E.S.) degree programs are accredited by the Council for Professional Development of the American Association of Family and Consumer Sciences. The degree program in dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics. The Nursery School and the Infant Development Center in the School of Human Environmental Sciences are accredited by the National Association for the Education of Young Children (NAEYC). The Bachelor of Science in Agricultural, Food and Life Sciences (B.S.A.) in food science is accredited by the Institute of Food Technologists. Teacher education programs in agriculture and family and consumer sciences are coordinated with educational programs in the College of Education and Health Professions and are accredited by the National Council for Accreditation of Teacher Education (NCATE).

### **Fay Jones School of Architecture**

The Bachelor of Architecture (B.Arch.) program is accredited by the National Architectural Accreditation Board, and the Bachelor of Landscape Architecture (B.L.A.) program is accredited by the Landscape Architectural Accreditation Board of the American Society of Landscape Architects. The Bachelor of Interior Design (B.I.D.) degree is accredited by the Council for Interior Design Accreditation (CIDA).

### **J. William Fulbright College of Arts and Sciences**

The Bachelor of Science (B.S.) degree program in chemistry is accredited by the

American Chemical Society. The American Council on Education in Journalism and Mass Communications has accredited the Bachelor of Arts (B.A.) degree program in journalism. The Bachelor of Arts (B.A.), Bachelor of Music (B.M.), and Master of Music (M.M.) degree programs in the Department of Music are accredited by the National Association of Schools of Music. The Doctor of Philosophy (Ph.D.) degree program in clinical psychology is accredited by the American Psychological Association. The Bachelor of Social Work (B.S.W.) and the Master of Social Work (M.S.W.) degree programs are accredited by the Council of Social Work Education.

### **Sam M. Walton College of Business**

The Sam M. Walton College of Business offers degree programs for undergraduate students and for graduate students at both the master's and doctoral levels and has been a member of and accredited by AACSB International, the Association to Advance Collegiate Schools of Business, since 1931. The accounting program was separately accredited in 1986 at both the bachelor's and master's levels. The master's in business administration program was approved in 1963. Accreditation by AACSB and membership in that organization signifies the college's commitment to AACSB goals of promoting and achieving the highest standards of business education.

### **College of Education and Health Professions**

The teacher education programs in the College of Education and Health Professions are accredited by the National Council for Accreditation of Teacher Education. The M.A.T. program in childhood education is in compliance with the standards of the National Association for the Education of Young Children. The various M.A.T. licensure programs in secondary education are in compliance with the standards of the specialty organizations including National Council of Teachers of English, National Council of Teachers of Mathematics, National Science Teachers Association, and National Council for the Social Studies. The Master of Science degree program in speech pathology-audiology is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association. The Bachelor of Science in Nursing (B.S.N.) degree program is accredited by the National League for Nursing Accrediting Commission (61 Broadway Street, New York, NY 10006, 212-363-5555, Ext. 153) and is approved by the Arkansas State Board of Nursing. The Bachelor of Science in Education (B.S.E.) degree program in health science, kinesiology, recreation, and dance is accredited by the Council on Accreditation of the National Recreation and Park Association. The Master of Science degree in rehabilitation counseling is accredited by the Council on Rehabilitation Education.

### **College of Engineering**

The College of Engineering offers the following programs accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone (410) 347-7700: Bachelor of Science in Biological Engineering (B.S.B.E.), Bachelor of Science in Chemical Engineering (B.S.Ch.E.), Bachelor of Science in Civil Engineering (B.S.C.E.), Bachelor of Science in Computer Engineering (B.S.Cmp.E.), Bachelor of Science in Electrical Engineering (B.S.E.E.), Bachelor of Science in Industrial Engineering (B.S.I.E.), Bachelor of Science in Mechanical Engineering (B.S.M.E.), and Master of Science in Environmental Engineering (M.S.En.E.).

The College of Engineering offers the following program accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone (410) 347-7700: Bachelor of Science in Computer Science (B.S.)

### **School of Law**

The degree programs in the School of Law on the Fayetteville campus are accredited by both the American Bar Association and the Association of American Law Schools.

## SPECIAL PROGRAMS AND OPPORTUNITIES

### Honors Studies

Interested students should write to the Director of Honors Program in the appropriate college.

The honors program in the Bumpers College of Agricultural, Food and Life Sciences provides students with opportunities for intellectual enrichment beyond the traditional undergraduate experience. This is accomplished through honors courses, completion of an undergraduate capstone honors project or thesis, and other significant activities including interactions with students in honors programs in other colleges. The results of the student's original research or creative project may be published in *Discovery*, the undergraduate research journal of the Bumpers College, or *Inquiry*, the universitywide journal of undergraduate research and creative activity. In support of these efforts, participants in the Honors Program are eligible to receive an honors stipend in support of their research projects. The transcript and diploma of each honors graduate will designate the student as an honors graduate of the college. At the college commencement ceremony, each honors graduate will wear special regalia and have the title of their honors thesis and their mentors' names listed in the graduation program. Students must maintain a cumulative grade-point average of 3.50 and subscribe to the Statement of Ethical Standards to remain in the program. For additional information, see the Bumpers College section of this catalog.

The Fay Jones School of Architecture provides opportunities for students of superior academic and creative ability to enhance and enrich their professional and liberal education by participating in the School's honors programs. For additional information, please see the Fay Jones School of Architecture section of this catalog.

To create an intellectual environment that will challenge the best of students, the J. William Fulbright College of Arts and Sciences provides a comprehensive program of honor studies. From the first year to the senior year, an honors student is provided the opportunity to study with other superior students in small distinctive classes taught by highly motivated and skilled faculty members. There are also opportunities for independent study so that students learn to work on their own and to develop their abilities and interests in ways that are not normally possible in regular college course work. Students participating in a program of honors studies also receive special academic counseling to satisfy their future career objectives. Students are offered every opportunity to achieve a high level of intellectual maturity and accomplishment. For additional information, see the Fulbright College section of this catalog.

The honors program in the Sam M. Walton College of Business is offered to high-achieving students interested in obtaining an outstanding business education at the University of Arkansas. Students who participate in the program will take honors classes in the University core and pre-business curriculum as well as honors colloquia in the Walton College offered exclusively to honors students. The subject matter of these colloquia varies from year to year and focuses on current business issues. Honors students complete a thesis in the senior year. Students in the honors program are entitled to register on the first day of registration week, have exclusive access to an honors computer lab and study area, and will be given priority consideration in such programs as the Arkansas Cooperative Education Program. For further information, see the Walton College section of this catalog.

The honors program in the College of Education and Health Professions enables undergraduate students who have demonstrated potential for outstanding scholarship achievement an opportunity to broaden and deepen their liberal and professional education. Honors students participate in honors seminars, leadership skills development and a required undergraduate thesis/project. Students are provided opportunities to enhance their learning experience through critical thinking, leadership skills development and independent study. For additional information, see the College of Education and Health Professions section of this catalog.

The College of Engineering has established an honors program to challenge superior students with a more in-depth academic program and research experience and to provide a structure for working more closely with faculty members and other students in a team environment. An honors program is highly recommended for individuals planning academic or research-related careers that require considerable critical and original independent thinking. Students must formally apply for admission to the Engineering Honors Program. Once accepted into the program, honors students take a minimum of 12 hours of honors courses (a minimum of 6 of these 12 hours must

be in engineering), participate in undergraduate research and write an undergraduate thesis, and must fulfill any additional departmental requirements. To graduate with honors, a student must hold a cumulative GPA of 3.50 or better for all course work, computed at graduation. For more information, see the College of Engineering chapter of this catalog.

### Campuswide Academic Honor Societies

For other academic honor societies, see the various school and college sections of this catalog.

Golden Key is an academic honor society open to selected juniors and seniors who have a minimum grade-point average of 3.50.

Order of Omega honor society is exclusive to members of the Greek community on the University campus. Selection of members is based upon leadership in the inter-Greek activities, academic honors, and contributions to the University community. A 2.50 GPA is necessary for membership consideration.

Phi Eta Sigma is an academic honor society for freshman students. Membership is selected in the spring each year, and the only requirement is a minimum GPA of 3.50 or better for the first semester of the freshman year.

Phi Kappa Phi is a national honor society whose primary objective is the recognition and encouragement of superior scholarship in all academic disciplines. Junior and senior undergraduate students who have a minimum GPA of 3.85 are eligible for membership. Also eligible are graduate students, registered for one year, who have a minimum GPA of 3.85.

Tau Alpha Upsilon is an honor society that honors outstanding students who live in the University of Arkansas Residence Hall system.

Who's Who, a general honor society, honors students who have excelled in scholarship, leadership and campus activities throughout their college careers. Membership requirements are a minimum cumulative GPA of 2.00, completion of 85 credit hours, and at least two full semesters attendance at the University of Arkansas, Fayetteville, prior to application.

### Campuswide Leadership Honor Societies

**Blue Key** is a service-oriented honor fraternity that recognizes outstanding scholarship, leadership and involvement in campus activities. Applicants must be classified as juniors and meet a minimum GPA of 2.75 for membership consideration.

**Cardinal Key** is a junior service-oriented honor society whose membership selection is based on scholarship, leadership, and community and campus activities. A 3.00 GPA requirement must be met in order to be considered for membership at the end of the sophomore year.

**Cardinal XXX** is a service-oriented honor society whose membership consists of a select group of sophomores. Membership selection is based on scholarship, leadership, and community and campus service. A 3.00 GPA is required for consideration, and selection is made at the end of the freshman year.

**Gamma Beta Phi** is a service-oriented honor society established to recognize and encourage excellence in education. Membership in the organization is open to students who are in the top 20 percent of their class.

**Mortar Board** is a senior honor society that considers outstanding scholarship, leadership, and service to the campus and community when selecting members. Applicants must have a 3.00 GPA in order to be eligible for consideration.

### Graduate and Professional Study

The University of Arkansas is the major center for comprehensive graduate-level instruction in the state, offering students the opportunity to continue their studies or to specialize in a particular field through the Graduate School. The University offers a wide range of graduate degrees, including the master's, the Educational Specialist, the Doctor of Education, and the Doctor of Philosophy. Non-degree graduate certificates are also offered. Information about graduate programs may be found in the Graduate School Catalog or on the World Wide Web at <http://www.uark.edu/grad/>.

The School of Law on the Fayetteville campus offers a juris doctor degree program for qualified students with a bachelor's degree, and it offers the nation's only master's program in agricultural law for students with a law degree. Further information concerning professional study may be obtained by contacting the School of Law dean's office for a copy of the current catalog: University of Arkansas School of Law,



Leflar Law Center, 107 Waterman Hall, Fayetteville, AR 72701, 479-575-3102. The World Wide Web address is <http://law.uark.edu/>.

### Reserve Officer Training Corps

A true job training program, ROTC is offered at the University of Arkansas through both the U.S. Air Force and the U.S. Army. Each department provides a unique, career-oriented set of courses relevant to future leadership positions within its particular branch. In addition to studying Aerospace Education or Military Science, students interact with one another in a practical setting as they examine and apply the dynamics of leadership, management, ethics, communication, and teamwork. Participants are given the background and comprehensive building blocks to become commissioned officers in the U.S. military, if qualified. Physical activities and summer orientation programs are enhanced with continually updated curriculums. Classes are taught by military personnel, ensuring realistic perspectives on the military professions.

In the finest traditions of the University of Arkansas and the ROTC programs, students are challenged to grow, develop and assume responsibilities throughout their academic years. Underlying that teaching is a foundation of service, integrity and excellence – expected and demanded of all officer candidates. Scholarships and details of the two programs are found in the ROTC chapter of this catalog. Army ROTC is located in the Army ROTC building, 479-575-4251 or toll free 1-866-891-5538, <http://www.uark.edu/armyhog/>. Air Force ROTC is located in 319 Memorial Hall, 479-575-3651, <http://www.uark.edu/-afrotc/>.

### Cooperative Education Program

Cooperative Education is a unique program offered by the Office of Career Services that allows students to alternate between going to school and working in their chosen vocation. In addition, the program allows employers the opportunity to train and evaluate future employees before offering them positions.

Employment assignments are diversified to provide students with a variety of experiences related to their major field and with work of increasing difficulty and responsibility. Although the primary objective is to supplement theoretical knowledge with practical experience, students earn full-time pay while on work assignments. This benefit produces welcome income while the students are still pursuing a degree.

Positions are available to students in many disciplines, primarily engineering, architecture, landscape architecture, business, agriculture, natural science and mathematics. Co-op students must be in good academic standing, must be at least 18 years of age, must be making normal progress toward a degree, and must meet the specific requirements of their college. (For example: the College of Engineering and Dale Bumpers College of Agricultural, Food and Life Sciences require completion of the freshman year; Fulbright College of Arts and Sciences requires 45 credit hours and a 2.5 grade-point average; the Walton College of Business requires completion of pre-business program requirements; and the Fay Jones School of Architecture requires completion of the junior year.) In addition, employers may establish their own academic criteria for selecting students.

For further information, contact the Career Development Center, 607 Arkansas Union, 479-575-2805.

### Study Abroad

The University encourages the expansion of students' educational experiences through study abroad. Student exchange programs have been established with Kansai University and Shimane University (Japan), Hankuk University (Korea), Al-Akhawayn University (Morocco), University of Graz (Austria), University of Essex (England), University of Maine (France), and Carlos III University of Madrid (Spain). Other UA study abroad programs include summer/semester/year-long programs in Austria, England, Scotland, Costa Rica, Ireland, France, Germany, Italy, Mexico, and Spain. A limited number of scholarships and travel grants are available each year for these programs.

For more information about study, work, and travel abroad, contact the Office of Study Abroad, a division of the Global Campus, School of Continuing Education and Academic Outreach, 722 W. Maple, 479-575-7582. Students in the Bumpers College of Agricultural, Food and Life Sciences may contact International Agricultural Programs, 307 Hotz Hall, 479-575-6727. Students in the Walton College of Business may contact the Undergraduate Programs Office at 479-575-4622. Students in the College of Engineering may contact the Assistant Dean for International Programs at 479-575-7236.

# Enrollment Services

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## Office of Enrollment Services

232 Silas Hunt Hall, 479-575-3771

## Vice Provost for Enrollment and Dean of Admissions

Suzanne McCray

## Admissions

232 Silas Hunt Hall, 479-575-5346

## Academic Scholarships

101 Old Main, 479-575-4464

## ISIS

500 Hotz Hall, 479-575-2468

## Financial Aid

114 Silas Hunt Hall, 479-575-3806

## Academic Success

055 Gregson Hall, 479-575-2989

## Nationally Competitive Awards

232 Silas Hunt Hall, 479-575-7940

## New Student Orientation

232 Silas Hunt Hall, 479-575-4200

## Registrar

146 Silas Hunt Hall, 479-575-5451

## World Wide Web:

<http://admissions.arkansas.edu/>

**E-mail:** [uofa@uark.edu](mailto:uofa@uark.edu)

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## MISSION

Enrollment Services seeks to enroll a diverse group of capable students, who will engage and excel at the University of Arkansas, and to assist these students in achieving their academic and career goals.

The mission of the Enrollment Services Division of the University of Arkansas is to enroll and graduate students who will engage fully in academic and service programs, develop intellectually and personally, and contribute to the campus, the state, and the global community. Encouraging academic engagement from a diverse group of communities will create a dynamic educational environment that will promote a broad learning experience for the entire campus community. To carry out this mission, the Enrollment Services Division is comprised of eight professional and service-oriented offices: Academic Success, Admissions, Financial Aid, Nationally Competitive Awards, Orientation, Registrar, ISIS, and Scholarships. Through collaborative efforts, Enrollment Services strives to:

- Promote the University of Arkansas and the pursuit of higher education;
- Foster initiatives that support diversity as a key goal of the University of Arkansas community;

- Attract, admit, and prepare new and returning students for enrollment on campus while working with academic affairs to ensure planned and sustainable growth in accordance with institutional priorities;
- Accurately and efficiently reduce financial obstacles through federal, state, institutional scholarship and aid programs;
- Commit to preparing traditional and non-traditional students, including returning adult learners, for academic achievement and success in life;
- Assist future, current and former students as they navigate the administrative requirements to achieve their academic goals;
- Ensure accuracy for registration and academic records;
- Commit to retaining students who enroll at the University of Arkansas and assisting them through academic transitions on their path to graduation;
- Prepare students to be nationally competitive;
- Craft and maintain policy that facilitates effective administration to support Division goals, including coherence of policy across all divisions;
- Develop innovations in the use of technology and information systems aimed at supporting a research engine for best practices in enrollment services and data-based decision making;
- Increase state and global knowledge by achieving a net increase in Arkansas residents holding bachelor's, master's, and doctoral degrees;
- Support the University's pursuit to become a nationally recognized research institution that puts students first.

## ADMISSION

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### UNDERGRADUATE ADMISSION

Any person who intends to register for a course at the University of Arkansas must first be admitted to the University. Students returning to the University after an absence of a fall or spring semester must also complete an application.

The University offers a variety of services to students with physical or learning disabilities through the Center for Educational Access. Students with any type of physical or learning disability are strongly encouraged to contact that office in Room 104 of the Arkansas Union, or call 479-575-3104 (TDD/Voice) to learn more about the specific nature of its services and the overall accessibility of the University.

The University reserves the right to modify admission requirements. Application forms and the most current information about admission requirements are available from the Office of Admissions. Please send all application materials and supporting documents to the following address:

Office of Admissions  
 232 Silas H. Hunt Hall  
 1 University of Arkansas  
 Fayetteville, AR 72701  
 Telephone: 479-575-5346 or 1-800-377-8632  
<http://admissions.arkansas.edu/>

### When to Apply

Students interested in applying to the University of Arkansas for the fall semester are urged to apply by the November 15 preferential deadline. Early admits are given priority when applying for new student orientation and university housing. The preferential application deadline for the spring term is November 1. Applicants for freshman scholarships are encouraged to apply for admissions and complete the separate scholarship application by the priority deadline, November 15. Applicants for entering transfer scholarships should submit completed applications to the Office of Admissions and the Office of Academic Scholarships no later than April 1, for the fall semester, and October 1, for the spring semester.

### Deadlines for Admission Consideration

Applications and required transcripts must be received in the Office of Admissions by the following deadlines to be accepted for the respective enrollment periods.

- Fall – August 1
- Spring – December 20

Students who are unable to submit their applications by the deadline may be denied admission and considered for admission for the following term.

International students should refer to “Admission of International Students” in this chapter for application deadlines, procedures, and requirements.

### How to Apply

1. **Submit a completed application for undergraduate admission and a \$40 non-refundable application fee to the Office of Admissions.** You may apply for admission online at <http://apply.uark.edu>.
2. **Request that all required transcripts be sent to the Office of Admissions.** Only official transcripts will be accepted. Transcripts are not considered official unless submitted in a sealed, stamped envelope, or sent via electronic data interchange from the previous institution. Questionable or unreadable transcripts may be refused.
- High school transcripts are required of all entering freshmen and transfer students with fewer than 24 transferable semester hours.** A preliminary admission will be provided to high school seniors on the basis of sixth- or seventh-semester transcripts.
- College transcripts must be provided from each college or university attended.** Transcripts must be sent directly to the Office of Admissions from each institution attended, in an official sealed school envelope, or sent via electronic data interchange.
3. **All new freshman and transfer students with fewer than 24 transferable credit hours must submit ACT or SAT scores. Non-traditional students applying three or more years after high school graduation have the option of submitting the ACT COMPASS to satisfy testing requirements. The University will not accept test scores taken more than five years prior to enrollment.** Test scores should be sent directly to the University by the testing agency. The University’s institutional codes are: ACT-0144; SAT-6866.
4. **All students born after January 1, 1957, must submit immunization health records to the Pat Walker Health Center after admission.** Immunization proof is required prior to first registration. See <http://health.uark.edu/forms/ImmunizationCompliance.pdf>.
5. **English Proficiency:** Applicants whose native language is not English must submit a Test of English as a Foreign Language (TOEFL) score of at least 550 (paper based), 79 (internet based), or a minimum score of 6.5 on the IELTS (writing) taken within the preceding two years. Students who have completed grades 10-12 at a U.S. accredited high school and have a satisfactory ACT English subscore may request a review for waiver of this requirement. Students transferring from an accredited U.S. institution (or institution in a country where English is the native language) with at least 24 transferable credit hours and successful completion of English Composition I and II with a grade of “C” or above will not be required to submit the TOEFL or IELTS for admission consideration. For more information about the TOEFL, you may write to TOEFL Services, ETS, PO Box 899,

Princeton, New Jersey 08541, or visit <http://www.TOEFL.org/>.

6. **The University shall admit only those applicants whose enrollment will not be detrimental to the quality of life and the educational programs of the University.** The Admissions and Appellate Board has final authority to interpret University admission or transfer policy and to grant a variance. An applicant who has withheld pertinent information regarding educational background or who has falsified information or credentials may be denied admission to the University or, if enrolled, may be immediately withdrawn.

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## ADMISSION OF ENTERING FRESHMEN, ACADEMIC YEAR 2012-13

Applications are reviewed on an individual basis with consideration given to the applicant’s overall grade-point average (GPA), core GPA, class rank, and standardized test scores. New freshmen and those transfer students with fewer than 24 transferable semester hours should have taken or be completing the following college preparatory curriculum in high school:

<b>English</b>	<b>4 units</b>
<b>Mathematics</b>	<b>4 units</b>
(Units must be of equivalent or higher level than Algebra I)	
<b>Social Studies</b>	<b>3 units</b>
<b>Natural Sciences</b>	<b>3 units</b>
<b>1 unit general sciences – 2 units lab sciences</b>	
(Choose two courses from biology, chemistry, and physics laboratory. Two years of principles of technology will meet one unit of natural sciences [physics]. Two years of applied biology/chemistry will meet one unit of natural sciences [biology].)	
<b>Electives</b>	<b>2 units</b>
(To be chosen from English, foreign languages, oral communication, mathematics, computer science, natural sciences, and social studies) As you choose your electives, residents of Arkansas please remember that to be eligible for Arkansas Department of Higher Education scholarships (i.e. Governor’s or Challenge) students must also have 2 years of the same foreign language.	
<b>Total</b>	<b>16 units</b>

Students who have taken these course requirements and who have a high school overall GPA of at least a 3.00 and an ACT of 20 (or SAT of 930 combined critical reading and math) or better meet the general admission requirements. Students not meeting these criteria are still encouraged to apply and will be reviewed for possible admission by the Admissions and Appellate Board.

### Accelerated Admission

Superior high school students who have completed a rigorous college preparatory curriculum may seek admission to the freshman class at the end of their junior year of high school. Applicants for accelerated admission are required to complete certain required subjects during three years of high school study, to submit letters of recommendation, and to submit an ACT or SAT score equivalent to at least the 90th percentile of the University’s previous entering class. Additional information and application materials may be obtained by visiting or calling the Office of Admissions at 1-800-377-8632 or online at <http://admissions.uark.edu>.

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## ADMISSION OF TRANSFER STUDENTS

### Transfer Admission Requirements

Applicants who have attended other colleges or universities after high school graduation are considered transfer students. The applicant must submit official transcripts of all previous college courses attempted whether or not credit was earned and regardless of whether the applicant wishes to transfer any credit. This transcript must be sent directly to the Office of Admissions from each institution attended. All transfer students must meet the following requirements:

1. Have a cumulative GPA of at least 2.00 on all course work attempted, and
2. Be eligible to return to the last institution attended. Grade-point average is calculated on all coursework attempted.

Students who have completed fewer than 24 transferable semester hours must, in addition to the above requirements, meet all requirements for freshman admission (see Admission of Entering Freshmen). Test scores and transcripts are also evaluated to determine whether State of Arkansas requirements for developmental course placement have been met. (See page 25.) For policies regarding transfer of credit from other institutions, see page 41.

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## ADMISSION OF SPECIAL (NON-DEGREE SEEKING) STUDENTS

Applicants who are not interested in working toward a degree while taking classes may, under certain conditions, be approved to do so upon submitting an application for admission. Degree-seeking students attending part-time or as an “undeclared major” should not confuse their status with this special, non-degree seeking category. Students who are admitted provisionally and placed in a non-degree seeking status until they earn a minimum 2.0 GPA on 12 credit hours should also not confuse their status with this special category. The Office of Admissions reserves the right to determine the proper category of admission and to determine what credentials may be required.

Classification as a special student permits enrollment in credit classes (or as an auditor) on a space-available basis; however, special students are not eligible for financial aid, and the University incurs no particular obligation to provide academic advisement.

Admission as a special, non-degree seeking student is not intended to serve as a means of access to regular, degree-seeking status nor is it intended for a person who has earned unsatisfactory grades in previous high school or college course work. Students who have been denied regular undergraduate admission are not eligible for this status. All special students are subject to the same regulations concerning scholastic probation, suspension, and dismissal as other undergraduate students. Students who have previously been assessed developmental course requirements or high school course deficiencies will retain that status as a special non-degree student.

Non-degree seeking students must meet course prerequisites and should be prepared to verify to the department by official documentation that University course prerequisites have been met, if appropriate. Students planning to enroll in any upper-division education courses should verify admission to the Teacher Education Program prior to registration. A non-degree seeking student may not enroll for more than nine hours of courses in a term without approval of the student’s academic dean. No more than 24 semester hours earned while in a non-degree seeking status will apply to a degree at the University.

Unless otherwise specified, students with non-degree seeking status who wish to be admitted into a degree program at the University of Arkansas must apply for admission as such prior to the beginning of the term for which the change of status is requested. All requirements for admission to regular status must then be met, except for students in the provisional non-degree-seeking status.

### When to Apply

Non-degree seeking students must meet the same application deadlines as other students. See the Deadlines for Admission Consideration on the previous page for deadlines.

### How to Apply

The following students may be considered for non-degree seeking status:

1. Visiting students who attend other colleges or universities and wish to enroll at the University to earn credits that they plan to transfer back to their home institution. It is the student’s responsibility to verify with his or her college that courses taken here will be acceptable as transfer credit.

**Application procedure:** Submit a completed application, a non-refundable application fee, and a letter of good standing verifying eligibility to return to the home institution.

2. Students who want to take courses of special interest for personal or professional development but who are not interested in working toward a degree are considered non-degree seeking students. Applicants in this category are normally expected to have been out of high school for five or more years. **Application procedure:** Submit a completed application and non-refundable application fee. Students who have been out of high school less than five years should submit a transcript and test scores verifying that admission requirements have been met.

The application fee is not required for residents of Arkansas who are 60 years and older and wish to participate in the senior tuition waiver program. A PDF is available at [http://admissions.arkansas.edu/senior\\_citizens\\_flyer.pdf](http://admissions.arkansas.edu/senior_citizens_flyer.pdf).

3. Students who already have a college degree and who want to take credit classes but not toward another degree at this time. They are considered non-degree seeking. Credits earned under this classification will not count toward a graduate degree.

**Application procedure:** Submit a completed application and non-refundable application fee. Students who wish to enroll for successive terms should submit a transcript showing the degree.

4. Dually enrolled high school students must have at least a 20 ACT score and a 3.00 high school GPA to enroll. Dually enrolled high school students are ineligible to enroll in remedial courses.

**Application procedure:** Submit a completed application, a non-refundable application fee, ACT or SAT scores, high school transcript, letter of intent regarding courses in which the student wishes to enroll, and a letter of recommendation from the high school principal or counselor. Admissions applications should be submitted at least one month in advance of the term.

Dually enrolled high school seniors who plan to enroll in the fall as regular freshmen must submit a separate application for regular admission for the fall.

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## READMISSION OF RETURNING UNIVERSITY OF ARKANSAS STUDENTS

Any former student who wishes to return to the University after missing a fall or spring semester should complete an application for admission. Students enrolled in University of Arkansas correspondence courses during their absence must be readmitted. A \$40 non-refundable application fee is required for former students.

### When to Apply

An early readmission will enable a student to register during priority registration. The student should submit an application and all appropriate credentials at least one month prior to the time of registration. Registration dates and procedures are found on the schedule of classes online at <http://registrar.uark.edu/465.php>.

### Deadlines for Admission Consideration

Applications and required transcripts must be received in the Office of Admissions by the following deadlines to be accepted for the respective enrollment periods:

Fall – August 1

Spring – December 20

Students who are unable to submit their applications by the deadline may be denied admission and considered for admission for the following term.

### Requirements

1. Students must be academically eligible to return to the University and are readmitted with the same academic status as held during their last attendance. Course work taken at another institution will not affect a student’s probationary status or University GPA. Students may change degree programs on re-admission to the University of Arkansas regardless of academic status, except for students entering the College of Engineering. A student who is not

in good standing may not enter the College of Engineering. Students who have not satisfied their initial provisions of admission (but are still eligible to return) will be required to satisfy those conditions upon their return.

2. Students who have attended another institution while away from the University will be considered returning transfer students and must have either a 2.00 GPA on all college work attempted and/or a 2.00 GPA on all course work attempted since last attending the University of Arkansas. Official transcripts of all course work attempted since last attendance at the University must be submitted. (See Admission of Transfer Students.)
3. FStudents who previously attended or currently attend the University as special, non-degree seeking students and wish to return as degree-seeking candidates must apply for admission as freshmen or transfer students, furnishing all appropriate admission credentials, including any required test scores. All requirements for admission to regular status must be met. (See appropriate section of this catalog for requirements.)
4. Former students who are submitting petitions to either the Academic Standards Committee or the Admission and Appellate Board to request readmission must have on file all required documents by the application deadlines. (See the schedule of classes for deadlines for submitting petitions.)

## ADMISSION OF INTERNATIONAL STUDENTS

All international students must present officially certified academic credentials, evidence of adequate financial support, and, for non-native English speakers only, a minimum TOEFL score of 550 (paper based), 79 (Internet based), or a minimum score of 6.5 on the IELTS, taken within the preceding two years. Students who have completed grades 10-12 at a U.S. accredited high school and have a satisfactory ACT English subscore may request a review for waiver of this requirement. Students transferring from an accredited U.S. institution (or institution in a county where English is the native language) with at least 24 transferable credit hours and completion of English Composition I and II with a grade of "C" or above will not be required to submit the TOEFL or IELTS for admission consideration.

Applicants who meet the academic and financial requirements but who do not meet the English proficiency requirement of the University will be offered conditional admission to attend an intensive English program through the Spring International Language Center. Students will be eligible to enroll in University of Arkansas academic courses upon successful completion of the highest level of the intensive English program with a 3.00 grade average and recommendation of the director of Spring International.

An entering freshman who has completed secondary school at either U.S. or foreign institutions must have a) the equivalent of a final cumulative GPA of at least 2.75 and b) competency equivalent to that developed by taking four years of English and three years each of mathematics, natural sciences, and social studies, and an additional three units of electives chosen from English, speech, foreign languages, mathematics, natural sciences, or social studies in U.S. high schools.

A student transferring with fewer than 24 semester hours of post-secondary coursework at either U.S. or foreign institutions must a) have a cumulative GPA of at least a 2.50 (or its equivalent) on all post-secondary coursework attempted, and b) meet the requirements specified for entering freshmen. A student transferring from either a U.S. or foreign post-secondary institution with at least 24 semester hours must have the equivalent of a cumulative GPA of at least 2.50 on all post-secondary course work attempted.

A non-refundable application fee of \$50 is required for all international applicants. All applications and supporting documents must be submitted by May 31 for the fall semester; October 31 for the spring semester; and March 1 for the summer sessions.

Any international student returning to the University after an absence of a full semester (fall or spring) or more must submit an application for admission. For these students, the application deadlines are August 15 for the fall term and January 1 for the spring term. It should be noted that a student previously enrolled at the University of Arkansas who takes a full term of courses elsewhere and then seeks readmission to the University returns as a transfer student and must meet University admission requirements for international transfer students, submit a photocopy of the I-20 issued

by the transferring institution, and submit a new financial statement. An application fee is not required for returning students.

For specific admission requirements and application materials pertaining to students on F-1, J-1, or any non-immigrant visas, applicants should write directly to the International Admission Office, 346 N. Arkansas Avenue, STON 50, 1 University of Arkansas, Fayetteville, Arkansas 72701, or call 1-479-575-6246 or e-mail [iao@uark.edu](mailto:iao@uark.edu).

Please see the section "Placement and Proficiency Tests" on this page for University policy regarding English language use by non-native speakers.

## ACADEMIC BANKRUPTCY

Students returning to the University after an absence of five or more years may be eligible to declare academic bankruptcy if they meet the following criteria:

1. Must have been enrolled previously at the University of Arkansas, Fayetteville, as an undergraduate student and be returning as an undergraduate student.
2. Must not have been enrolled at the University during the previous five years.
3. Students who have attended another institution since their last attendance at the University must meet requirements for transfer students (2.00 GPA on all coursework attempted more than five years after last enrollment at the University of Arkansas, Fayetteville) to be eligible for readmission.
4. Must submit an application for readmission and official transcripts of all college work attempted since last attendance at the University of Arkansas by the application deadlines and submit a *Declaration of Academic Bankruptcy* form to the Office of the Registrar. The form is available at <http://registrar.uark.edu/1621.php>. The following are the conditions of academic bankruptcy:
  - a. Students will forfeit all credit hours previously awarded by the University of Arkansas, Fayetteville. This includes course work completed at the University (regardless of grades earned), courses accepted in transfer, credit by examination, and any correspondence course work awarded.
  - b. A new calculation of GPA and credit hours will begin when the student returns to the University.
  - c. The transcript will reflect the student's complete record (including all previous college work) with an added notation of "Academic Bankruptcy Declared."
  - d. Courses taken at another institution within five years of the last University of Arkansas enrollment will not be accepted for transfer. Coursework completed more than five years after last attending the University of Arkansas may be accepted in transfer, subject to university transfer credit policies. For purposes of this policy, University of Arkansas correspondence coursework will be treated in the same manner as transfer work.
  - e. For the University to provide appropriate advising and (as required by Arkansas Act 1052) appropriate assessment, a student may be required to submit ACT, SAT, or ACT COMPASS test scores prior to registration for classes if, as a result of academic bankruptcy, that student is returning to the University as a freshman with fewer than 24 transfer hours.

## PLACEMENT AND PROFICIENCY TESTS

ACT, SAT and ACT COMPASS scores are used to determine placement in University courses. Students whose scores indicate the need for additional preparation may be placed in courses designed to prepare them for college-level work. (See Arkansas Requirements for Developmental Course Placement on page 25.) Credit earned in such courses does not count toward degrees in all colleges. (See Courses That Do Not Count toward Degrees, page 26.)

### Freshman Composition Placement

- Students with ACT English scores lower than 19, SAT verbal scores lower than 470, or ACT COMPASS writing skills lower than 75 should enroll in the course sequence ENGL 0003, ENGL 1013, and ENGL 1023.

- Students with ACT English scores of 19-27, SAT verbal scores of 480-620, or ACT COMPASS writing skills of 75 or higher should enroll in ENGL 1013 and ENGL 1023.
- Students with ACT English scores of 28-29 or SAT verbal scores of 630-670 may enroll in ENGL 1013 and ENGL 1023 or in Honors English (ENGL 1013H and ENGL 1023H).
- Students with ACT English scores greater than 29 or SAT verbal scores greater than 680 may enroll in Honors English (ENGL 1013H and ENGL 1023H) or elect exemption. Some degree programs require credit in composition, and students should confer with their advisers before exempting.

### The Math Placement Test

All new first-year freshman students will be required to take the online mathematics placement assessment, available starting in April. To take the assessment, or for more information regarding it and its requirements, visit the University of Arkansas Mathematical Sciences at <http://math.uark.edu/>

### Speech Communication Exemption Examination

Students who have had speech in high school and/or experience in public speaking may elect to take this test for exemption from or credit in COMM 1313. Both the written and oral (a five-minute impromptu speech) examinations must be passed to receive exemption or credit.

### Foreign Language Placement Examinations

Students with previous foreign language experience in French, German, or Spanish are encouraged to take language placement examinations offered during summer orientation. Those test scores will be used by academic advisers to determine an appropriate foreign language placement level. Students who omit one or more courses in the basic language sequence will receive credit for omitted courses when they have validated their high placement by passing the course into which they were placed with a "C" or better. Conversation courses (3033, 4033) and correspondence courses may not be used to validate such prior knowledge; and no degree credit (graduation credit) is awarded for a foreign language 1003 course to students in the J. William Fulbright College of Arts and Sciences unless they completed two years of a different language in high school.

### General Chemistry Placement Examinations

These tests will be offered throughout the year. Students who performed at above average levels in high school chemistry may find it to their advantage to enroll directly in the second semester of general chemistry. This examination is designed to provide guidance in making this course selection. Students who place into the second semester of general chemistry and earn a grade of "C" or better in the course will also receive credit for the first semester of the course.

### English Language Use by Non-Native Speakers

Non-native speakers of English admitted to undergraduate study at the University of Arkansas are required to present an acceptable score on one of the following tests: TOEFL (TWE), Internet based TOEFL (iBT) (writing), IELTS (writing), or ELPT (writing). Depending upon exam scores, a student may be required to take one or more EASL courses prior to the beginning of classes in their first term of study. Non-native speakers in the following categories are exempt from this requirement:

1. Undergraduate students who transfer at least 24 hours of credit from U.S. institutions, including courses that meet the freshman composition requirement;
2. Undergraduate students who have completed grades 10 through 12 in and graduated from a U.S. high school and have obtained an ACT English section score of 19 or above or a SAT verbal score of 460;
3. Graduate students who earned bachelors or master's degrees from U.S. institutions or from foreign institutions where the official and native language is English;
4. Undergraduate students with a Test of Written English (TWE) score of 5.0 or iBT writing score of 28 or IELTS writing score of 6.5;
5. Graduate students with a Test of Written English (TWE) score of 5.0 or iBT

writing score of 29 or IELTS writing score of 7.0;

6. Graduate students with a GRE Analytical Writing score of 4.5 or GMAT Analytical Score of 4.5.

Diagnostic and placement testing is designed to test students' ability to use English effectively in an academic setting, and its purpose is to promote the success of non-native speakers in completing their chosen course of study at the University of Arkansas. Test results provide the basis for placement into English as a Second Language (EASL) support courses or course sequences. Courses are offered by the Department of Foreign Languages for those students whose language skills are diagnosed as insufficient for college-level work at the level to which they have been admitted (undergraduate or graduate study). Credit in EASL courses does not count toward University of Arkansas degrees. Non-native speakers diagnosed as having language competence sufficient for their level of study will not be required to enroll in EASL courses.

The ELPT is administered by Testing Services during New Student Orientation and there is a \$10.00 charge.

Undergraduate and graduate students assessed EASL courses are required to complete these courses during their first semester of enrollment at the University.

## GRADUATE SCHOOL ADMISSION

Applications for admission to the University of Arkansas Graduate School and two official copies of transcripts of the applicant's academic record at each college and university attended since high school graduation must be submitted to the graduate school admissions office and approved in advance of registration. The transcripts will become a part of the student's permanent file at the University. Applications may be obtained by writing to the Graduate and International Admissions Office, 346 N. Arkansas Avenue, STON 50, 1 University of Arkansas, Fayetteville, AR 72701; by calling 479-575-6246; by e-mailing [gradinfo@uark.edu](mailto:gradinfo@uark.edu); or by applying on the World Wide Web at <http://apply.uark.edu>.

Additional information and procedures for making application to the Graduate School are included in the Graduate School Catalog.

### Admission to Graduate Standing

To be admitted to graduate standing, a student must have earned a baccalaureate degree from a regionally accredited U.S. institution or from an institution with substantially equivalent requirements for a baccalaureate degree and must have a GPA of 3.0 or better on the last 60.0 credit hours of attempted coursework prior to receiving the baccalaureate degree.

Admission to graduate standing does not admit a student to a specific program of study leading to a graduate degree. Therefore, in addition to satisfying the general requirements of the Graduate School, the applicant must also comply with the specific requirements and have the approval of the department in which graduate study is desired.

Under certain conditions, applicants for admission to the Graduate School may be required to present satisfactory scores on the Graduate Record Examinations (GRE) or another specified national standard test.

For further information, see the *Graduate Catalog* at <http://catalogofstudies/uark.edu/2691.php>.

## SCHOOL OF LAW ADMISSION

A baccalaureate degree is required for admission to the University of Arkansas School of Law, except for those students in the J. William Fulbright College of Arts and Sciences or in the Dale Bumpers College of Agricultural, Food and Life Sciences who are admitted to the special six-year program. All applicants for admission are required to take the LSAT. (See page 121 for the Fulbright College Pre-Law Program or page 79 for the Dale Bumpers College of Agricultural, Food and Life Sciences.)

For complete details concerning admission to the University of Arkansas School of Law, see the School of Law Catalog or write to Office of Admissions, Leflar Law Center, University of Arkansas, Fayetteville, AR 72701; or by calling 479-575-3102. Applications can be submitted online at <http://apply.uark.edu/>.

# Financial Aid and Scholarships

## FINANCIAL AID

The University of Arkansas annually awards over \$100 million of financial aid and scholarships to students. Financial aid is divided into categories of grants, work, loans, and scholarships. Students need to complete the Free Application for Federal Student Aid (FAFSA), which analyzes the ability of the student's family to pay for college; and the various scholarship applications offered through the Academic Scholarship Office, the university's colleges and departments and the Arkansas Alumni Association. These forms collect information used by the Office of Financial Aid and the University's scholarship committees in determining awards. In some cases, copies of the parents' and/or student's tax returns are needed.

## DETERMINING FINANCIAL NEED

To determine financial need, a student must complete the FAFSA. Students release their information to the University of Arkansas by completing the college release section with the University of Arkansas Title IV Code of 001108.

There is a priority date of **MARCH 1** for the submission of the FAFSA for the approaching school year for new students. Federally funded financial aid will be awarded on the basis of need as reflected by the FAFSA.

The Student Aid Report from the FAFSA (consisting of several pages) will be sent directly to the student by the Central Processing Service. A student needs to be enrolled or accepted for enrollment before a financial aid award may be generated. To continue receiving financial aid, the student needs to make satisfactory progress toward a degree, as defined by the University of Arkansas, and complete the FAFSA each year. (See Satisfactory Academic Progress in next column.)

## APPLICATION PROCEDURE

1. Apply for admission to the University, if not currently enrolled or admitted.
2. Complete the Free Application for Federal Student Aid (FAFSA) and submit it to the federal processor by mail or online. You may submit the FAFSA on the Web at <http://www.fafsa.ed.gov/>.

Students hoping to be considered for scholarships need to have their application for admission and a separate application for scholarships submitted by November 15 to the University for priority consideration. Students applying for Honors College, Bodenhamer, Sturgis and Boyer Fellowships should also submit the materials for scholarships by the November 15 deadline for priority consideration, then submit the supplemental fellowship application materials by the specific fellowship application deadlines. Please check with your department for earlier deadlines and additional forms.

To receive priority consideration for financial aid, all forms and applications need to be submitted by March 1. Students are encouraged to apply even if they miss this priority date. Funds will be available after the priority date.

A student has a couple of choices concerning processing his or her FAFSA. These include mailing the form to the Federal Student Aid Programs or submitting

it electronically on the Web at <http://www.FAFSA.ed.gov/>. The processing time for electronic applications is three days, and processing time for mailed applications is four to six weeks.

## SATISFACTORY ACADEMIC PROGRESS

Federal regulation requires that a student must be making satisfactory academic progress regardless of whether he or she has previously received Title IV aid. All students enrolled at the University of Arkansas who receive financial aid through the Title IV Assistance Programs must meet satisfactory academic progress requirements as defined below to be eligible for further aid. Satisfactory academic progress is deemed to have been made by any undergraduate student who meets both the quantitative and qualitative requirements indicated below.

### Quantitative Requirements

There are two quantitative requirements that the student must meet to remain eligible to apply for financial assistance. First, the student must pass, at a minimum, 67 percent of the credits attempted while attending the University. Also, the student will remain eligible to apply for aid as long as the number of credits attempted is not more than 150 percent of the number of credits required for the student's degree.

A transfer student may have earned credits at another school that will count toward his or her degree at the University of Arkansas. Class credits transferred to the University of Arkansas are used in both the 67 percent and 150 percent calculation.

The determination of each student's meeting the quantitative requirements for satisfactory academic progress will be made annually following the conclusion of the spring semester. If a student fails to pass at least 67 percent of the credits attempted or has attempted more than 150 percent of the number of credits required for graduation, then the student must appeal for reinstatement of financial aid eligibility.

### Qualitative Requirements

A student is deemed to have met the qualitative requirements for satisfactory academic progress for financial aid purposes provided the student's cumulative GPA, based upon their last term of enrollment not being greater than the previous spring term, is within an acceptable range. By default, students who do not have any university or transfer credits will pass the qualitative requirement. The units of transfer credit and units attempted are combined when determining a student's qualitative GPA range used in their SAP calculation. The cumulative GPA range used is listed below.

Total Credits (Transferred and Attempted)	Minimum Cumulative GPA
1 -16	1.50
17-32	1.60
33-45	1.75
46-60	1.90
60 and above	2.00

## Graduate and Law Students

Satisfactory academic progress for graduate and law students is determined as described above with one exception. In order to meet the quantitative requirement, the student must pass with at least a grade of “C,” at a minimum, 67 percent of the credits attempted while attending the University at the graduate level.

# SCHOLARSHIPS

The Academic Scholarships Office is a part of Enrollment Services and is housed in Old Main, Room 101.

The University of Arkansas, Fayetteville, awards over 3,000 scholarships totaling more than \$12 million for students each year. This total does not include funds that support such external scholarships held by UA students as Governor’s Scholarships, Arkansas Academic Challenge Scholarships or non-resident tuition waivers. Scholarships funded by the University fall into three broad categories: prestigious fellowships, academic scholarships, and special interest/skills scholarships. The scholarship information contained below applies to students entering for the 2012-2013 academic year. Current high school students interested in matriculating for the 2013-2014 academic year are encouraged to consult the Academic Scholarships Office website at <http://scholarships.uark.edu> for the most up-to-date information.

## SCHOLARSHIPS FOR NEW STUDENTS

### Prestigious Fellowships (See chart below)

The University of Arkansas offers approximately 85 prestigious fellowships per

year. The fellowships are given in one of four different programs: Honors College Fellowships, established in 2002; Bodenhamer Fellowships, established in 1998; Sturgis Fellowships, established in 1985; and Bodenhamer Fellowships, established in 1998; the Boyer Fellowships, established in 2000. The prestigious fellowships are among the most competitive in the nation and are awarded to the top 2 percent of students. Fellowships are awarded competitively, and each Fellow receives up to \$50,000 for four years of study (or \$62,500 for the five-year Bachelor of Architecture, Bachelor of Landscape Architecture and the Master of Arts in Teaching programs). Students who wish to apply should visit the website at <http://honorscollege.uark.edu/>.

### Academic Scholarships (See chart on following page)

A number of academic scholarships also are awarded to entering freshmen. Selection criteria include national test scores (ACT or SAT), grade-point average, National Merit or National Achievement recognition, quality and quantity of courses taken, application materials, and other pertinent factors. For online information, go to <http://scholarships.uark.edu/>. Transfer student scholarships are awarded to students transferring from two-year colleges in Arkansas in conjunction with the Arkansas Association of Two Year Colleges’ (AATYC) Academic All-Star program. Nominations are submitted to the AATYC and recognized at their annual conference. Additional transfer student scholarships are also available. See [scholarships.uark.edu](http://scholarships.uark.edu).

### UA Scholarships – General Information

The following regulations govern the general University freshman scholarships described below:

1. **NOVEMBER 15** is the priority scholarship deadline for entering freshmen.

Applicants must apply to the University by November 1 to be considered for these scholarships.

PRESTIGIOUS UNDERGRADUATE FELLOWSHIPS				
Name	Annual Award	Eligibility Criteria	Application Procedure	Renewal Criteria
<b>Honors College Fellowship</b>	\$12,500 per year and out-of-state differential	32 ACT/1420 SAT and 3.80 GPA or higher. Strong academic curriculum and exceptional academic performance. Letters of recommendation required. Competitively awarded.	Requires application for admission along with the Honors College Fellowship application. <b>Priority Deadline:</b> November 15 (Scholarship Priority Consideration Deadline) <b>Final Deadline:</b> February 1	Cumulative 3.00 GPA and 30 hours earned by the end of the second semester of each academic year. Renewable for 4 years or 8 semesters total. (For programs with degree plans longer than 4 years, extra semester(s) of funding may be available.)
<b>Bodenhamer Fellowship</b>	\$12,500 per year and out-of-state differential	32 ACT/1420 SAT, 3.80 GPA or higher. Strong academic curriculum and exceptional academic performance. Demonstrated leadership. Letters of recommendation required. Competitively awarded.	Requires application for admission along with the Honors College Fellowship application. <b>Priority Deadline:</b> November 15 (Scholarship Priority Consideration Deadline) <b>Final Deadline:</b> February 1	Cumulative 3.00 GPA and 30 hours earned by the end of the second semester of each academic year. 4 years or 8 semesters total. (For programs with degree plans longer than 4 years, extra semester(s) of funding may be available.)
<b>Sturgis Fellowship</b>	\$12,500 per year and out-of-state differential	For majors in Fulbright College of Arts & Sciences. 32 ACT/1420 SAT and 3.80 GPA or higher. Strong academic curriculum and exceptional academic performance. Demonstrated intellectual curiosity and creative pursuits. Letters of recommendation required. Competitively awarded.	Requires application for admission along with the Honors College Fellowship application. <b>Priority Deadline:</b> November 15 (Scholarship Priority Consideration Deadline) <b>Final Deadline:</b> February 1	Cumulative 3.00 GPA and 30 hours earned by the end of the second semester of each academic year. Renewable for 4 years or 8 semesters total.
<b>Boyer Fellowship</b>	\$12,500 per year	For majors in the Sam M. Walton College of Business. 32 ACT/1420 SAT and 3.75 GPA or higher OR National Merit or National Achievement semifinalist. Strong academic curriculum and exceptional academic performance. Letters of recommendation required. FAFSA demonstrated financial need required. Graduation from an Arkansas high school and Arkansas residency required. Competitively awarded.	Requires application for admission along with the Honors College Fellowship application ( <a href="http://honorscollege.uark.edu">honorscollege.uark.edu</a> ). <b>Priority Deadline:</b> November 15 (Scholarship Priority Consideration Deadline) <b>Final Deadline:</b> February 1	Cumulative 3.50 GPA, good standing in the honors program and 30 hours earned by the end of the second semester of each academic year. Renewable for 4 years or 8 semesters total.



SCHOLARSHIPS				
Name	Annual Award	Eligibility Criteria	Application Procedure	Renewal Criteria
<b>Chancellor's Merit Scholarship</b>	Up to \$10,000, plus the amount of either a Corporate or a UofA National Merit Scholarship, per year toward the direct cost of education, includes out-of-state tuition differential	National Merit or National Achievement finalists.  Exceptional academic performance.  Competitively awarded	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Cumulative 3.00 GPA and 30 hours earned by the end of the second semester of each award year. 4 years or 8 semesters total (5 years for the Bachelor of Architecture, Bachelor of Landscape Architecture, and Master of Arts in Teaching programs).
<b>Chancellor's Scholarship</b>	Up to \$8,000 per year toward direct cost of education, including tuition, fees and double-occupancy room and board in UA residence hall or Greek housing.	Applications are competitive and typically come from the top 5 percent of the applicant pool.  National Merit Semifinalists and National Achievement Semifinalists are also considered.  Competitively awarded	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Criteria same as for Chancellor's Merit Scholarship. (see above)
<b>Chancellor's Community Scholarship</b>	\$5,000 per year	Top applicants in the applicant pool who also have a demonstrable commitment to community service.	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Criteria same as for Chancellor's Merit Scholarship. (see above)
<b>Honors College Academy Scholarship</b>	\$4,000 per year	Top applicants from the applicant pool with a minimum 27 ACT and 3.50 GPA. Competitively awarded.	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Criteria same as for Chancellor's Merit Scholarship. (see above)
<b>The New Arkansan Non-Resident Tuition Scholarship Award</b>	Out-of-state tuition differential. Variable amount based on hours enrolled  The New Arkansan Fee will be assessed to new students receiving the award. See <a href="http://scholarships.uark.edu/index.php/nrta">http://scholarships.uark.edu/index.php/nrta</a> for more information.	Students from TX, MS, LA, KS, MO, OK or TN must have a 3.25 GPA. Entering freshmen for Fall 2012 must score 24 on the ACT (1090 SAT); Transfer students must have 24 credit hours and a 3.00 GPA.	Apply for admission. No scholarship application is required.  <b>Deadline:</b> on a rolling basis until funds are exhausted	Renewable with completion of 24 hours per academic year, 2.75 minimum GPA. Up to 4 years (5 years for students in Architecture or the Master of Arts in Teaching program).
<b>Freshman Academic Scholarship</b>	\$1,000 non-renewable	Students who have demonstrated outstanding academic achievement.  Competitively awarded.	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Non-renewable
<b>University of Arkansas Leadership Award</b>	\$2,000 per year	Students who have demonstrated outstanding academic achievement and leadership potential.  Competitively awarded.	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Criteria same as for Chancellor's Merit Scholarship. (see above)
<b>Silas Hunt Distinguished Scholarship</b>	Variable awards of \$5,000 or \$8,000	Students who have demonstrated outstanding academic leadership qualities and potential and are from under-represented communities, which include but are not limited to: under-represented ethnic and minority groups; students with interest in fields of study that do not attract members of their ethnicity or gender; under-represented counties in Arkansas; or a first-generation college student. Competitively awarded.	Apply for admission. Complete Entering Freshmen Scholarship Application ( <a href="http://scholarships.uark.edu">http://scholarships.uark.edu</a> )  <b>Priority Deadline:</b> November 15	Criteria same as for Chancellor's Merit Scholarship. (see above)
<b>Arkansas Academic All Star Transfer Scholarship</b>	AATYC Academic All Star receives full-tuition scholarship.	Strong academic performance in transfer college credit earned from an Arkansas two-year institution.	Students nominated as AATYC Academic All Star by their two-year college.	Cumulative 3.00 GPA and 24 hours per year of eligibility.
<b>Chancellor's Transfer Scholarship</b>	\$3,000 per year	Arkansas residents with strong academic performance at Arkansas two-year colleges.	<b>Deadline:</b> April 1 for fall semester and October 1 for spring semester	Cumulative 3.00 GPA and 24 hours per year of eligibility. Renewable for one year.
<b>Transfer Scholarship</b>	\$2,000 per year. Renewable for one year.	Strong academic performance at another 2-year or 4-year college or university.	<b>Deadline:</b> April 1 for fall semester and October 1 for spring semester	Cumulative 3.00 GPA and 24 hours per year of eligibility. Renewable for one year.

2. An “entering freshman” is defined as a student who has not enrolled in another post-secondary institution in a fall or spring semester following graduation from high school.
3. Eligibility for renewal of Chancellor’s and general University scholarships is determined at the end of the second semester each award year. Students may “catch up” in summer terms by taking classes at their own expense on the Fayetteville campus.
4. These scholarships are generally awarded per academic year to cover the fall and spring terms, up to an eight-semester maximum for most students, or a ten-semester maximum for students in the Bachelor of Architecture, Bachelor of Landscape Architecture and the Master of Arts in Teaching programs, each of which is a five-year program. Renewal criteria are evaluated every two semesters.
5. A student who is placed on academic warning forfeits his or her scholarship effective the semester of academic warning. See <http://registrar.uark.edu/424.php> for a full description.

### Scholarships, Grants, and Other Awards for Non-Resident Students

See page 32 in the Fees & Costs chapter.

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## COLLEGE AND DEPARTMENTAL SCHOLARSHIPS

The following college and departmental scholarships are available to entering freshmen at the University of Arkansas. Complete addresses and phone numbers of the colleges, schools, or departments listed below may be found in the respective college or school sections of this catalog.

### Fay Jones School of Architecture

The Fay Jones School of Architecture offers a limited number of scholarships at various amounts to entering freshman in any of the degree programs offered by the School. Several scholarships are renewable annually to the recipient who maintains all the requirements of the scholarship.

Many upper level scholarships are available to continuing students. Applications are available in the fall, and recipients are selected in the spring for the following academic year. For more information and scholarship applications, please go to: <http://architecture.uark.edu/126.php>.

### J. William Fulbright College of Arts and Sciences

The J. William Fulbright College of Arts and Sciences offers many outstanding scholarship opportunities. For comprehensive information about these awards, call 479-575-4801 or visit the Web at <http://fulbright.uark.edu/students/scholarships.php>.

Three college-wide scholarships merit special attention: Through the Sturgis Fellowship Program, Fulbright College offers premier scholarships worth \$50,000 over four years to exceptionally talented students with the intellectual potential to become future leaders in society. In addition, all honors students are eligible to apply for research and study abroad funding through the Sturgis Grants Program. For information or an application, contact Director of Honors Studies at 479-575-2509.

The King Fahd Center for Middle East and Islamic Studies offers substantial four-year and two-year renewable scholarships to superior students majoring in Middle East Studies. The program also offers competitive funding for language study in Morocco, Tunisia, and Egypt. Funding for summer study abroad and research projects is considered on a case-by-case basis. Scholarship applications and information about the program can be obtained by contacting [mest@uark.edu](mailto:mest@uark.edu) or calling 479-575-4157.

In honor of the Fulbright commitment to international education, the College offers the J.W. and Elizabeth W. Fulbright Endowed Scholarship, which supports a year of study abroad. To qualify, students must display an interest in one of the following fields: literature, history (including theatre, art, and music history), jurisprudence, philosophy, archaeology, comparative languages, and those aspects of the social sciences that employ philosophical or historical approaches. For more information about these opportunities, call 479-575-4801 or visit <http://fulbright.uark.edu/students/scholarships.php>.

### Dale Bumpers College of Agricultural, Food and Life Sciences

Scholarship opportunities within Bumpers College include the Division of Agriculture Land Grant Scholars Endowment Program which offers renewable scholarships to high achieving students; The Dale Bumpers Distinguished Scholars Program which provides an annual scholarship to an outstanding transfer student, an outstanding Ph.D. graduate student, and an outstanding M.S. graduate student; and International Study Abroad scholarships for students expanding their experiences around the world.

Information and application procedures for the more than 200 Bumpers College and departmental scholarships is available at <http://bumperscollege.uark.edu/39.htm> or by contacting the Scholarship Management Coordinator at 479-575-2252, or via email to [dbcafls@uark.edu](mailto:dbcafls@uark.edu).

### Sam M. Walton College of Business

The Boyer Fellowship is offered to Walton College students who have achieved at an outstanding level both in and out of the classroom. High grades and standardized test scores are required along with a strong academic curriculum and exceptional academic performance. Applicants for the Boyer Fellowship also must demonstrate financial need, be an Arkansas resident, and graduate from an Arkansas high school.

Other scholarships are available through the departments of accounting, information systems, economics, finance, management, marketing, and supply chain management as well as through the Walton College’s general scholarship program. Scholarships are primarily awarded on the basis of academic achievement and/or financial need.

For further information on Walton College scholarships, contact the Undergraduate Programs Office at 479-575-4622.

### College of Education and Health Professions

The College of Education and Health Professions offers several hundred scholarship awards each year varying in amounts. Recipient selection is based on a variety of different attributes that are specific to each award. Attributes may include but are not limited to: academic achievement, financial need, and character.

Scholarship applications are available during the month of January each year. The application is electronic and can be found on the college’s website at <http://coehp.uark.edu/scholarships.html>. Applications must be submitted by January 31st. All current and future students are strongly encouraged to apply. For further information please contact Lori Foster at 479-575-4212 or [lfoste@uark.edu](mailto:lfoste@uark.edu).

### College of Engineering

The College of Engineering awards numerous scholarships and fellowships beginning with the sophomore year to continuing students, transfer students, and graduate students. Most scholarships are based, primarily, on academic performance. However, scholarships are also awarded on the basis of financial need and diversity. Scholarships are available from both the college and its individual departments.

College scholarships are available to any engineering student while departmental scholarships are meant for students enrolled in a particular discipline of engineering. Students must be admitted to the University of Arkansas and accepted into the College of Engineering to qualify and receive either a college or departmental scholarship. The college has a one-step application process that allows a student to be considered for all college level scholarships and departmental scholarships.

For more information concerning scholarship and diversity opportunities, please see <http://www.engr.uark.edu/home/247.php>.

### Music and Band

The Department of Music offers scholarships (both music scholarships and band scholarships) for talented students who sing or play instruments. All scholarships are based on musical ability, academic achievement, and potential contribution to music department ensembles. Scholarships are renewable for up to five years (ten semesters), as long as the student meets the conditions specified on the scholarship letter or contract.

Music and band scholarships are available to music majors and to students majoring in other areas who participate in certain ensembles. All scholarships require an

audition. To set up an audition, contact the music department at 479-575-4701 or the band office at 479-575-4100.

## SPECIAL SCHOLARSHIPS AND CONDITIONS

### ACT 1185

Arkansas income taxpayers who earn a minimum of \$5,500 in wages and, with their dependents, reside in a bordering state in a county or parish contiguous to an Arkansas county in which a public institution of higher education is located may enroll at the University of Arkansas and receive non-resident tuition award under the provisions of ACT 1185 of 1995, Section 34. The availability of funds may vary each year, and the students must provide certain documentation. Please contact the Academic Scholarships Office at 479-575-4464 for more information.

### Arkansas Alumni Association Scholarships

The Arkansas Alumni Association, through its members and chapters, sponsor five scholarship and grant programs. See brief information in the chart below. For information on the Arkansas Alumni Association, please visit <http://alumni.uark.edu/>.

### Air Force and Army ROTC

The Air Force and Army Reserve Officer Training Corps programs offer a number of scholarship opportunities for entering freshmen and on-campus students. See the Reserve Officer Training Corps section of this catalog for detailed information.

### Military Benefits

The University of Arkansas is approved by the Arkansas Department of Higher Education and the Federal Department of Veterans' Affairs to participate in benefit programs for veterans and their dependents who are working toward a degree. Veterans of recent military service, service members, members of reserve units, and the dependents of certain other service members may be entitled to educational assistance payments under the following programs: Title 38, Chapter 30, Montgomery GI Bill for Active Duty; Title 38, Chapter 31, Vocational Rehabilitation and Employment Program; Title 38, Chapter 32, Post-Vietnam Era Veterans' Educational Assistance; Title 38, Chapter 33, Post-9/11 GI Bill; Title 38, Chapter 35, Survivors and Dependents Educational Assistance Program; Title 10, Chapter 1606, Montgomery GI Bill for Selective Reserves; Title 10, Chapter 1607, Reserve Educational Assistance Program (REAP); and Federal Veterans' Affairs Work Study Allowance Program.

Students must be working toward a degree and following the curriculum outline for their objectives, since only specific courses may be applied toward VA certification and graduation. Students inquiring about educational benefit eligibility should contact the university's Veterans Resources and Information Center at 479-575-8742 for further information.

Additionally, the University of Arkansas offers 20 one-year scholarships in the amount of \$3,000scholarships to support current and former members of the United States military services and their eligible dependents. Students should contact the Academic Scholarship Office at 479-575-4464 for further information.

ARKANSAS ALUMNI ASSOCIATION SCHOLARSHIPS				
Name	Annual Award	Eligibility Criteria	Application Procedure	Renewal Criteria
Alumni Association Endowed Scholarship	\$6,500 per year for four years	Incoming freshmen with a minimum GPA of 3.60 and 24 ACT or 1090 SAT	Request applications on the web ( <a href="http://arkansasalumni.org">arkansasalumni.org</a> ), by e-mail <a href="mailto:scholarships@arkansasalumni.org">scholarships@arkansasalumni.org</a> or by phone 1-888-ARK-ALUM.	3.00 GPA and completion of 30 hours per year.
Arkansas License Plate, "Roads" Scholarship - Alumni Board of Directors Scholarship	\$2,500 per year for four years	Applicant finalists from the Alumni Association Endowed Scholarship who are residents of Arkansas. Non-Resident finalists will receive equivalent Alumni Board of Directors Scholarship.	Applications from the Alumni Endowed Scholarship will be considered.	3.00 GPA and completion of 30 hours per year.
Razorback Generations Scholarship	\$2,500 per year for four years	Arkansas finalists from the Alumni Association Endowed Scholarship with a family connection to the University of Arkansas, Fayetteville.	Applications from the Alumni Endowed Scholarship will be considered.	3.00 GPA and completion of 30 hours per year.
Alumni Chapter Scholarships	Variable amount based on chapter funds	Minimum GPA of 3.50 and 24 ACT	Applications from the Alumni Endowed Scholarship will be considered.	Varies from chapter to chapter
Alumni Legacy Scholarship	Out-of-state tuition differential. Variable amount based on hours enrolled.  \$560 program fee per fall and spring semesters will be assessed for undergraduate non-residents receiving this award.	Non-resident students admitted as degree-seeking students with a 3.0 GPA and 20 ACT/930 SAT. Must have a parent, grandparent, aunt, uncle, sibling or spouse who graduated from the UofA and is an Arkansas Alumni Association member.	Complete a Legacy Scholarship Application on the Web ( <a href="http://arkansasalumni.org">arkansasalumni.org</a> ) or contact the alumni scholarship office (1-888-ARK-ALUM).	Renewable for up to 8 semesters with the completion of 24 hours and a cumulative 2.75 GPA per year.
Membership Funded Scholarship	Need-based scholarships of variable amounts	Minimum high school GPA or 3.60 and 24 ACT or 1090 SAT. Applicants must have a FAFSA on file with the University of Arkansas. Preference is given to students whose EFC is less than \$6,500 per year.	Applications from the Alumni Endowed Scholarship will be considered.	Recipients must reapply for renewal consideration.

# Orientation and Registration

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## ORIENTATION

All new undergraduate students are expected to participate in an orientation experience. The orientation program is designed to introduce every aspect of the university community to our students, enabling them to establish a bond with the institution and those here to support them. A significant aspect of this experience will be to provide students with information about the learning opportunities, resources, policies, support systems, and student activities at the University. New freshmen must attend orientation before enrolling in classes. For more information on New Student Orientation, go to <http://orientation.uark.edu/>.

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## REGISTRATION

Undergraduate students, including students not declaring a major, must enroll in one of six academic units: the J. William Fulbright College of Arts and Sciences; the Dale Bumpers College of Agricultural, Food and Life Sciences, the Sam M. Walton College of Business, the College of Education and Health Professions, the College of Engineering, or the Fay Jones School of Architecture. Information regarding registration periods and procedures is found on the Web site of the Office of the Registrar at <http://registrar.uark.edu/>.

### Registration Periods

Students must register during one of the formal registration periods. Currently enrolled students are expected to register during the priority registration held each semester for the following semester. New freshmen are expected to register during orientation. New freshmen not already registered during orientation should register during the open registration period that immediately precedes the beginning of classes each semester. New transfer students should contact their academic college for advising and registration information. There is a late registration period of five days at the beginning of fall and spring semesters and a one- or two-day late registration period at the beginning of the summer sessions, but students may find that many classes are filled.

### Student Addresses

It is the responsibility of all students to maintain and correct their addresses with the University and to report any change of address promptly either in writing to the Office of the Registrar or on the Student Information System at <http://isis.uark.edu/>. Failure to do so may result in undelivered official correspondence and announcements. Emergency contact information is also required.

Important academic announcements are frequently sent to the students through University assigned e-mail accounts. Students must check this account frequently to avoid missing critical notices.

### Identification Cards

Identification cards are made at orientation and at the ID Card Office during the

year. Several privileges on campus require an ID card, and it can be used as a debit card for purchases at various locations throughout the campus. Part-time students are also eligible for a card.

### Academic Advising

Academic advising is an active, ongoing exchange between the advisers and students, grounded in teaching and learning. Advising is based on students gaining accurate and appropriate information and direction to help make their educational experience relevant, coherent, and meaningful. It is a process that assists students in connecting with the University of Arkansas, making thoughtful decisions related to their academic experiences, and maximizing their educational and career opportunities. Quality academic advising is essential to achieving the University's vision. (Academic Advising Council Mission Statement, 2010)

While procedures may vary among schools and colleges, all successful academic advising should include the following:

- A mutual respect between adviser and student with the student possessing final responsibility for successful completion of a degree.
- A developmental and educational process that occurs over time.
- Consideration of individual students' interests, abilities, and needs.
- A collaborative effort to connect students to campus resources and services.
- Reasonable availability and accessibility to advisers.
- Interpretation of University of Arkansas, college, and departmental rules and courses.
- A student's understanding of the purpose and nature of the university core courses.
- Recommendation of appropriate courses.
- A student's understanding of and progress toward academic requirements.
- General information regarding career options and opportunities, with appropriate referrals as necessary.
- Respect for students' ethnic and racial heritage, age, gender, culture, national origin, sexual orientation, and religion, as well as their physical, learning, and psychological abilities.
- An understanding of and adherence to laws and regulations that relate to academic advising.
- Adherence to the highest principles of ethical behavior.

The University is committed to developing each student to his or her fullest potential. To this end, programs in each college have been established to improve the academic achievement and persistence of students on academic warning and of other students in need of academic assistance. Such assistance is provided through a variety of instructional and informational services.

### Arkansas State Requirements for Developmental Course Placement

Arkansas law specifies that all first-time entering freshmen enrolled in a bachelor's degree program will be placed in either college-level credit courses in English and mathematics or remedial courses in English composition, reading, and mathematics on the basis of their scores on specified tests.

- Students who score below 19 on the English section of the ACT or below 470 on the verbal score of the SAT must enroll in ENGL 0002 Basic Writing, which does not carry degree credit.
- Students who score below 19 on the reading section of the ACT or below 470 on the verbal score of the SAT must enroll in ENGL 0013 Reading Strategies for College Students, which does not carry degree credit.
- Students who score below 19 on the mathematics section of the ACT or below 460 on the quantitative portion of the SAT must enroll in MATH 0003 Beginning and Intermediate Algebra, which does not carry degree credit. (The Mathematical Sciences Department requires higher ACT/SAT scores for students to be placed in Math courses above MATH 0003. Please see the Course Descriptions for MATH for details.)
- Students may place out of assigned remedial courses with appropriate scores on the relevant subject placement tests offered through the University.
- Students will be required to register for these courses during their first term at the University and, if necessary, in subsequent terms until passing grades have been earned in all required courses. Students must successfully complete any required developmental course in English before enrolling in freshman composition. Students must successfully complete any required developmental course in mathematics before enrolling in a college-level mathematics course. Students who need further information or clarification regarding this law are encouraged to discuss this with their academic adviser or dean.

### Courses That Do Not Count toward a Degree

The following courses do not count toward degree credit in any college or school ENGL 0002, ENGL 0013, and MATH 0003.

The following courses do not count toward any degree in the College of Engineering: MATH 1203 College Algebra, MATH 1213 Plane Trigonometry, MATH 1284C Pre-calculus Mathematics, and ENGL 2003 Advanced Composition.

### Registration for Grades of Pass-Fail

Students in some programs may register to take certain courses on a pass-fail basis. In such cases, a mark of “CR” (passed) or a grade of “F” (failed) will be recorded.

Students in the J. William Fulbright College of Arts and Sciences, the Fay Jones School of Architecture, and the Dale Bumpers College of Agricultural, Food and Life Sciences are eligible to enroll for certain courses on a pass-fail basis under the following conditions:

1. That such registration is approved by the student’s adviser. (Students in Agricultural, Food and Life Sciences must also have the approval of their academic dean.)
2. That the student has attained sophomore rank or higher.
3. That the student is not on academic warning and has achieved a cumulative grade-point average of at least 2.00.
4. That such enrollment is limited to one course per semester.
5. That the total enrollment on a pass-fail basis be limited to no more than 18 hours in any student’s degree program.
6. That the courses involved are not part of the student’s major and are not specifically required as part of the student’s degree program.
7. Normally, registration for pass-fail credit will be completed prior to the final date for changing registration by adding a course.

Grades for students enrolled on a pass-fail basis will be reported on final grade rosters in the usual manner. The dean’s office will review each report and will authorize the registrar to record “CR” or “F” on the student’s official academic record, as appropriate. The “CR” marks will not be counted in grade point averages but will increment hours earned; the “F” grade will be counted in the grade point average.

Students in the College of Education and Health Professions may enroll in courses on a pass-fail basis under the same conditions but only in courses offered by the Fulbright College of Arts and Sciences and the College of Education and Health Professions. Walton College of Business and College of Engineering students may not take courses on a pass-fail basis.

### Undeclared Major

Degree-seeking students who are undecided about their choice of a major field of study will be considered to have an undeclared major. However, all undergraduate students must enroll in one of the colleges or schools. Each of these academic units makes provisions for undeclared majors, and each has its own rules concerning the point at which a student must declare a major. Again, academic advisers will be of great assistance in determining the college or school in which a student with an undeclared major should enroll.

Walton College of Business students have the pre-business classification with an intended major until they complete specific lower-division courses, a process that normally takes four semesters. All engineering students are classified as pre-engineering students until they have satisfied the pre-professional program, which is normally completed during the freshman year.

### Registration for Audit

Students wishing to audit a class should contact the instructor teaching that class and request permission to audit. If the instructor approves the audit, the academic department will register the student in that class as an audit. Auditing of a class is allowed on a space-available basis, and a student must pay fees for that class. The instructor shall notify the student of the requirements for receiving the mark of “AU” for the course being audited. The instructor and the student’s dean may drop a student from a course being audited if the student is not satisfying the requirements specified by the instructor. The student is to be notified if this action is taken. The only grade or mark that may be awarded is “AU.”

### Adding and Dropping Courses

A currently enrolled student who has registered during the advance registration period should make any necessary or desired schedule adjustments such as adding or dropping courses or changing course sections during the schedule-adjustment period of the same semester. Students may also add or drop courses during the first five class days of a fall or spring semester. Students who drop classes by the fifth day of classes in the fall and spring semesters will have their fees adjusted. (Refer to the Office of the Treasurer’s Web site at [http://treasurer.uark.edu/Drop\\_Add\\_Class.asp](http://treasurer.uark.edu/Drop_Add_Class.asp) for summer dates and other sessions). Fee adjustments are not done for classes dropped after the first week of class. Drops and withdrawals are two different functions. In a drop process, the student remains enrolled. The result of the withdrawal process is that the student is no longer enrolled for the term. The two functions have different fee adjustment policies. Fee adjustment deadlines for official withdrawal are noted on the Treasurer’s Web site.

A student may drop a full-semester course during the first 10 class days of a fall or spring semester without having the drop shown on the official academic record. After the first 10 class days, and before the drop deadline of the semester, a student may drop a course, but a mark of “W,” indicating the drop, will be recorded. A student may not drop a full-semester course after the Friday of the thirteenth week of classes in a fall or spring semester. Drop-add deadlines for partial semester courses and summer classes are listed on the semester calendars located on the Office of the Registrar’s Web site at <http://registrar.uark.edu>.

### Withdrawal from Registration

Withdrawing from the University means withdrawing from all classes that have not been completed up to that time. A student who leaves the University voluntarily before the end of the fall or spring semester must withdraw from all classes on the student registration system or notify the Office of the Registrar in writing. Withdrawal may occur anytime during the semester through the last day of classes. Withdrawal deadlines for summer sessions are listed on the semester calendars located on the Office of the Registrar’s Web site, <http://registrar.uark.edu>. Students who do not withdraw officially from a class they fail to complete will receive an “F” in that class. Students with holds on their registration should contact the Office of the Registrar for assistance in processing their official withdrawal from the University.

The deadline for a full fee adjustment for an official withdrawal is the day before the start of classes for that term. After that date a \$45.00 withdrawal fee will be charged, and a percentage of the fees will be refunded. Refer to the Office of the Treasurer’s Web site for the deadlines and percentages.

## Course Loads

While University offices and services typically recognize the full-time status of students who have enrolled for a minimum of 12 semester hours, students should bear in mind that this minimum number of hours is insufficient to allow them to complete a four-year degree program in eight academic semesters (four years). Since most University degree programs require a minimum of 124 semester hours, or 31 hours per year, a student should earn 15 to 16 hours per semester to complete most degree programs in four years (eight semesters). The University offers degree-completion plans; see the Office of the Registrar's Web site at <http://registrar.uark.edu> or the Academic Regulations section of this catalog.

## Number of Hours Allowed per Semester

The number of hours in which a student is allowed to register includes Independent Study courses taken through Global Campus.

1. Students who wish to carry more than 18 hours per semester must first obtain the permission of their academic deans.
2. Students who wish to carry more than 21 hours per semester must first request and receive favorable action from the Academic Standards Committee.
3. Students on academic warning may not carry more than 12 hours per semester unless approved by their academic dean's office or advising center.
4. Students on academic suspension who choose the limited enrollment option may not carry more than 9 hours for that semester unless permission has been requested and granted by the Academic Standards Committee.
5. Students who wish to exceed the normal summer school load must have the approval of their academic deans to take more than seven hours in five- or six-week sessions or 13 to 14 hours in 10- or 12-week sessions. Students who wish to take more than eight hours in one five- or six-week session or more than 14 hours in one 10- or 12-week session must first receive favorable action from the Academic Standards Committee.
6. For students with severe injury or illness of a temporary or permanent nature, less than 12 hours may be certified on a semester-by-semester basis as full-time with the approval of the student's dean and the concurrence of a physician or licensed examiner.

### STUDENT STANDING

Definitions of undergraduate student classification are as follows:

Classification	Course Hours Passed
Freshman	< 30
Sophomore	≥ 30 but <60
Junior	≥ 60 but <90
Senior	≥ 90

# Fee and Cost Estimates

Educational expenses will vary according to a student's course of study, personal needs, and place of residence. All fees, charges, and costs quoted in this catalog are subject to change without notice. A survey tool for tuition and fee estimation is available at <http://treasurer.uark.edu/Tuition.asp?pagestate=Estimate>.

Financial obligations to the University must be satisfied by the established deadlines. Payment may be made at the University Cashier's Office in the Arkansas Union, Room 214, by cash, personal check, money order or certified check. Echeck (electronic check) and credit/debit payments are made online at <https://isis.uark.edu/>. If you pay with a debit or credit card, there is a convenience fee charged of 1.7 percent.

Acceptance of payment for fees does not imply academic acceptance to the University.

## ESTIMATED NECESSARY EXPENSES FOR AN ACADEMIC YEAR

Estimates of necessary expenses for the 2012-13 academic year for a typical undergraduate student taking 30 credit hours per academic year at the University of Arkansas:

	Undergraduate Resident	Undergraduate Non-Resident
Tuition <sup>1</sup>	\$6,142.00	\$17,022.00
University Fees <sup>2</sup>	1,412.00	1,412.00
Books	1,278.00	1,278.00
Personal Expenses	2,188.00	2,188.00
Transportation	1,780.00	1,780.00
Room <sup>3</sup>	5,494.00	5,494.00
Board <sup>3</sup>	3,178.00	3,178.00
<b>TOTAL<sup>4</sup></b>	<b>\$21,472.00</b>	<b>\$32,352.00</b>

1. The standard undergraduate in-state tuition rate is \$204.70 per credit hour. Students enrolled in College of Business courses are charged \$239.50 per credit hour in-state tuition. School of Architecture students are charged \$220.05 per credit hour in-state tuition. Nursing students are charged \$241.98 per credit hour in-state tuition.

2. University fees per year include the following student-initiated and student-approved fees:

Student Activity fee calculated at \$2.64/credit hour	79.20
Student Health fee, calculated at \$7.25/credit hour	217.50
Media fee, calculated at \$0.69/credit hour	20.70
Transit fee, calculated at \$2.53/credit hour	75.90
Network Infrastructure and Data Systems fee (\$11.97/credit hour)	359.10
Facilities Fee, calculated at \$10.00/credit hour	300.00
College of Arts and Sciences Fee (\$12.00/credit hour)	360.00

3. Weighted average expenses for living in a residence hall, double occupancy, with an unlimited meal plan. Actual room and board fees vary from \$7,702.00 to \$10,018.00 per academic year.

4. Budget amounts were adjusted for rounding to accommodate ISIS budgetary rules.

When paying tuition, room and board, and associated fees, anticipated financial aid for a current semester may be deducted when it is listed as anticipated aid on ISIS.

Students receiving financial aid are strongly encouraged to have sufficient personal funds available to purchase books and to meet necessary expenses for at least one month at the start of school as some aid funds may not be available for disbursement.

The latest information regarding costs and other aspects of University life may be obtained by calling or writing the Office of Admissions, 200 Hunt Hall, University of Arkansas, Fayetteville, AR 72701. In Arkansas call 1-800-377-8632; from outside of Arkansas call (479) 575-5346.

## TUITION FEES

Students classified as "in-state" for fee payment purposes are assessed tuition. Students classified as "out-of-state" for fee payment purposes are assessed additional non-resident tuition.

Official policies of the University of Arkansas Board of Trustees provide the basis for classifying students as either "in-state" or "out-of-state" for purposes of paying student fees. Board policies relating to residency status for fee payment purposes are included at the end of this chapter of the catalog. Out-of-state students who question their residency classification are encouraged to contact the Registrar's Office, 146 Silas H. Hunt Hall, for more information about residency classification review procedures. The New Arkansan Non-Resident Tuition Scholarship Award Program Fee will be assessed for undergraduate non-residents (including transfer students) and international students who enter in the fall 2011 and who are receiving the Non-Resident Tuition Award. The fee will be \$560.00 per semester (fall and spring only) as long as students are receiving the award.

## Academic Year

Undergraduate students are assessed tuition of \$204.70 per credit hour. Students with out-of-state residency status are assessed tuition of \$567.41 per credit hour.

Undergraduate students enrolled in developmental instruction courses are charged tuition of \$122.50 per credit hour in-state and \$485.21 per credit hour for out-of-state students.

Undergraduate students enrolled in the Walton College of Business courses are charged tuition of \$239.50 per credit hour in-state and \$663.87 per credit hour for out-of-state students.

Undergraduate students enrolled in the Fay Jones School of Architecture are charged tuition of \$220.05 per credit hour in-state and \$609.97 per credit hour for out-of-state students.

Undergraduate nursing students are assessed tuition of \$241.98 per credit hour. Students with out-of-state residency status are assessed tuition of \$670.74 per credit hour.

## Summer Sessions

Undergraduate students are assessed tuition of \$204.70 per credit hour in-state and \$567.41 per credit hour for out-of-state.

Undergraduate students enrolled in the Walton College of Business courses are charged tuition of \$239.50 per credit hour in-state and \$663.87 per credit hour for out-of-state students.

Undergraduate students enrolled in the Fay Jones School of Architecture are charged tuition of \$220.05 per credit hour in-state and \$609.97 per credit hour for out-of-state students.

Undergraduate students enrolled in developmental instruction courses are charged tuition of \$122.50 per credit hour in-state and \$485.21 per credit hour for out-of-state students.

Undergraduate nursing students are assessed tuition of \$241.98 per credit hour. Students with out-of-state residency status are assessed tuition of \$670.74 per credit hour.

## FEE ADJUSTMENTS

### Academic Semesters and Summer Sessions

Students who officially withdraw (dropping ALL classes that have not been completed up to that time) from the University of Arkansas during the regular fall or spring semesters receive a cancellation of fees (see chart below), less an Administrative Withdrawal fee of \$45. Students who officially withdraw from a summer session or who drop classes in the summer also receive a cancellation of fees (see chart below).

ADJUSTMENTS OF TUITION AND FEES	
Adjustment Percentage	If withdrawn
100%	before the first day of the semester/session
90%	through the first 10% of days in the semester/session
80%	through the second 10% of days in the semester/session
70%	through the third 10% of days in the semester/session
60%	through the fourth 10% of days in the semester/session
50%	through the fifth 10% of days in the semester/session
40%	through the sixth 10% of days in the semester/session

### Student Invoices

Students who pre-register for a semester will be invoiced approximately three weeks prior to the first day of classes. The Treasurer's Office will send out an email notification when the student invoices are available on ISIS. Students should log into ISIS at <http://isis.uark.edu>, navigate to the Finances section of the Student Center, and click the 'Student Invoice' link located under the My Account section.

### Late Fees

Students who register for the fall 2012 and spring 2013 semesters are required to pay all charges by the posted payment deadline. Students who fail to pay all charges or who fail to execute an installment payment plan by the deadline may be assessed a late payment fee equal to the outstanding balance, not to exceed \$50.00.

Any student with an outstanding balance, to include registration-related fees and/or housing charges, by the last payment deadline will be assessed an additional late payment fee equal to the outstanding balance, not to exceed \$50.00.

The late fee will not be waived because an invoice was not received.

### Disbursement of Refunds

Disbursement of refunds due to overpayments by scholarships, loans, and/or grants will begin approximately five (5) days prior to the start of classes. Checks will be mailed to the student's permanent address unless a check address has been established on ISIS. Students may also receive a refund through direct deposit. Sign up for direct deposit through the Student Center on ISIS. The link is located beneath "account inquiry" on the left side of the screen.

### Addresses

Students may create a check address, which will be used specifically for overpayment checks. This address may be created in addition to the local and permanent addresses. If a check address is not created, the default address will be the permanent address. The student may change their address on the ISIS Web site in the Student Center.

## STUDENTS CALLED INTO ACTIVE MILITARY SERVICE

When a student or student's spouse is activated for full-time military service during a time of national crisis and is required to cease attending the University of Arkansas without completing and receiving a grade in one (1) or more courses, they shall receive compensation for the resulting monetary loss as provided by Fayetteville Policy 504.2. To be eligible for the compensation, the student must provide, prior to activation or deployment for military service, an original or official copy of the military activation or deployment orders to the Registrar. A student whose spouse is a service member shall provide proof of registration with the Defense Enrollment Eligibility Reporting System (DEERS) of the Department of the Defense that establishes that dependent children reside in the household of the student and the service member. Upon leaving the University of Arkansas because of active duty or deployment, the student may

FEES*		
Title	Description	Amount**
FACILITIES FEE	Provides support dedicated specifically to campus facilities needs, including major projects and deferred maintenance.	10.00
MEDIA FEE	The University's student publications, specifically the Arkansas Traveler newspaper and the Razorback yearbook, are partially funded by the media fee. Students reserving a copy are provided with a Razorback yearbook.	.69
NETWORK INFRASTRUCTURE AND DATA SYSTEMS FEE	Provides support for the development and operation of the campus network, including electronic equipment, servers with software, and cabling. The network systems serve computer labs, academic and administrative buildings, residence halls and off-campus access facilities. Data systems will enable Web-based access to the University's information systems for students, faculty, and staff. Also provides support for upgrades and replacement of the student information system.	11.97
STUDENT ACTIVITY FEE	Empowers the Associated Student Government (ASG) to make funding available to over 300 Registered Student Organizations and program activities on campus to develop lasting friendships and leadership abilities and provide all students with a unique opportunity to participate in cultural, social, educational, and recreational events throughout the year.	2.64
STUDENT HEALTH FEE	Covers the cost of office visits by physicians, registered nurses, and other health professionals, medical evaluations, women's health visits, and counseling and psychological service visits. Other services covered by the health fee include health promotion and education and 24-hour emergency care for counseling and psychological needs.	7.25
TRANSIT FEE	Helps fund the Razorback Bus Transit System, which services the campus and neighboring community year round.	2.53

\* Assessed each academic semester for which the student is enrolled: fall, spring, and summer  
 \*\*per credit hour



choose one of three compensatory options. The student may officially withdraw and receive full adjustment and refund of tuition and non-consumable fees for the term involved; the student can remain enrolled and arrange for a mark of “Incomplete” for each class and finish the courses twelve (12) months after deactivation; or the student may receive free tuition and fees for one (1) semester after deactivation. For more detailed information, refer to Fayetteville Policy 504.2

**WAIVER OF TUITION AND FEES FOR SENIOR CITIZENS**

Arkansas residents who are 60 years of age or older and show proper proof of age may choose to have tuition and fees waived under the senior citizen waiver of fees. Admission and enrollment under these conditions is open only on a “space available” basis in existing classes and students choosing to use this waiver may not register until just prior to the beginning of the term.

**ROOM AND BOARD**

**University Housing  
(Rates are subject to change)**

Single freshmen under 21 years of age are required to live in University residence halls, fraternity or sorority houses, or with their parents, unless permission to live off-campus has been obtained through University Housing. Permission to reside off-campus is granted on a semester basis and must be obtained prior to enrolling or prior to the semester in which off-campus residency is desired.

Costs of room and board in University residence halls during the 2012-13 academic year range from \$7,702.00 to \$10,018.00 for double occupancy rooms and with an unlimited meal plan. Single rooms are additional and are available on a first-come, first-serve basis.

Housing for married students, students with family status, nontraditional, graduate, and law students is limited and requires early application.

Summer rates for room in University residence halls during summer sessions are \$32.69 per day for a single. Charges start on the requested move-in day and run through the date of check-out.

Specific questions concerning on-campus living or meal plans may be directed to University Housing (479) 575-3951. Specific questions concerning sorority and fraternity living may be directed to the Office of Greek Affairs (479) 575-5001.

**Off-Campus Housing**

Students eligible to live off-campus may contact local real estate offices for rental information or check <http://offcampushousing.uark.edu/>.

**OTHER GENERAL FEE INFORMATION**

Checks tendered to the University are deposited immediately. The University does not accept postdated checks. Checks returned for “insufficient funds” (NSF checks) are generally presented for payment only once. Each check returned by a bank for any reason will be assessed a returned check fee. The University may, at its discretion, verify available bank funds for any checks written for payment of indebtedness before accepting a check.

The University of Arkansas reserves the right to withhold transcripts or priority registration privileges, to refuse registration, and to withhold diplomas for students or former students who have not fulfilled their financial obligations to the University. These services may also be denied students or former students who fail to comply with the rules governing the audit of student organization accounts or to return property entrusted to them.

Requests for exceptions to University’s fees, charges, and refund policies must be made in writing. Instructions for submitting requests for exceptions to the various fees, charges, and refund policies of the University may be obtained as follows:

For residence life and dining services fees, charges, and refund policies contact University Housing, Attention: Assistant Director for Business, Hotz Hall, 9th floor, (479) 575-3951.

PROGRAM/SERVICE SPECIFIC FEES	
Arkansas Non-Resident Tuition Scholarship Award Program Fee (charged to all students receiving the Non-Resident Tuition Award)	\$560.00/semester
Autism Support Program Fee	5,000.00/semester
English Language Placement Test (ELPT)	\$15.00
CLEP Registration Fee	25.00
Compass Fee	30.00
Graduation fees: Certificate	45.00
Baccalaureate Degree	75.00
I.D. Card	
First card	22.00
Each replacement card	18.00
Jean Tyson Child Development Study Center	
Materials per semester	35.00
Infants/Toddlers/Pre-School per week	250.00
Installment Payment Plan	25.00
International student (non-immigrant) application fee	50.00
International student per semester service fee (non-immigrants)	85.00
Sponsored Student Management Fee	300.00
International Visiting Student Program Fee	250.00
Late payment:	
On fifth day of classes if balance has not been paid	50.00
Additional fee at Nov. 30, April 30, and July 31 for fall, spring, and summer, respectively, if payment has not been made	50.00
Mandatory international student health insurance	1,334.00/year
New student orientation fees:	
First Year Experience (New Admits Only)	55.00
Students (New Admits Only)	85.00
Parents	50.00
Nursing Application Fee	45.00
Parking Permit (per vehicle)	
Remote	54.78
Student	81.45
Resident Reserved	528.04
Parking Garage Reserved	719.76
Motorcycle	54.78
Scooter	7.42
Residence Hall nonrefundable application fee	35.00
Residual ACT	50.00
Spoken Language Placement Test (SLPT)	65.00
Study Abroad Service fee	
Per program, fall and spring	200.00
Per program, summer	100.00
Test Handling Fee	15.00
TOEFL	60.00
Transcript Fee - Official Copy	5.00
Miller Analogies Test (MAT)	70.00
Undergraduate application for admission	40.00
Additional late application fee	25.00
Withdrawal from the University fee	45.00

<b>COLLEGE/COURSE SPECIFIC FEES</b>	
<b>COLLEGE OF AGRICULTURAL, FOOD AND LIFE SCIENCES</b>	
Agricultural and Extension Education Fee AGED 3141L	\$10.00/semester
Agricultural and Extension Education Fee AGME2123	7.00/credit hour
Agricultural and Extension Education Fee AGME 4973	3.00/credit hour
Apparel Studies Laboratory Fees HESC 1023, 1053, 2053, 2013, 3003, 4063, 4033	15.00/credit hour
Equine Behavior & Training ANSC 2304	25.00/credit hour
Fifth-year Internship Fee (M.A.T.) AGED 575V	100.00/semester
Horticulture Laboratory Fee HORT 3113	3.50/credit hour
Jean Tyson Child Development Study Center Fee HESC 2402 and 2401L, HESC 3402 and 3401L	15.00/credit hour
M.A.T. Fifth-year Internship Fee AGED 575V	100.00/semester
School of Human Environmental Sciences Fees HESC 1411L, 2111L, 2403, 2433, 3401L, 4103, 4332, 4332L, 4342, 4342L, 4373, 4472, 4472L	15.00/credit hour
Teaching Internship Fee AGED 475V	100.00/semester
<b>SCHOOL OF ARCHITECTURE</b>	
Interior Design Fee IDES 1034, 1044, 2805, 2815, 3805, 3815, 4805, 4815	15.00/credit hour
Interior Design Travel Fee	100.00
International Study Fee (Architecture and Landscape Architecture Academic Plans)	\$4,262.29*
<b>COLLEGE OF ARTS AND SCIENCES</b>	
Fifth-year Internship Fee (M.A.T.) ARED 476V, MUED 451V	\$100.00/semester
International Study Fee for European Studies & International Relations (due initial semester of enrollment, paid in semester installments)	1,500.00/semester for four semesters
<b>COLLEGE OF BUSINESS</b>	
Computer Competency WCOB 1120	\$55.84/semester
<b>COLLEGE OF EDUCATION AND HEALTH PROFESSIONS</b>	
BSE Fourth-year Student Teaching Fee (CIED 4173, CATE 406V, PHED 407V)	\$225.00/semester
Counseling Practicum Fee CNED 5343, CNED 6711	25.00/credit hour
Counseling Internship Fee CNED 574V CNED 674V section 1	25.00/credit hour
Curriculum Instruction Education Internship Fee CATE 406V, 5016 CIED 3003/3001, 3033, 3103, 3113, 3123, 3133, 3143, 3263, 4113, 4133, 4143, 4153, 4173, 514V, 528V	15.00/credit hour
Fifth-year Internship Fee (M.A.T.) CIED 508V, CIED 514V, CIED 528V, PHED 507V, CATE 5016	225.00/semester
First Responder Special Course Fee HLSC 3633	5.00/credit hour
HHPR Internship Fee KINS 4903	15.00/credit hour
HHPR Internship Fee RESM 440V	3.00/credit hour
Internship for Communication Disorders CDIS 578V	100.00/semester

Internship Program in Education Leadership and support for Leadership seminars EDLE 574V, EDLE 674V	25.00/semester
Kinesiology Course Supply Fee KINS 3533, 5593	3.33/credit hour
Malpractice liability insurance	14.50/semester
Nursing Clinical Fee NURS 3321L, 3424, 3644, 3752, 4164, 4262, 4452, 4613, 4722	145.00/credit hour
Nursing Test Fee – First semester Junior year Nursing Test Fee – Second semester Junior year, First and Second semester senior year	140.00/semester 110.00/semester
Off-Campus Practicum: Public School Site CDIS 548V	50.00/semester
Advanced Clinical Practicum: CDIS 528V	50.00/credit hour
Outdoor Adventure Leadership Fee RECR 4023	33.33/credit hour
PEAC 1481 Beginning Archery	5.00/credit hour
PEAC 1811 Beginning Canoeing	25.00/credit hour
PEAC 1831 Beginning Scuba Diving	130.00/credit hour
PEAC 1901 Climbing	50.00/credit hour
PEAC 1901 Cycling	75.00/credit hour
PEAC 1901 Hiking	125.00/credit hour
PEAC 1901 Paddling	75.00/credit hour
PEAC 1901 Racquetball	10.00/credit hour
PHED 3002 Teaching and Leading Outdoor Recreation and Experiential Activities	10.00/course
PHED 407V Student Teaching Supervision	75.00/semester
RECR 1023 Recreation and Natural Resources	\$20/course
Special Education Lab fee, Practicum CIED 532V	25.00/credit hour
<b>COLLEGE OF ENGINEERING</b>	
MEEG 2100 course fee, computer aided design (CAD) competency	\$50.00/semester
*Due initial semester of enrollment, paid in semester installments, and retroactive to 8/15/2003	

## TEACHING EQUIPMENT AND LABORATORY ENHANCEMENT FEES

These fees provide and maintain state-of-the-art classroom equipment and instructional laboratory equipment. These fees vary, based upon the student's college of enrollment.

During the regular fall, spring and summer academic semesters, these fees are assessed on a per credit hour basis (see chart below).

<b>TEACHING EQUIPMENT AND LABORATORY ENHANCEMENT FEES</b>	
College or School	Per Credit Hour Fee
Agricultural, Food and Life Sciences, Bumpers College of	\$16.00
Architecture, Fay Jones School of	20.36
Arts and Sciences, Fulbright College of	12.00
Business, Walton College of	19.81
Education and Health Professions	11.90
Engineering	31.05

For parking services fees, charges, and refund policies contact: Parking and Transit, Administrative Services Building, 155 Razorback Road, (479) 575-3507.

For other fees, charges, and refunds, contact the Treasurer's Office, 213 Arkansas Union, Attention: Treasurer, (479) 575-5651.

Students receiving financial aid are strongly encouraged to have sufficient personal funds available to purchase books and to meet necessary expenses for at least one month at the start of school as some aid funds may not be available for disbursement.

Students are allowed to have automobiles at the University, although parking is quite limited. There is a parking permit and registration fee ranging from \$54.78 to \$719.76 for each vehicle, depending upon the parking option selected.

## STUDENT RESIDENCE STATUS FOR TUITION AND FEE PURPOSES

Board Policy 520.8 (January 18, 1985, revised)

### Determination of Residence Status

#### 1. Purpose

The purpose of these regulations is to enable the administrative officers of the University of Arkansas to classify students for the purpose of paying student fees, as either "in-state" or "out-of-state," so as to accord fairness and equity to the students of the University and to the public that provides support for the educational services provided by the University.

#### 2. Initial Classifications

- a. A student shall be admitted to the University in an "in-state" or "out-of-state" status for university fee purposes, as established under these regulations.

Except as otherwise provided under these regulations, a student classified as "in-state" for university fee purposes at the time of admission must have established a bona fide domicile in Arkansas and must have resided continuously in this state in that bona fide domiciliary status for at least six consecutive months prior to the beginning of the term or semester for which fees are paid.

- b. A bona fide domicile is a home of apparent true, fixed, and permanent nature, a place of actual residing for all purposes of living that may be distinguished from a temporary sojourn in this state as a student. The person claiming domicile in Arkansas must provide evidence of permanent connection with the State of Arkansas and demonstrate the expectation of remaining in this state beyond graduation. For purposes of implementing these policies, the Administration is directed to articulate standards that will be applied in making the determination of residence.
- c. Except as otherwise provided under these regulations, the domicile of an adult (18 years of age or older) or emancipated minor student shall be determined on the basis of his or her own domicile.
- d. Except as otherwise provided under these regulations, the domicile and residence of an unemancipated minor student (less than 18 years of age) or an unmarried dependent who has not attained the age of 23 is legally that of the parents or surviving parent; or such other person legally standing in the place of a parent to the student and with whom the student in fact makes his or her home and who has been making substantial contributions to the support of the student for at least six consecutive months prior to the term or semester for which the fees are paid.
- e. A student who cannot satisfy the criteria for Arkansas domicile and residence will be classified as an "out-of-state" student and will pay fees and tuition accordingly. The student on a temporary visa will be classified as a foreign student and will pay non-resident tuition and fees. A student who has been granted a permanent visa and has been domiciled in Arkansas for six consecutive months following receipt of the permanent visa shall be classified as an Arkansas resident for fee purposes.
- f. The responsibility for registering under a proper classification for student fee purposes is placed upon the student. It is the duty of each student at each

time of registration to call any question about residency classification status to the attention of the campus classification review officer in a timely fashion in order that the question may be settled (see 4. Procedures).

- g. The six-month period required in paragraph A of these regulations may be waived for persons, their spouse, and their unmarried children who have not yet attained the age of 23 (dependents are the spouse and unmarried children who are legal dependents as defined by the IRS) and who move to Arkansas with attendance at the University only a by-product of the primary purpose of establishing domicile in this state.
- h. An unmarried student who has not reached the age of 23 years having one parent residing in Arkansas (for at least six consecutive months immediately prior to the beginning of the term or semester in which the fees are to be paid) may be considered an "in-state" student for fee purposes, even if that student resided outside the state with the other parent before coming to Arkansas to attend the University.
- i. Marriage is recognized as emancipation for both females and males.
- j. The spouse of a person continuously domiciled in Arkansas (for at least six consecutive months immediately prior to the beginning of the term or semester in which the fees are to be paid) upon request shall be classified as "in-state" for fee purposes.

#### 3. Reclassifications

- a. The initial classification of a student will not prejudice a different classification for following terms or semesters. However, a student's prior domicile is assumed to continue until he or she clearly establishes a new domicile in Arkansas (see #4 below).
- b. A student previously classified as "out-of-state" may be reclassified as "in-state" for fee purposes if he or she has established a bona fide domicile in Arkansas and has resided continuously in this state in that bona fide domiciliary status for at least six consecutive months prior to his or her reclassification by the University. In order for an adult or an emancipated minor to establish a bona fide domicile in Arkansas for fee purposes, he or she must have left the parental home, must have established in this state a home of a permanent character as manifested objectively by good faith acts, and must have the expectation of remaining in this state beyond graduation. The single fact of presence in Arkansas for at least six months of attendance as a student enrolled in the University of Arkansas, or any other educational institution, neither constitutes nor necessarily precludes reclassification as one domiciled in Arkansas, but will be a factor to be considered.

#### 4. Procedures

- a. A student shall have the burden of establishing any claim that he or she is entitled to be treated as "in-state" for fee purposes. Persuasive evidence to that effect must be presented in writing and verified under oath by the student. Mere claims of local domicile and duration of stay are of little weight. A student who knowingly gives erroneous information in an attempt to evade the payment of "out-of-state" fees may be subject to dismissal from the University.
- b. All disputed classifications for student fee purposes, whether at initial enrollment or subsequent enrollments, and all disputed reclassifications will be decided initially on each campus by a classification review officer designated by each Chancellor.
- c. The Chancellor of each campus will designate a campus classification appeal officer to receive petitions from decisions made by the campus classification review officer. Each campus classification appeal officer may, in his or her discretion, make investigations, receive evidence, and conduct informal hearings. After considering the case, the campus classification appeal officer will render a decision and notify the affected student of the decision in writing. Any decision of the campus classification appeal officer may be appealed to the Vice President for Academic Affairs of the University of Arkansas System, who shall recommend final disposition to the President of the University.
- d. Written notice of the appeals procedure will be provided to each student raising a question about his or her status with the campus residency classification review officer.
- e. Determination of domicile will be based on a review of all pertinent facts,

evidence, and circumstances that collectively show, in an objective and clear manner, the actual domicile of the student.

NOTE: In implementing these policies, it is presumed that dependent students who are classified as non-residents based upon parental/guardian domicile outside of Arkansas do not acquire Arkansas residency under Board of Trustees Policy 520.8 unless and until their parent(s)/guardian(s) have established a domicile in Arkansas, or the student has left the parental home and established a domicile in Arkansas evidenced by proof that he or she has established a home of a permanent character as manifested objectively by good faith acts, resided in Arkansas in bona fide domiciliary status for at least six consecutive months prior to his or her reclassification as an Arkansas resident, and demonstrates the expectation of remaining in this state beyond graduation.

### Reclassification Deadlines

Students who have established a bona fide domicile in Arkansas following initial classification as a non-resident must request reclassification if they want their status recognized for fee purposes. Applications and appropriate documentation must be received by the Office of the Registrar no later than the fifth class day (second class day of a summer session) of the term for which in-state fee assessment is requested. Applications received after the deadline will be considered for the next term. All fees are to be paid by published due dates. Students who receive a favorable decision after payment will be provided a refund of out-of-state fees paid. Please direct questions about residence classification review procedures to the Office of the Registrar, 146 Silas H. Hunt Hall.

### Resident Status of Native Americans

(Board Policy 520.1, "Waiver of Non-Resident Tuition for Native Americans.")

Native American people in other states belonging to tribes that formerly lived in Arkansas before relocation, and whose names are on the rolls in tribal headquarters, shall be classified as in-state students of Arkansas for tuition and fee purposes, on all campuses of the University of Arkansas. Tribes so identified include the Caddo, Cherokee, Chickasaw, Choctaw, Creek, Delaware, Kickapoo, Osage, Peoria, Quapaw, Shawnee, and Tunica.

### Resident Status of Members of the Armed Forces and Their Dependents

(Board Policy 520.7, "Fees for Members of Armed Forces and Dependents.")

Effective January 1, 1975, members of the Armed Forces who are stationed in the State of Arkansas pursuant to military orders, and their unemancipated dependents, shall be entitled to classification as in-state students for fee paying purposes (per Arkansas stat. Ann. 80-3366).

Persons continuously domiciled in Arkansas for at least 12 consecutive months who enter active military service from this state and who maintain Arkansas as the permanent home of record while on active military duty, and their dependents (the spouse and unmarried children who are legal dependents of the military person as defined by the IRS), shall be entitled to classification as in-state students for fee paying purposes. This provision is forfeited if the military person does not return to Arkansas within twelve months after separation, discharge, or retirement from active duty.

Persons serving in active military service who demonstrate a change of bona fide domicile from another state to Arkansas at least twelve consecutive months prior to separation, discharge, or retirement from active military duty, and the dependents (the spouse and unmarried children who are legal dependents of the military person as defined by the IRS), shall be entitled to classification as in-state students for fee paying purposes. This provision is forfeited if the military person does not return to Arkansas within twelve months after separation, discharge, or retirement from active duty.

### Resident Status of Students from Texarkana, Texas, and Bowie County, Texas

(Board Policy 520.10)

In accordance with the reciprocity agreement described in H.C.R. 32, signed by the Governor of Arkansas on February 12, 1965, Board Policy 520.10 states, "Residents of Texarkana, Texas and Bowie County, Texas, will be classified as in-state students for University fee purposes at the University of Arkansas."

# Academic Regulations

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## ACADEMIC INTEGRITY

### I. Preamble:

As a community of scholars, we uphold academic integrity and our Honor Statement as foundational to appropriate conduct within the university setting. The fundamental trust that work presented as one's own truly represents one's own intellect and effort underlies our mission as an educational, research and service institution; moreover, this trust is central to our peers' recognition of the value of a University of Arkansas degree. Thus, this document represents a deeply- and commonly-held set of values. Because this trust is so essential to the enterprise of the University of Arkansas, this policy has been established to set forth the University's commitment to academic integrity and to create procedures to address allegations of academic misconduct in a fair and unified manner.

Responsibility for understanding and adhering to the values of academic integrity, including being familiar with and complying with this policy, lies with individual students as members of the University community. The University shall assist students in meeting this responsibility through educational efforts such as training held during both undergraduate and graduate new student orientation, and on-line training modules, and may also include training during program-level orientation and in individual classrooms. The University shall also provide a statement on academic integrity that faculty will be encouraged to include in all course syllabi. Again, however, as developing scholars, students must take the initiative to familiarize themselves with and clarify expectations regarding academic integrity.

### II. Definitions:

**Academic Dishonesty:** Academic dishonesty involves acts that may subvert or compromise the integrity of the educational or research process at the University of Arkansas, when such acts have been performed by a UA student. Academic dishonesty includes, but is not limited to, any act by which a student gains or attempts to gain an academic advantage for him/herself or another by misrepresenting his/her or another's work or by interfering with the independent completion, submission, or evaluation of academic work. Academic dishonesty may include those acts defined as research or scholarly misconduct; such academic integrity issues are subject to review under this policy as well as under the University's Research and Scholarly Misconduct Policy. Which policy applies to particular allegations is addressed in more detail below; if necessary, the Research Integrity Officer, in consultation with the student's dean, shall determine which policy is most appropriate for a given case.

**Academic Integrity Monitor:** In each college/school, one or more Associate Deans will be designated by the Dean, subject to approval by the Provost, as the Academic Integrity Monitor(s). The Academic Integrity Monitor shall be responsible to conduct an initial review of allegations of academic dishonesty at the college/school level to determine whether there is sufficient evidence of a violation for the matter to be considered by the All-University Academic Integrity Board (Board or AUAIB), as defined below. When a student admits responsibility for an infraction, the Academic Integrity Monitor recommends a sanction to the Board, based on the Sanction Rubric. The Academic Integrity Monitor is the School or College's liaison to the

Board, and will have primary responsibility for presenting a case to the Board when necessary. If the Academic Integrity Monitor determines the evidence is not sufficient for consideration by the Board, the case will be dismissed unless the instructor (with the support of the Chair) appeals the Monitor's determination to the Board.

**All-University Academic Integrity Board (Board or AUAIB):** The Board is responsible for reviewing contested allegations of academic dishonesty and contested sanctions referred by the Academic Integrity Monitor. The Board is responsible for making sure that any finding of responsibility for academic misconduct is supported by a preponderance of the evidence and for imposing sanctions consistent with the Sanctions Rubric when a student is found responsible for a violation. The Board is responsible for ensuring that academic integrity sanctions are applied in a consistent manner. Ordinarily, in making its determinations, the Board will not take student intent into account, but instead will focus primarily on the actions of those involved. The Board reviews and makes a determination on all cases in which 1) students are contesting their responsibility (or instructors, with the support of the Department chair, are contesting findings that students are not responsible) for alleged infractions or 2) students are contesting sanctions. In addition, in cases where the student accepts responsibility and does not contest sanctions, the Board reviews sanctions recommended by the Academic Integrity Monitor and imposes sanctions consistent with the Sanctions Rubric. When reviewing cases, the Board may request further information and require participation in a hearing by the instructor and/or students (if deemed appropriate by the Board).

The Board is composed of six faculty or instructional staff (one from each undergraduate academic college), one faculty representative of the library, one representative of the Graduate School or Honors College, and two students (one graduate and one undergraduate). In order to facilitate timely review of cases, there will be two such committees constituted each year and each of these committees will meet one time per month. The committees will elect their own chair. The Director of OAISC will be an ex officio member of the AUAIB. (Note: The School of Law has its own academic integrity process.) There will also be a pool of trained alternates who can sit on the Board in the event that a member is unable to attend a hearing due to a schedule conflict, illness, conflict of interest, or the like. A third committee, which may be comprised of members of the other two committees, will meet during the summer.

**Complete Written Record:** The complete written record for each case refers to all relevant documents submitted by the student as well as a University representative as evidence related to the allegations of academic dishonesty. The complete written record is initially compiled by the Academic Integrity Monitor but subsequently is forwarded to and maintained by, and may be added to, by the Office of Academic Integrity and Student Conduct.

**Jurisdiction:** The Academic Integrity Monitor is responsible for the initial review of all undergraduate cases involving work in courses taken in his/her college. The Academic Integrity Monitor is also responsible for initial review of all cases involving allegations of academic dishonesty in other academic work (with the exception of those cases reviewed under the Research Misconduct Policy), when the faculty member who has oversight responsibility for that student (e.g. major professor, faculty collaborator, honors advisor, advisor) resides within the college. When a student is majoring in a program outside the college in which an academic integrity matter

arises, the Academic Integrity Monitor of the other college should be kept informed about the case and its resolution. The Academic Integrity Monitor in the Graduate School is responsible for all cases of alleged academic dishonesty involving graduate students (including, without limitation, all allegations relating to course work or work outside a class), with the exception of those cases which fall under the jurisdiction of the Research Misconduct Policy.

**Office of Academic Integrity and Student Conduct (OAISC) (formerly Office of Community Standards and Student Ethics):** Housed in the Office of the Provost/Vice Chancellor for Academic Affairs, this is the University-level office tasked with processing academic misconduct cases that are sent forward from the colleges. This Office is responsible for reporting back to the academic colleges, the Provost, and the Faculty Senate, consistent with the requirements of the Family Educational Rights and Privacy Act (FERPA), an annual total of cases heard and their outcomes, as well as the general basis for the decisions made. This Office is the repository of all records pertaining to academic integrity cases across campus.

**Preponderance of Evidence:** The standard of proof in a case arising under the Academic Integrity Policy shall be the “preponderance of the evidence.” A “preponderance of the evidence” shall mean evidence which is of greater weight or more convincing than evidence to the contrary; evidence which shows that something more likely than not is true.

**Reporting:** Following initial compilation by the Academic Integrity Monitor, all records will be kept in OAISC. A final report summary for each case will be forwarded to the college Academic Integrity Monitor, to the department chair/head, and to the instructor. Annual summary reports (with no details with respect to specific faculty or students) will be reported to the Colleges and to the Faculty Senate.

**Sanction Rubric:** Sanctions associated with various levels of academic misconduct, approved by the Faculty Senate and applicable to all student academic work at the University of Arkansas. All sanctions will be imposed by the AUAIB.

**Academic Honesty Syllabus Statement:** Faculty are encouraged to include this statement on their syllabus:

“As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail.”

“Each University of Arkansas student is required to be familiar with and abide by the University’s ‘Academic Integrity Policy’ which may be found at <http://provost.uark.edu/> Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.”

**Student:** An undergraduate student is one who is enrolled at the University of Arkansas during the semester of the infraction in a baccalaureate degree program or in an undergraduate non-degree-seeking status. A graduate student is one who has been admitted to the Graduate School and need not be enrolled to be considered a student under this policy.

**Work for a course:** “Work for a course” consists of any work undertaken or submitted towards the fulfillment of the requirements of a course (whether graded or not), including, but not limited to, exams, quizzes, papers, essays, homework assignments, artwork, designs, programs, and other projects or assignments.

**Work outside of a course:** “Work outside a course” consists of student work, other than work for a course, undertaken or submitted towards the fulfillment of the requirements of a degree or program, including, but not limited to, candidacy or comprehensive exams, dissertations, honors theses, master’s theses, work done for funded research projects, reports submitted to a funding agency or material submitted for publication in a scholarly journal.

**Working Days:** Working days shall refer to Monday through Friday, excluding official University holidays or days that the University is closed due to exigent circumstances such as weather. For periods of five days or less, University breaks shall also be excluded.

### III. Procedures:

#### A. Infractions Involving Work for a Course at the Undergraduate or Graduate Level

- 1. Reports of Suspected Academic Dishonesty.** When an instructor/department initially suspects that a student has violated the Academic Integrity

Policy, the instructor or another appropriate University official may discuss the matter with the student and/or with the Academic Integrity Monitor for the college or school. Should the instructor/department determine that the student may be responsible for academic dishonesty, the instructor or another appropriate University official will, within five working days after determining that there is a potential violation of the Academic Integrity Policy (or as soon as practicable thereafter), report the case to the Academic Integrity Monitor for the college. In reporting the case, the instructor/official will submit a completed “Allegation Evidence Form,” available on the OAISC website, to help ensure that all information necessary to the consideration of the case is available for review.

- 2. The Academic Integrity Monitor.** The Academic Integrity Monitor will review the case and meet with the instructor to gather any relevant information relating to any alleged violations of the Academic Integrity Policy. The Academic Integrity Monitor shall meet separately with the student to notify the student of the alleged violations of the Academic Integrity Policy, disclose to the student any evidence to be used against him or her, and gather information from the student about the matter. The Monitor will have access to any previous academic integrity-related records for the student from the OAISC and may review pertinent records or speak with other individuals with knowledge about the matter. Information compiled by the Academic Integrity Monitor may be added to the written record. After conducting this review the Academic Integrity Monitor may proceed as follows:

- The Academic Integrity Monitor may determine that **the evidence of an alleged violation is insufficient to warrant forwarding the case to the Board.** In this case, the Academic Integrity Monitor will notify the instructor/Department and student of his/her determination. The complete written record of the Academic Integrity Monitor’s determination will be forwarded to the OAISC, and a summary of the matter shall be provided to the AUAIB for its information.
    - If the Instructor, with the support of the Department/program chair/head/director, disagrees with the determination of the Academic Integrity Monitor, the instructor’s position shall be reported to the AUAIB for consideration by the Board.
    - Alternatively, the Academic Integrity Monitor may determine **there is sufficient evidence of a violation to forward the matter to the Board for its consideration**, in which case the following may occur:
      - The student accepts responsibility for the infraction:** In this case, the Academic Integrity Monitor shall inform the student of the potential consequences of the action. The Academic Integrity Monitor completes the file and recommends the appropriate sanction for consideration by the AUAIB consistent with the Sanction Rubric, makes a record of the case which is forwarded to the OAISC and AUAIB, and reports back to the Department/program and instructor.
      - The student contests responsibility for the infraction:** In this case, the Academic Integrity Monitor will forward the case together with the evidence to OAISC and AUAIB. Within five working days from receipt of the Allegation Evidence Form (or as soon thereafter as practicable), a representative from OAISC will contact the student and arrange a meeting during which the process and possible outcomes are explained to the student. As part of the complete written record, the student will be provided with an opportunity to submit a written statement responding to the allegations and explaining why he/she did not commit the alleged infraction. Ordinarily, the student will not provide a statement pertaining to intent, unless it materially affects the question of whether the student committed a violation of the Academic Integrity Policy.
      - The student contests the sanctions:** If the student 1) accepts responsibility but disagrees with the Academic Integrity Monitor’s sanction recommendation, or 2) contests responsibility and sanctions, the student will be provided an opportunity to submit a written statement explaining the student’s position on sanctions and proposing alternatives. If the proposed sanction is based on the sanction rubric, the statement must address how the rubric has been applied incorrectly in the student’s case.
- 3. Standard of Evidence.** The standard used in reviewing whether a violation

of the Academic Integrity Policy has occurred under this policy shall be the preponderance of the evidence.

- 4. Continued Participation.** To the extent practical, during the consideration of a case, the student's participation in the affected class should continue in order to minimize the impact on the student if he or she is not determined to be responsible for an alleged infraction.

**B. Infractions Involving Work Outside a Course at the Undergraduate or Graduate Level:** Cases of alleged academic misconduct occurring outside a course, as defined previously, may be subject to review under this policy as well as under the University's Research and Scholarly Misconduct Policy. Which policy applies to particular allegations is determined by the Research Integrity Officer and the student's dean. Except when a matter is determined to be properly considered under the Research and Scholarly Misconduct Policy, rather than this policy, when a supervising faculty member or other appropriate University official determines that a student may be responsible for academic dishonesty in a situation involving work outside a course, the procedures outlined in this policy shall be followed.

**C. The All-University Academic Integrity Board**

1. Based on the record filed, including the Allegation Evidence Form, the AUAIB shall determine responsibility (if necessary) and impose the appropriate sanction. In addition, with notice to the student, the Board may request additional evidence, require students, the instructor, or other appropriate University officials to be present at a hearing and/or refer the matter back to the Academic Integrity Monitor for further consideration. Ordinarily, a student will meet with the Board only if the Board so requests it, having already met with the Academic Integrity Monitor and provided his/her written statement for the Board. However, if the student is facing a possible sanction of suspension or expulsion, or loss of a scholarship, he/she shall be permitted to meet with the Board and present witnesses and evidence, if the student desires. If a student is not facing possible suspension, expulsion or loss of a scholarship, and the student requests a meeting, the Board shall designate one of its members to meet with the student prior to the Board's consideration of the case. If a member meets with the student, the member shall participate in the Board's consideration of the alleged infractions.
2. In the case where a student and the instructor or other University official reporting the alleged infraction are requested to appear at a Board hearing, each must have at least ten working days' notice of the hearing, unless both agree to waive this requirement. If any material is added to the Complete Written Record, the student shall have at least three business days prior to the Board hearing to review the information. The student, the instructor or other appropriate University official, and the Academic Integrity Monitor for the case, who will have primary responsibility to present the infractions, will attend the Board meeting. Generally these individuals will be the only persons in attendance, other than the Board and OAISC staff. The Board may question any of these individuals. The instructor will not ordinarily be asked to make a statement, but may be asked questions by the Board. The Board shall review the complete record of the case to determine whether a preponderance of the evidence exists to find a violation of the Academic Integrity Policy and if so, impose a sanction consistent with the Rubric. Because the focus of the hearing is generally not on intent, other witnesses will typically not be called unless the Board determines that the witnesses can address whether the student committed the alleged infraction.
3. When sanctions are imposed, the letter outlining the sanctions will be signed by the Chair on behalf of the Board and by the Director of OAISC and sent to the student and the instructor, with a copy to the Academic Integrity Monitor.

**D. Appeals.** Students (or the instructor, with the support of the Department Chair) may appeal a determination by the AUAIB to the Provost and Chancellor, but only when the appeals are based on the following grounds: (1) a procedural error occurred; (2) an objective assessment of the evidence under the preponderance of evidence standard does not support a finding of responsibility; (3) new and significant evidence has been identified since the Board hearing; (4) the sanctions are inconsistent with the Sanction Rubric; or (5) that additional sanctions imposed are excessive. To effect an appeal, the student (or instructor/department), within five working days of transmittal of the decision of the AUAIB to the

student (or instructor/department), shall request that the Provost and Chancellor review the case, using the "Appeal Form" found on the website of the OAISC. The transmittal of the decision by the AUAIB shall expressly state that the student (or instructor/department) shall have five days to appeal the decision. The Provost and Chancellor shall attempt to review and resolve all appeals within thirty days or as soon as possible thereafter after receiving the Appeal Form. If the Provost and Chancellor determine that a procedural error occurred, that an objective assessment of the evidence does not support a finding of responsibility, that new evidence warrants a rehearing, that an inconsistency in sanction has occurred, or that additional sanctions are excessive in nature, the Provost and Chancellor may decide the matter or may refer the case back to the same or to another AUAIB for further action. If a new hearing is held, the case may be appealed to the Provost and Chancellor using the procedure outlined above, in which case their determination on the matter shall be final.

**E. Procedural Changes.** Particular circumstances in an individual case may dictate variation from the procedures set out in this policy in order to ensure fair and efficient consideration of the matter. Any change in the procedures must ensure fair treatment of the student. Any major deviations from the procedures described in this policy shall be made only with the written approval of the Provost.

## ACADEMIC INTEGRITY SANCTION RUBRIC

### I. Violation Levels

The following violation levels are assigned to specific types of violations of the University's Academic Integrity Policy; if a violation of academic integrity principles occurs which is not specifically provided for below, then any sanctions will be based on the most similar type of violation that exists in the rubric. A violation will be considered as a single violation up until the point that a student receives notice of that violation; additional infractions occurring after that point will be considered separately for purposes of this rubric.

A student receives the assigned number of sanction points for each violation for which he/she is found responsible. Sanction points are cumulative over the length of the student's tenure at the University of Arkansas.

**Level One Violation** – 0.5 sanction point for each violation

- Copying from or viewing another student's work during an examination.
- Using any materials or resources that are not authorized by the instructor for use during an examination.
- Collaborating during an examination with any other person by giving or receiving information without specific permission of the instructor.
- Facilitating or aiding in any act of academic dishonesty.
- Collaborating on laboratory work, take-home examinations, homework, or other assigned work when instructed to work independently.
- Submitting, without specific permission of the instructor, work that has been previously offered by the same student for credit in another course.
- Falsification of attendance and/or participation.
- Plagiarizing, that is, the offering as one's own work, the words, ideas, or arguments of another person or using the work of another without appropriate attribution by quotation, reference, or footnote. Plagiarism occurs both when the words of another (in print, electronic, or any other medium) are reproduced without acknowledgement and when the ideas or arguments of another are paraphrased in such a way as to lead the reader to believe that they originated with the writer. It is not sufficient to provide a citation if the words of another have been reproduced – this also requires quotation marks. It is the responsibility of all University students to understand the methods of proper attribution and to apply those principles in all materials submitted (undergraduate level).

**Level Two Violation** – 1.0 sanction point for each violation

- Buying, selling or otherwise obtaining or providing information about an examination not yet administered.
- Substituting for another person or permitting any other person to substitute for oneself to take an examination.
- Submitting as one's own any theme, report, term paper, essay, computer program, speech, painting, drawing, sculpture, or other written or creative work or project of any nature prepared totally or in large measure by another.
- Submitting altered or falsified data (undergraduate level).

- Plagiarizing (graduate level).
- Level Three Violation** – 3.0 sanction points for each violation
- Altering grades or official records.
  - Falsifying or signing another person's name on any academically-related University form or document.
  - Sabotaging another student's work.
  - Submitting altered or falsified data (graduate level)

## II. Sanctions

Sanction points = 0.5: For work for a course, the instructor shall give the test or an assignment an immediate zero (0) which shall then be averaged into the course grade. If the violation occurred on work outside of a course, the faculty member will require that the work be redone. If that involves missing a stated deadline, the stated late penalty will apply.

Sanction points = 1.0: The student will receive a course grade of XF for work done for a course ; for work outside a course, the student will receive a failure on the project (e.g. on the candidacy exam).

For infractions involving point levels of 1.5 and above, the course grade/project failure sanction will apply in addition to suspension or expulsion.

Sanction points = 1.5: The student will be suspended for the following semester (the student will be allowed to complete the current semester).

Sanction points = 2.0: The student will be suspended for two full semesters (the student will be allowed to complete the current semester).

Sanction points = 2.5: The student will be suspended for three full semesters (the student will be allowed to complete the current semester).

Sanction points = 3.0 or more. The student will be immediately and permanently expelled.

Note: For offenses not specifically mentioned in this rubric, faculty members may confer with the Academic Integrity Monitor and propose a description of the offense and the level of sanction to be included in the faculty member's syllabus. The proposed description and sanctions will be forwarded to the Academic Integrity Monitor to review the proposed offense and sanction for consistency with existing offenses and sanctions. If a faculty member and Academic Integrity monitor disagree over a particular offense or sanction, the matter may be discussed with the relevant dean and / or the AUAIB, but must be reported to the AUAIB. In the event of a conflict between a syllabus and the Academic Integrity Policy or this rubric, the policy and rubric shall take precedence.

## III. Course Retake Opportunities and Notation Removal

After two semesters of acceptable performance at the University following the imposition of a penalty, with no student conduct or academic dishonesty infractions and a minimum grade point of 2.0 (undergraduate) and 2.85 (graduate) in graded courses, the student may petition the Office of Academic Integrity and Student Conduct for an opportunity to retake a class failed due to academic dishonesty and have the grade changed (for graded work), for a first offense of any Level One or Level Two violation, or a second offense of a Level One violation.

Upon graduation or completion of the period of suspension, the student may request that the X, or notation of the student's suspension, be removed from the student's transcript, by submitting a written request to the Provost/Vice Chancellor for Academic Affairs. Expulsion from the University of Arkansas for academic dishonesty shall be permanently noted on the student's transcript.

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## TERM PAPER ASSISTANCE

The use of services of term paper assistance companies is a violation of University policies on academic integrity. Student submission of such research or term papers to meet requirements of any class or degree program is expressly prohibited and constitutes academic dishonesty. Any violation of this prohibition will automatically result in both punitive action by the instructor (e.g., the award of a grade of "F" for the course) and a referral of each violation to the All-University Judiciary Committee for its consideration.

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## ATTENDANCE

Education at the university level requires active involvement in the learning process. Therefore students have the responsibility to attend classes and to actively engage in all learning assignments or opportunities provided in their classes. Instructors have the responsibility to provide a written policy on student attendance that is tied to course objectives included in a course syllabus. There may be times, however, when illness, family crisis, or University-sponsored activities make full attendance or participation impossible. In these situations students are responsible for making timely arrangements with the instructor to make up work missed. Such arrangements should be made in writing and prior to the absence when possible.

Examples of absences that should be considered excusable include those resulting from the following: 1) illness of the student, 2) serious illness or death of a member of the student's immediate family or other family crisis, 3) University-sponsored activities for which the student's attendance is required by virtue of scholarship or leadership/participation responsibilities, 4) religious observances (see UA Religious Observances policy below), 5) jury duty or subpoena for court appearance, and 6) military duty. The instructor has the right to require that the student provide appropriate documentation for any absence for which the student wishes to be excused.

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## RELIGIOUS OBSERVANCES

When students seek to be excused from class for religious reasons, they are expected to provide their instructors with a schedule of religious holidays that they intend to observe, in writing, before the completion of the first week of classes. The Semester Calendar on the Office of the Registrar's Web site will inform students of the University calendar of events, including class meeting and final examination dates, so that before they enroll they can take into account their calendar of religious observances. Scheduling should be done with recognition of religious observances where possible. However, faculty members are expected to allow students to make up work scheduled for dates during which they observe the holidays of their religion.

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## FINAL EXAMINATION POLICY

Each faculty member is required to give final examinations at times specified in the final examination schedule. (Comprehensive examinations are not the only ones which qualify as "final exams." Generally, exams should not be given during the last class period.) Whenever circumstances make necessary a deviation from the announced schedule, clearance for such deviation must be obtained from the appropriate dean and the Provost and Vice Chancellor for Academic Affairs.

During finals week, students are required to sit for no more than two final exams in a single calendar day period. Students with three or more finals in a single calendar day period have the right to an alternative exam date(s) for each exam exceeding two. They must submit a formal request for an alternative date in writing, along with an official copy of their class schedule for verification purposes, to the professors of those classes involved to see if one will voluntarily move the exam. If voluntary accommodation is not achieved, instructors of classes with lower enrollments will have to accommodate before classes with higher enrollments.

Requests must be submitted on or before the last day to drop a full semester class or classes with a mark of "W." Professors will provide the student with an alternative exam date and time no later than one week after the last day to drop a full semester class or classes with a mark of "W." All rescheduled final exams are to take place during the university designated final exam dates and times. If a student has an objection to the alternative exam date/time, she or he may appeal to the instructor's department chair.

It is the policy of the University to minimize student participation in extracurricular activities during the final examination period. No meetings, social activities, athletic events, or other extracurricular activities that require student participation will be scheduled on Dead Day or during the final examination period. Any exceptions to this policy must receive prior approval from the Provost/Vice Chancellor for Academic Affairs.



## GRADES AND MARKS

Final grades for courses are “A,” “B,” “C,” “D,” and “F” (except for courses taken in the Fay Jones School of Architecture and the Dale Bumpers College of Agricultural, Food and Life Sciences).

GRADES AND MARKS		
Grade/Mark	Given For:	Grade Points
A	Outstanding achievement, given to a relatively small number of excellent scholars	4
B	Good achievement	3
C	Average achievement	2
D	Poor but passing work	1
F	Failure, unsatisfactory work	0
XF	Failure, academic dishonesty	0
I	Incomplete course requirements	N/A
AU	Audit, officially registered	N/A
CR	Credit without grade points	N/A
S	Satisfactory work in courses w/o credit	N/A
W	Withdrawal	N/A

No credit is earned for courses in which a grade of “F” is recorded. A final grade of “F” shall be assigned to a student who is failing on the basis of work completed and who has not completed all requirements. The instructor may change an “F” so assigned to a passing grade if warranted by satisfactory completion of all requirements. Students who fail to present an acceptable reason for not having completed all course requirements including the final examination will receive the grade they would have received had they failed such requirements. In the case of an “XF” grade given for reasons of academic dishonesty, upon graduation or completion of the period of suspension, the student may request that the “X” be removed from the transcript by submitting a written request to the Provost/Vice Chancellor for Academic Affairs.

A mark of “I” may be assigned when a legitimate good cause has prevented the student from completing all course requirements, and the work completed is of passing quality. It is the discretion of the instructor that determines what qualifies as a legitimate good cause. It is recommended that the instructor, prior to the assignment of an “I” mark, document the legitimate good cause and conditions for completing course requirements. An “I” so assigned may be changed to a grade provided all course requirements have been completed within 12 weeks from the beginning of the next semester (excluding summer semesters) of the student’s enrollment after receiving the “I.” If the instructor does not report the grade within the 12-week period, the “I” shall be changed to an “F.” When a mark of “I” is changed to a final grade, the grade points and academic standing are appropriately adjusted on the student’s official academic records.

A mark of “AU” (Audit) is given to a student who officially registers in a course for audit purposes (see Registration for Audit).

A mark of “CR” (Credit) is given for a course (for example, practice teaching, certain seminars, certain honors colloquia, and courses where credit is earned by examination) for which the University allows credit toward a degree, but for which no grade points are earned.

A mark of “S” (Satisfactory) is assigned in courses such as special problems and research when a final grade is inappropriate. The mark “S” is not assigned to courses or work for which credit is given (and thus no grade points are earned for such work). If credit is awarded upon the completion of such work, a grade or mark may be assigned at that time, and, if a grade is assigned, grade points will be earned.

A mark of “W” (Withdrawal) will be given for courses from which students withdraw after the first 10 days of the semester and before the drop deadline of the semester.

“I,” “AU,” “CR,” “S,” and “W” marks will not be counted in the grade-point average. Grades of plus and minus are assigned grade-point values in the Bumpers College of Agricultural, Food and Life Sciences (page 78) and the Fay Jones School of

Architecture (page 110). The grade-point average is computed by dividing the total number of grade points by the total number of credit hours attempted in courses for which grades (rather than marks) are given. Students who utilized grade renewal or grade forgiveness in retaking courses (prior to Fall Semester 1986 and after Fall 1996) have only the last grade used in computing grade-point averages.

## UNDERGRADUATE GRADE FORGIVENESS POLICY

Under the Grade Forgiveness Policy, a student may improve the undergraduate cumulative GPA by repeating a maximum of two courses (up to nine hours) in which a grade of “D” or “F” was received and requesting that the repeat grade be the only one that is counted in the calculation. Only two such requests are available to any student in his or her undergraduate career. The repeated grade must be in the same course taken at the University of Arkansas, Fayetteville. Only a course in which a grade of “D” or “F” was earned may be repeated under the Forgiveness Policy. Grade forgiveness may not be used to replace a grade assigned as a result of academic dishonesty. The student must file a written petition to use grade forgiveness indicating which course(s) he/she chooses to grade renew: the petition must be completed and approved prior to graduation. Both attempts at the course will remain on the transcript, but only the second will be used to calculate both credit and GPA. The first attempt and the grade earned will be recorded on the transcript with the symbol “R” to denote that it has been repeated. Students considering grade forgiveness should be aware that many graduate schools, professional schools, employers or other institutions, in considering admission or employment, recompute the GPA and include all courses attempted even though a course was repeated. This means that if the cumulative GPA has been raised because of grade renewal or forgiveness, the recomputed GPA will be lower.

## HONORS AND SCHOLARS

### SEMESTER HONOR ROLL

The colleges of the University publish, after the close of each semester, an honor roll of the highest ranking students in the college containing the names of not more than 10 percent of the undergraduate students of each class. Students are eligible for the honor roll if they are carrying at least 12 semester hours normally required for graduation by their college for their respective year. Most colleges refer to this part of the honor roll as the Dean’s List.

In addition, a Chancellor’s List is published each semester which recognizes those undergraduate students who achieve a 4.00 grade-point average. Students must also be carrying at least 12 semester hours normally required for graduation to be eligible for the Chancellor’s List.

For honor roll eligibility, the 12 semester hours must all be in courses for which grade points are earned.

### FIRST-RANKED SENIOR SCHOLARS

A first-ranked senior scholar must have a cumulative grade-point average of 4.00 on all course work completed at the time selection is made, must have applied for graduation for a semester to be a member of the appropriate class and must have completed all courses required for the baccalaureate degree at the University of Arkansas, Fayetteville, or in a program of study approved by the Director of Honors or other designee in the college in which the student is enrolled. In determining the cumulative grade-point average for the purposes of such awards, grade forgiveness is not accepted.

### SENIOR SCHOLAR

Since 1941 a key has been awarded to the graduating senior from each undergraduate college who has the highest grade-point average and who has completed at least half of his or her degree work at the University of Arkansas.

### GRADUATION HONORS

The faculty of each college will recommend for graduation with honors or with high honors those students it considers to be eligible for such distinction under its own regulations with the following general restrictions:

1. To be eligible for graduation honors a student must have completed at least one-half of his or her degree work at the University of Arkansas.

2. No student shall be eligible for graduation honors whose cumulative grade-point average is below 3.125.
3. A college should not recommend more than 10 percent of its graduating class for graduation honors except under unusual circumstances.
4. It is recommended that in determining graduation honors the faculty consider the whole of a student's record but give greater weight to the last half of the record than to the first half.

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## ACADEMIC PROGRESS, SUSPENSION AND DISMISSAL

A student's academic status at the University is determined at the end of each term of enrollment (fall, spring, or summer) on the basis of the student's cumulative and/or term grade-point average (GPA) and number of hours earned. See the Academic Status chart for the required performance levels. The student's academic status governs his or her re-enrollment status and determines any conditions associated with re-enrollment or denial of enrollment for a subsequent term. Normally, students are notified of their status individually by the University shortly after the end of each term. However, this policy statement is the formal notification to all students of the conditions that determine academic status and the consequences for each term, regardless of individual notification.

**Good Status:** Upon initial admission and during a student's first term of enrollment, except for students conditionally admitted on academic warning, the student is in good status. A student remains in, or returns to, good academic status at the end of any term when the cumulative GPA is at or above the required minimum.

**Academic Warning:** When a student's cumulative GPA falls below the minimum required for good status, the student will be put on academic warning. This status is not recorded on the student's permanent academic record and will not appear on transcripts. A student who enrolls for a term on academic warning may take no more than 12 hours (unless more are approved by the student's adviser and dean). To continue for one or more additional terms on academic warning, the student must earn a term GPA at or above the cumulative GPA required for good status. The student can remain on academic warning until the cumulative GPA is at or above the required minimum for good status unless the student becomes subject to academic suspension by failing to earn the required term GPA.

**Academic Suspension:** A student on academic warning who does not earn the minimum required term GPA will be suspended from full-time enrollment. No student may be suspended who has not spent the prior term of enrollment on academic warning. A student on academic suspension has two alternatives: limited enrollment or academic leave of one year from the University.

Students who choose limited enrollment may enroll for up to nine hours of on-campus or Independent Study course work taken through Global Campus (as approved by the student's adviser and dean) and must earn at least six hours of credit with grades of C or higher in six hours while maintaining a term GPA of 2.0. A student who meets these conditions may enroll for a subsequent term on academic warning following suspension. Students who meet the 2.0 GPA requirement but do

not complete six hours will not be allowed to enroll for the remainder of the one year suspension period. Students who choose academic leave may apply for readmission one year after the term of the suspension. A student who does not earn credit from another institution will be readmitted on academic warning following suspension. A student who earns credit from another institution(s) during or subsequent to the year of suspension must apply to the University for admission as a transfer student and, if readmitted, will be on academic warning following suspension.

**Academic Warning Following Suspension:** A student on academic warning following suspension may take no more than 12 hours (unless more are approved by the student's adviser and dean) and must earn a term GPA of 2.00 or higher for each term of enrollment until the student's cumulative GPA is at the level required for good status. Failure to satisfy these requirements will result in dismissal.

**Academic Dismissal:** A student on academic suspension or academic warning following suspension who does not earn a term GPA of 2.00 or higher and satisfy all other requirements associated with his or her status will be dismissed from the University. A student who has been dismissed may be readmitted only upon action of the Academic Standards Committee. Course work taken through Independent Study while under dismissal may be submitted to the committee as evidence of academic competence. If readmitted, the student may receive degree credit for such course work.

**Academic Warning Following Dismissal:** A student who enrolls subsequent to an initial dismissal and following favorable action of the Academic Standards Committee is placed on academic warning following dismissal and may take no more than 12 hours (unless more are approved by the student's adviser and dean) and must earn a term GPA of 2.00 or higher. Failure to satisfy these requirements will result in a second academic dismissal. A second dismissal is for five years, after which a student must petition for readmission to the University to the Academic Standards Committee and may also apply for Academic Bankruptcy. Individual colleges or programs have the discretion to set academic admission and continuation standards for specific programs that are higher than University standards.

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## REQUIREMENTS FOR GRADUATION

### University Core Requirements (See chart on next page)

The University of Arkansas has adopted a "State Minimum Core" of 35 semester-credit-hours of general education courses that are required of all baccalaureate degree candidates. This is in compliance with Arkansas Act 98 of 1989 and the subsequent action of the Arkansas State Board of Higher Education. Beginning in the fall semester of 1991, all state institutions of higher education in Arkansas have a 35-hour minimum core requirement with specified hours in each of six academic areas. The University has identified those courses that meet the minimum requirement, and they are listed in the chart below.

Students should consult the requirements for specific colleges and programs when choosing courses for use in the University Core.

### Rationale for U of A General Education Core

In order to prepare its students for lives of the highest individual quality and

ACADEMIC STATUS CHART						
Cumulative Hours Earned	GOOD ACADEMIC STATUS when cumulative GPA is	Placed on ACADEMIC WARNING when cumulative GPA is	Continued on ACADEMIC WARNING when term GPA is	SUSPENDED* if previous status was warning and term GPA is	DISMISSED** if previous status was suspension or warning following suspension and when term GPA is	Continued on ACADEMIC WARNING Following Suspension or Following Dismissal if previous status was suspension or dismissal and term GPA is
0-16 hours	1.50 or higher	Less than 1.50	1.50 or higher	Less than 1.50	Less than 2.00	2.00 or higher
17-32 hours	1.60 or higher	Less than 1.60	1.60 or higher	Less than 1.60	Less than 2.00	2.00 or higher
33-45 hours	1.75 or higher	Less than 1.75	1.75 or higher	Less than 1.75	Less than 2.00	2.00 or higher
46-60 hours	1.90 or higher	Less than 1.90	1.90 or higher	Less than 1.90	Less than 2.00	2.00 or higher
61 hours +	2.00 or higher	Less than 2.00	2.00 or higher	Less than 2.00	Less than 2.00	2.00 or higher
* No student may be suspended who has not spent the prior term of enrollment on academic warning. ** No student may be dismissed who has not been suspended during a prior term of enrollment.						

the greatest potential contribution to the making of a better world, the University of Arkansas has developed a comprehensive program of general education. Although the basic skills, knowledge, methodologies, and judgments derived from experience in the core area set forth here may provide the basis for a major or professional concentration, the aims of these core requirements are not career specific. Rather, the following areas are designed to develop the tools for critical thinking and effective communication, an understanding of our richly diverse human heritage, the flexibility to adapt successfully to a rapidly changing world, a capacity for lifelong learning, and an enthusiasm for creativity.

### English/Communication (6 hours)

Courses offered in this area are designed to develop the ability to organize ideas and to communicate them in grammatically correct written English with clarity, precision, and syntactical maturity. Freshman English courses taken at other universities will satisfy this requirement only if they are courses in composition. Students whose ACT scores in English are 18 or below must enroll in the sequence of courses ENGL 0002, ENGL 1013, and ENGL 1023. Students whose ACT scores in English are between 19 and 27 should enroll in ENGL 1013-1023. Students with English ACT scores of 28 or above may enroll in Honors English (1013H-1023H) or regular English (1013-1023). Students with English ACT scores of 30 or above may take 1013H-1023H or elect exemption. Some programs require credit in composition, and students should confer with their advisers before choosing exemption.

### Fine Arts/Humanities (6 hours)

Courses presented in this area are drawn from the study of human thought, emotion, values, culture, and aesthetics. They are designed to develop the capacity for reflection, an appreciation of our own diverse culture and a tolerance of those foreign to us, and a heightened aesthetic and ethical sensibility. The courses are not performance-based, but offer students a basis for the gradual acquisition of broad cultural literacy.

### Mathematics (3 hours)

Courses offered in this area are designed to develop the student's ability to understand the diverse mathematical concepts that shape our increasingly technical culture. Core mathematics courses presuppose the ability to apply mathematical techniques at the level of high school algebra and geometry. The specific course(s) selected will depend upon each student's curriculum, but no course below college algebra may be used to fulfill core requirements.

### Science (8 hours)

A primary goal of these courses is to develop an appreciation of the basic principles that govern natural phenomena and the role of experiment and observation in revealing these principles. Students should acquire an understanding of the relationship between hypothesis, experiment, and theory, and develop the skills common to scientific inquiry, including the ability to frame hypotheses and defend conclusions based on the analysis of data. These courses are designed to prepare a student for informed citizenship by illustrating the importance of science and technology to the present and future quality of life and the ethical questions raised by scientific and technological advances.

### Social Science (9 hours)

The purpose of the social science core is to introduce students to the breadth of inquiry in the social sciences—such as the study of ideas, the behavior of individuals, groups, institutions, and their interactions. The core should expose students to the history of and the challenges encountered in our complex, culturally diverse world.

### American History and Civil Government (3 hours)

Under Arkansas law, no undergraduate degree may be granted to any student who has not passed a college course in American history and civil government. Courses offered by the University of Arkansas, any one of which will meet this requirement, are HIST 2003 History of the American People to 1877; HIST 2013 History of the American People, 1877 to Present; and PLSC 2003 American National Government.

### Enrollment Requirement

To ensure the opportunity to engage with faculty and peers in their area of study at the University of Arkansas (UA), Fayetteville, students must fulfill the UA Enrollment Requirement (formerly the "Residence Requirement"):

1. Earn a minimum of 30 semester hours at the University of Arkansas, Fayetteville campus—this includes UA faculty-led study abroad classes, online/on-campus classes, and Global Campus courses; and all other courses paid towards Fayetteville campus tuition and fees;
2. These 30 semester hours are to be upper-division semester hours required for the completion of a degree program;
3. Additional hours in residence can be required for completing a minor;
4. Hours earned in another school or college at UA (Fayetteville) may be used to satisfy this requirement — with appeal of appropriate faculty curriculum committee;
5. Appeals to the standards identified in this policy should be made to the Academic Standards Committee.

### Minimum Credits

All students awarded a baccalaureate degree must have a minimum of 124 credit hours. Individual programs may require additional hours. Courses not marked in the course description as eligible to be repeated for degree credit may be included in this total only once.

### Minimum Grade-Point Average

No student will be allowed to graduate if the student has "D" grades in more than 25 percent of all classes that are earned at this institution and that are presented to meet the requirements for a degree. No student will be allowed to graduate if that student's academic standing is other than good standing.

### Application for Graduation

Students who plan to graduate must file an official application to do so. Applications should be filed for the term in which degree requirements will be completed. A graduation fee will be required at the time of application.

To ensure that students will be certified for graduation in a timely manner, the following graduation application deadlines have been established:

- October 1 - for students graduating in Fall
- March 1 - for students graduating in Spring
- July 1 - for students graduating in Summer

Students must apply by the established deadline for that term. Any student missing the deadline may apply to graduate in a subsequent term.

A student who fails to complete the degree during the intended semester must contact the Office of the Registrar to renew the application for the term in which the degree requirements will be completed.

### Other Graduation Requirements

Individual colleges and schools may have special graduation requirements, in addition to degree program requirements. Consult the college or school section in this catalog for statements of additional requirements.

### Degree Program Requirements

A student's degree program requirements are normally those specified in the catalog for the student's first year of enrollment. However, students may choose to meet the program requirements specified in a catalog for a later year and, under some circumstances, students may be required to meet degree program requirements incorporated into the curriculum at a level beyond that at which the student is enrolled.

Students who transfer from institutions with articulation agreements with the University may also be allowed to meet the University program requirements in effect during their first year of enrollment in those institutions, subject to the time limits described below and the availability of course work. Students who transfer to a different degree program may be required to meet the program requirements specified in the catalog for the year of entry into that program. Students who are not enrolled for a period of two years or longer may be required to reenter under program requirements in the current catalog. Students who wish to be granted a degree on the basis

University Core Courses (State Minimum Core)					
Areas	Hours	University Core	Areas	Hours	University Core
English	6	ENGL 1013 Composition I ENGL 1023 Composition II	Fine Arts, Humanities Continued <sup>3</sup> (Select 3 hours each from categories “a” and “b”)		b) Humanities: Any intermediate I foreign language <sup>4</sup> ARCH 1013 Diversity and Design CLST 1003 Intro to Classical Studies: Greece CLST 1013 Intro to Classical Studies: Rome COMM 1233 Media, Community and Citizenship HUMN 1124H Honors Equilibrium of Cultures, 500-1600 HUMN 2003 Intro to Gender Studies HUMN 2124H Honors Twentieth Century Global Culture PHIL 2003 Intro to Philosophy PHIL 2103 Intro to Ethics PHIL 2203 Logic PHIL 3103 Ethics and the Professions WLIT 1113 World Literature I WLIT 1123 World Literature II
Mathematics <sup>1</sup>	3	MATH 1203/1204 College Algebra or Any higher-level mathematics course required by major			
Science <sup>2</sup> (Students required to take correspond- ing lecture/lab com- binations as listed.)	8	ASTR 2003/2001L Survey of the Universe ANTH 1013/1011L Biological Anthropology/ Lab BIOL 1543/1541L Intro to Principles of Biology BIOL 1603/1601L Principles of Zoology BIOL 1613/1611L Plant Biology BIOL 2213/2211L Human Physiology BIOL 2443/2441L Human Anatomy CHEM 1053/1051L Chemistry in the Modern World CHEM 1073/1071L Fundamentals of Chemistry CHEM 1103/1101L University Chemistry I CHEM 1123/1121L University Chemistry II CHEM 1213/1211L Chemistry for Majors I CHEM 1223/1221L Chemistry for Majors II GEOL 1113/1111L General Geology GEOL 1133/1131L Environmental Geology PHYS 1023/1021L Physics and Human Affairs PHYS 1034 Physics for Elementary Ed Majors PHYS 1044 Physics for Architects I PHYS 1054 Physics for Architects II PHYS 2013/2011L College Physics I PHYS 2033/2031L College Physics II PHYS 2054 Univ Physics I PHYS 2074 Univ Physics II			
Fine Arts, Humanities <sup>3</sup> (Select 3 hours each from categories “a” and “b”)	6	a) Fine Arts: ARCH 1003 Basic Course in the Arts: Architecture Lecture ARHS 1003 Basic Course in the Arts: Art Lecture COMM 1003 Basic Course in the Arts: Film Lecture DANC 1003 Basic Course in the Arts: Movement and Dance DRAM 1003 Theater Appreciation LARC 1003 Basic Course in the Arts: The American Landscape MLIT 1003 Basic Course in the Arts: Music Lecture MLIT 1013 Music Lecture for Music Majors	U.S. History	3	HIST 2003 History of the American People to 1877 HIST 2013 History of the American People 1877 to Present PLSC 2003 American National Government
			Social Sciences <sup>5</sup> (Select from at least two different fields of study)	9	AGEC 1103 Principles of Agricultural Microeconomics AGEC 2103 Principles of Agricultural Macroeconomics ANTH 1023 Intro to Cultural Anthropology COMM 1023 Communication in a Diverse World ECON 2013 Principles of Macroeconomics ECON 2023 Principles of Microeconomics ECON 2143 Basic Economics: Theory and Practice GEOG 1123 Human Geography GEOG 2003 World Regional Geography HESC 1403 Life Span Development HESC 2413 Family Relations HIST 1113 Institutions and Ideas of World Civilizations I HIST 1123 Institutions and Ideas of World Civilizations II HIST 2003 History of the American People to 1877 <sup>6</sup> HIST 2013 History of the American People 1877 to Present <sup>6</sup> HUMN 1114H Honors Roots of Culture to 500 C.E. HUMN 2114H Honors Birth of Modern Culture, 1600-1900 PLSC 2003 American National Government <sup>6</sup> PLSC 2013 Intro to Comparative Politics PLSC 2203 State and Local Government PSYC 2003 General Psychology RESM 2853 Leisure and Society RSOC 2603 Rural Sociology SOCI 2013 General Sociology SOCI 2033 Social Problems

Footnotes for the State Minimum Core:

- 1 Some students majoring in math, engineering, science and business may be required to take a higher math as part of the State Minimum Core.
- 2 Some students majoring in math, engineering, science, education and health-related professions may be required to take higher or specific science courses as part of the State Minimum Core.
- 3 Some students majoring in engineering may be required to take either six hours of humanities or social sciences at the junior/senior level or substitute an additional six hours

- of higher math and/or additional science as part of the State Minimum Core.
- 4 Typically numbered 2003. See Department of World Languages, Literatures and Cultures in the J. William Fulbright College of Arts and Sciences chapter.
- 5 Some students majoring in engineering may be required to take either six hours of humanities or social sciences at the junior/senior level or substitute an additional six hours of higher math and/or additional science as part of the State Minimum Core.
- 6 If not selected to meet the three hours of the U.S. History requirement.

of requirements specified in a catalog more than seven years old may be required to petition the college or school to be allowed to do so.

Students are expected to keep themselves informed regarding program requirements and changes.

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## EIGHT-SEMESTER DEGREE COMPLETION POLICY

The University of Arkansas is committed to helping all of its students identify and achieve their educational goals. The many University of Arkansas programs of study and activities provide opportunities to students to follow varied career and learning paths and enjoy educational experiences of different kinds. Plans for degree completion are available in the Catalog of Studies, from colleges, schools, and departments, and at the University Web site. Academic advising services in each college and school assist students in making plans for their own degree completion and in carrying them out consistent with students' abilities, circumstances, and preferences.

The Eight-Semester Degree Completion Program (DCP), makes it possible for qualified degree-seeking freshmen to express their intention -- and assume the associated obligations -- to complete identified bachelor's degree programs of study in four academic years. The list of majors and degrees designed to be completed in eight semesters and for which the DCP is available is maintained by each college and school. It may be accessed from the DCP Web site and is published in the Catalog of Studies. Colleges, schools and individual departments can provide this list as well. Before registering for their first semester of study, all freshmen entering the University must accept participation, decline participation, or acknowledge ineligibility for participation in the DCP by signing the Participation Document. New freshmen will be notified regarding how to view the Participation Document on-line and learn more about registering for a Degree Completion Program. A student's participation or nonparticipation in the DCP will not affect scholarship eligibility.

Students who are admissible to the DCP and who choose to participate have the responsibility for meeting all requirements specified by the University and their degree completion plan and the responsibility for complying with the DCP policy. The University is responsible for providing academic support and for ensuring that students can complete university, program and course requirements within eight consecutive semesters. The University will also provide students with timely notifications to the student's official University e-mail address regarding advising, registration, and other requirement completion information.

A student may choose at any time to discontinue participation in the DCP without penalty. Students are encouraged to discuss such choices with an authorized academic adviser for the program of study. Participation and subsequent withdrawal from the DCP will not jeopardize the student's opportunity to complete the degree program, to do so in a timely manner, or to complete another degree program or major by fulfilling program requirements.

In some circumstances it may be in a student's best interest to decline participation or withdraw from the DCP. Examples include students who are not prepared to choose a major before enrolling for the first semester and students who feel that a full semester class load of 15 or 16 hours will be too heavy given other responsibilities. Other students may plan to study abroad for a semester in an institution where the required courses are not offered or to participate in a semester-long internship program not included in the program plan. A decision or need to work or participate in certain time-intensive curricular and extra-curricular activities such as band and intercollegiate athletics may make it impossible to schedule all requirements in some programs. A student may be required to withdraw from the DCP as a result of illness or other personal circumstances that make it impossible to do his or her best work, continue as a full-time student, or complete requirements in the time available. There are also a number of acts and events that may or will cause the DCP agreement to be voided; these are identified below in the section "Student acts and other events that will or may void the degree completion plan agreement."

### Requirements for Admission to the Eight-Semester Degree Completion Program (DCP):

1. Participants must begin their program of study in the fall semester as first-time, full-time freshmen and must be committed to be full-time students able to enroll in and successfully complete at least 31-36 hours each academic year.

2. Participants must have chosen a major included in the DCP; must meet all admission requirements for the chosen program of study including applicable program grade point average and other grade requirements, and must have been admitted to programs requiring formal program admission.
3. Participants must be qualified to begin enrollment in the fall semester without being required to take remedial courses in math, English, or reading or other course prerequisites to entry-level courses in the chosen program of study

### Requirements for Continuance and Completion of the Eight-Semester Degree Completion Program:

1. Students must follow exactly the degree completion plan for the chosen major and must meet all the specified requirements in their degree plan each semester unless an alternative is approved by an authorized academic adviser for their program or unless they have already met the requirement.
2. Students must be continuously enrolled in and successfully complete at least 31-36 semester credit hours of appropriate course work each academic year as outlined in their degree completion plan.
3. Students must make satisfactory academic progress as defined by the University and degree program and must maintain the grade point average required by the University and the program of study.
4. Students must monitor their own progress in meeting the requirements identified in their degree completion plan, consistent with the program plan.
5. Students must register for classes at the first/earliest assigned time during their designated registration period each semester for the following term. For courses required for graduation, students must accept any available course or class section that does not conflict with other required courses. Students should understand that special scheduling accommodations cannot be guaranteed for work or other activities including athletics and band.

Students must seek assistance from an authorized academic adviser for their chosen program of study if they are unable to identify or register for any course(s) required for that semester in their degree program. For situations in which an authorized academic adviser for the program cannot identify a required course for the student to take, the adviser must notify the department chair and dean for the student's program of study that it has not been possible for the student to complete registration for a required course for the next semester of enrollment. Notification must be made in writing immediately following the unsuccessful attempt to register. Consistent with the terms of the degree completion program, the chairperson or dean will identify an alternate course, in writing, to fulfill graduation requirements or will provide an override to allow the student to enroll in the required course(s).

Students must complete registration no later than the last official day of class for the fall or spring term preceding the next term of enrollment, unless the identification of an appropriate course to complete the student's registration is still in progress.

6. Students must have prior written approval by an authorized academic adviser before enrolling in any course at another institution (such as concurrent enrollment, enrollment during a summer term, or study abroad) if the student wishes to transfer the course and have the course included in the coursework submitted for the degree completion plan.
7. Students must confer with an authorized academic adviser for their program before withdrawing from a required course as such a withdrawal will void the DCP agreement.
8. Students must at all times maintain an accurate local address, and telephone number in official university records. Students may make changes to such information in the Student Information System Self Service component as needed and should make them immediately following any change. Students may also make changes by written notice to the Registrar.
9. Students must respond in a timely way to any official notice or message from an authorized academic adviser and to any official notice regarding registration, degree progress, financial obligations or aid, or any other university requirement.

10. Students must make timely application for all necessary financial assistance, consistent with deadlines.
11. Students must meet all University degree requirements (including formal application for graduation consistent with deadlines and requirements as established by the Registrar for the semester in which the student is scheduled for graduation).

### Student Acts and Other Events That Will or May Void the Degree Completion Plan Agreement:

1. Withdrawing from (“dropping”) a required course
2. Receiving a failing grade in a required course or receiving a grade below that required by the program
3. Changing one’s major or degree program
4. Withdrawing from the University
5. Failure to meet any degree requirement(s) as specified and in the time specified
6. Unauthorized non-payment or delayed payment of any tuition or fees
7. Incurring a disciplinary action affecting the student’s enrollment
8. Failing to comply with any other requirement of the Eight-Semester Degree Completion Policy.

### Appeal Process

A student may appeal the voiding of the DCP to the dean of the college or school in which the student is enrolled. The appeal process requires that the student submit a statement of the basis for the appeal to the dean in writing within 30 days following notification of the voiding of the program, with a copy to an authorized academic adviser for the program. The dean will notify the student and the adviser of the outcome of the appeal within 60 days after receiving the statement.

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## GRADUATION RATES

In accordance with the Student Right-To-Know and Campus Security Act of 1990, the following is a summary of the institution’s six-year graduation rates:

Fall 2005 Graduating, Bachelor, Degree-Seeking Freshmen			
	Men	Women	Overall
Total Graduates	733	838	1,571
Percent of Total	55%	63%	59%
Fall 2005 Graduating Student Athletes Who Received Athletically Related Aid			
Percent of Total:	36%	74%	53%

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## TRANSFER OF CREDIT

The following policies control the granting of credit for course work taken at other institutions:

1. Transfer credits are subject to a two-stage evaluation process. First, the eligibility of the hours for transfer is evaluated by the Office of the Registrar based upon decisions of appropriate faculty, the Arkansas Course Transfer System (<http://acts.adhe.edu/studenttransfer.aspx>), and the Transfer Course Equivalency Guide (<https://waprd.uark.edu/web-apps/regtr/courseequiv/Main>). Credits found to be eligible for general transfer may not count toward the minimum requirements for every degree at the University of Arkansas. The second step in the evaluation, performed by the academic dean’s office or department responsible for the program of study, determines which hours evaluated will satisfy degree program requirements.
2. Grades earned at other institutions are not calculated in the student’s grade-point average earned at the University.
3. General transfer credit is awarded for courses in which a grade of “C” or higher has been earned. Course work must be applicable to a baccalaureate

degree; credit is not granted for course work that is remedial or technical in nature.

4. Students can petition to have up to six hours of “D” grades transfer for degree credit to the University of Arkansas. Students must have a 2.00 GPA on a 4.00 scale to be considered, and courses must meet core or elective requirements in the student’s degree program. Courses outside the degree program and courses in the major cannot be considered for transfer. The Admissions and Appellate Committee makes all decisions regarding “D” transfers. Petitions can be obtained from the Office of the Registrar.
5. In the case of course work taken at institutions not fully accredited by a regional accrediting agency, transfer credit may be denied altogether or may be granted provisionally subject to successful completion of specified courses at the University. Normally, credit is provisionally granted only if the institution is a candidate for regional accreditation.
6. No more than 68 semester hours of lower-division (freshman- or sophomore-level) course work will be used for the student’s degree. There is no limit placed upon the number of upper-division (junior- or senior-level) credit hours that may be awarded in general transfer, but a student must complete at least 30 upper division UA Fayetteville hours to meet graduation requirements (see Requirements for Graduation in this catalog). Please also refer to the appropriate college section of this catalog for any additional transfer policies that may be specific to your anticipated degree program.
7. The State Minimum Core (SMC): Act 98 of 1989 requires each institution of higher learning in Arkansas to identify a minimum core of general education courses that shall be fully transferable between state-supported institutions. Under guidelines from the State Board of Higher Education, the SMC consists of 35 hours distributed among the following education areas: English, U.S. history or government, mathematics, science, fine arts and humanities, and social sciences. Students transferring credit with grades of “C” or better from the approved SMC of another state-supported institution in Arkansas may expect to have all these hours applied toward their degree at the University of Arkansas.
8. Transfer credit policy under Arkansas Act 182 from 2009 requires a four-year public institution of higher education in Arkansas to accept all credits earned from students earning an Associate of Arts, Associate of Science or Associate of Arts in Teaching degree from a state-supported public institution in Arkansas.

Major stipulations of Act 182 are outlined below:

- The transfer degree contains the curriculum that is approved by the Arkansas Higher Education Coordinating Board.
- The four-year public institution of higher education is to admit a transfer student to junior status in a baccalaureate degree program at the four-year public institution of higher education.
- A four-year public institution of higher education receiving a transfer student shall not require additional lower division coursework if the additional course is considered a general education lower division course.
- The receiving four-year public institution of higher education may only require the additional lower division course if the additional lower division course is:
  1. a prerequisite for courses in the transfer student’s baccalaureate degree program;
  2. a discipline-specific course that is required by the transfer student’s baccalaureate degree program and the student has not completed a course at the two-year public institution of higher education that is comparable to the discipline-specific course at the four-year public institution of higher education in the Arkansas Course Transfer System;
  3. a requirement of an independent licensing or accrediting body
- Act 182 does not remove the requirement that a transfer student must meet total baccalaureate degree program credit hour and course requirements in order to be eligible for a baccalaureate degree.
- The receiving four-year public institution of higher education shall

determine whether to accept a grade of “D” for academic course credit for a student transferring from a two-year public institution of higher.

Students should be prepared to submit course descriptions and syllabi of transfer work if there is any question concerning acceptance of credit toward a degree program. The University reserves the right to revise credit for advanced standing after the student has been in residence.

Please refer to the appropriate college or school section of this catalog for additional information concerning acceptance into specific degree programs.

### Arkansas Course Transfer System (ACTS)

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas public colleges and universities. Students are guaranteed the transfer of applicable credits and the equitable treatment in the application of credits for the admissions and degree requirements. Course transferability is not guaranteed for courses listed in ACTS as No Comparable Course. ACTS may be accessed on the Internet by going to <http://acts.adhe.edu/studenttransfer.aspx>.

### Military Transfer Credit

The University of Arkansas accepts transfer credit based upon completed military training as evaluated by the American Council of Education (ACE) guidelines and recommendations. The evaluation must be presented to the University on an official transcript from ACE. Equivalencies for military credit as recommended by ACE are evaluated by departmental faculty and may not be exactly the same as ACE. University of Arkansas equivalencies for ACE credit are displayed on the Web site of the Office of the Registrar in the Transfer Credit section. Students may elect to receive 6 hours of general military science credit for basic training as evaluated by presentation of the military DD214. Officer training would qualify the student for 6 additional hours of general military science credit. The same training may not be presented for both general military science credit and ACE credit.

More information on transfer credit can be found online by going to <http://www.uark.edu/registrar> and clicking on Transfer Credit.

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## ADDITIONAL BACHELOR'S DEGREE

A person with a bachelor's degree from the University of Arkansas, or from any other institution, may not receive another bachelor's degree without completing in residence at least 30 hours of additional, not necessarily subsequent, courses selected from the courses leading to a degree for which the person is a candidate.

More than 30 hours of course work may be required. In addition to the college or school requirements, the candidate must also meet all University requirements as stated in the catalog, including graduation and core requirements, except when course work for the first degree satisfies requirements for the second.

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## ANNUAL NOTICE OF STUDENT RIGHTS UNDER THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. They are as follows:

1. The right to inspect and review the student's education records, with some exceptions under the Act, within 45 days of the day the University receives a request for access. Students should submit to the Office of the Registrar written requests that identify the record(s) they wish to inspect. The appendix to University-wide Administrative Memorandum 515.1 provides a list of the types and locations of education records, the custodian of those records, and copying fees for each individual campus. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request the amendment of the student's education records that the student believes are inaccurate or misleading. Students should write the

University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. A sample form, which may be used in making this request, is contained in the appendix to University-wide Administrative Memorandum 515.1.

If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing and is also contained in the University-wide Administrative Memorandum 515.1.

3. The right to withhold consent of disclosure of directory information, defined as the following information: the student's name; address; telephone number; date and place of birth; religious preference; major field of study; classification by year; number of hours in which enrolled and number completed; parents' or spouse's names and addresses; marital status; participation in officially recognized activities and sports; weight and height of members of athletic teams; dates of attendance including matriculation and withdrawal dates; degrees, scholarships, honors, and awards received, including type and date granted; most recent previous education agency or institution attended; and photograph.

This information will be subject to public disclosure unless the student restricts such information through the appropriate settings in ISIS, the student information system, or informs the Office of the Registrar in writing that he or she does not want this information designated as directory information.

4. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an educational record to fulfill his or her professional responsibility.

Upon request, the University also discloses education records without consent to officials for another school in which a student seeks or intends to enroll.

5. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the office that administers FERPA is as follows:

Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington DC 20202-4605

6. University-wide Administrative Memorandum 515.1 is available on request in the main library on campus.

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## PHOTOGRAPHIC AND VIDEO IMAGES

The University is proud to publish and display photographic and video images of UA students, their activities and accomplishments. Any student who does not wish to be represented in such photographic and video images by the University should choose to withhold photos on the FERPA option on the University's student information system.

## WAIVER OF ACADEMIC POLICIES

The Academic Standards Committee, composed of faculty and students, serves as a referral body for matters of probation, suspension, dismissal, and other rules and regulations related to academic progress and graduation. Petitions for waiver of academic rules and information on the petitioning process may be obtained on the Office of the Registrar's Web site. Petitioners should note petitioning deadlines.

## STUDENT ACADEMIC APPEALS

Students are first encouraged to resolve academic conflicts and complaints informally through their department or through the assistance of the Office of Student Mediation and Conflict Resolution, which can provide objective and confidential mediation. If an informal resolution cannot be reached there are two kinds of procedures for undergraduate students to pursue with complaints of an academic nature. Refer to the Student Handbook for appeals structures for other grievances.

### Grade Appeal Structure for Undergraduate Students

If a student questions the fairness or accuracy of a grade, there is recourse through a student grade appeal structure. Disagreements shall be heard that allege the instructor's policy was not applied consistently to all students, differed substantially from the announced policy, or that a policy was not announced. All grievances concerning course grades must be filed within one calendar year of the end of the term in which the grade that is being appealed was assigned. The procedures are:

1. The student should first discuss the matter with the instructor involved, doing so as soon as possible after receiving the grade. The instructor should be willing to listen, to provide explanation, and to be receptive to changing the grade if the student provides convincing argument for doing so. The student's questions may be answered satisfactorily during this discussion.

2. If the student chooses to pursue the grievance, the student shall take the appeal in written form to the appropriate department chairperson. That person, if she or he believes the complaint may have merit, will discuss it with the instructor.
3. If the matter remains unresolved, it will be referred to an ad hoc committee composed of the entire faculty of the instructor's department. The committee will examine available written information on the dispute, will be available for meetings with the student and with the instructor, and will meet with others as it sees fit.
4. If the faculty committee, through its inquiries and deliberations, determines that the grade should be changed, it will request that the instructor make the change and provide the instructor with a written explanation. Should the instructor decline, he or she must provide an explanation for refusing.
5. If the faculty committee, after considering the instructor's explanation, concludes it would be unjust to allow the original grade to stand, it may then recommend to the department chairperson that the grade be changed. That individual will provide the instructor with a copy of the recommendation and will ask the instructor to implement it. If the instructor continues to decline, the chairperson is then obligated to change the grade, notifying the instructor and the student of this action. Only the chairperson has the authority to effect a grade change over the objection of the instructor who assigned the original grade, and only after the foregoing procedures have been followed. If the faculty committee determines that the grade should not be changed, it should communicate this conclusion to the student, the faculty member, and the chair.

## ADVANCED-STANDING PROGRAMS

### Credit by Examination

There are two ways a student enrolled at the University of Arkansas, Fayetteville,

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)				
CLEP Examination	UA Course	Minimum Score for Credit		Maximum Credit Allowed
		Paper-based test (pre July 2001)	Computer-based test (Effective July 2001)	
<b>General Examinations</b>				
College Mathematics	MATH 0003	520	52	3
College Composition	ENGL 1013	490	55	3
College Composition	ENGL 1013 & ENGL 1023	540	60	6
<b>Approved Subject Examinations</b>				
American Government	PLSC 2003	47	50	3
Biology	BIOL 1543/1541L	49	50	4
Calculus	MATH 2554	55	65	4
College Algebra	MATH 1203	50	54	3
Chemistry	CHEM 1103/1101L & CHEM 1123/1121L	50	55	8
History of United States I	HIST 2003	50	50	3
History of United States II	HIST 2013	50	50	3
Human Growth & Development	HESC 1403		63	3
Introduction to Educational Psychology	PSYC 4033		55	3
Introductory Psychology	PSYC 2003	47	55	3
Introductory Sociology	SOCI 2013	59	59	3
Principles of Macroeconomics	ECON 2013	48	54	3
Principles of Microeconomics	ECON 2023	48	54	3
Principles of Marketing	MKTG 3433	48	50	3
Western Civilization I	HIST 1113	50	60	3
Western Civilization II	HIST 1123	50	60	3



may establish undergraduate credit by examination in courses offered by the University: either through the University of Arkansas Credit by Examination Program (see the next section), or through approved national testing programs, such as the College Level Examination Program (CLEP), the Advanced Placement Program (AP), or the International Baccalaureate Program (IB).

Credit established by examination must be evaluated in terms of the specific program the student wishes to pursue. The decision regarding the appropriate application of such credit to a degree program will be made in each college or school. Credit established by examination will be applied to a degree program in the same manner as credit established in any other way. If credit is earned by examination, the mark of CR will be entered in the student's record. Grades are not assigned.

In certain instances, however, instead of actually receiving credit in semester hours, a student may receive advanced standing and be authorized to enroll for advanced courses in the subject matter area.

Credit by examination may not be used to satisfy minimum residency requirements as established by each college or school. Credit by examination is recorded only for students currently enrolled at the University of Arkansas, Fayetteville.

**University of Arkansas Program**

The following conditions apply to the departmental programs for credit by examination:

1. The student must apply for such examination using forms available in the academic dean or department office. Permission to take the examination must be obtained from the faculty of the department offering the course. The faculty of each department is responsible for designating the courses in that department that may be challenged by examination.
2. The appropriate department or college offering the course will designate and administer the examination.
3. A passing grade on the examination must be "B" or above. A second trial for credit by examination in that course will not be permitted.
4. A \$25 credit by examination fee will be assessed per course.

**National Testing Programs**

When credit by a national examination is granted, the student's academic record will list the score used as a basis for credit as well as the type of examination used to establish credit, such as CLEP subject examination or general examination, AP examination or IB examination.

Credit is awarded on the basis of official score reports, which must be sent by the national testing service directly to the Office of the Registrar, 146 Silas H. Hunt Hall, University of Arkansas, Fayetteville, AR 72701. Credit also may be awarded on the basis of scores posted on an official university or college transcript, provided the type of examination is included. In all cases, minimum score requirements as established by the University of Arkansas, Fayetteville, must be met.

Approval has been granted to award credit for the following national testing programs:

**College Level Examination Program (CLEP) – see chart on previous page**

The University of Arkansas is a CLEP testing center and is authorized to administer CLEP examinations both on a national basis and on an institutional basis. However, CLEP examinations may be taken at scheduled times at any national test center, and the results sent to the University of Arkansas. The test center code number and score recipient code number for the University of Arkansas is 6866. For information or to make application, write Testing Services, 700 Hotz Hall, University of Arkansas, Fayetteville, AR 72701, or telephone 479-575-3948.

Approval has been granted by the appropriate governing body, upon recommendation of the academic department, to award credit in the following courses by the use of CLEP examinations. Minimum scores for the paper-based version and the new computer-based version were established by the departments of the subject areas concerned.

Please note that minimum scores for credit for computer-based CLEP exams may differ from paper-based CLEP examinations.

**Advanced Placement Program (AP) – see chart on opposite page**

The Advanced Placement (AP) Program of the College Entrance Examination Board gives students the opportunity to pursue college-level studies while still in high school and, with an appropriate score on an AP exam, to receive advanced placement and/or credit upon entering the University. The AP examinations are offered annually by high schools that participate in this program. The appropriate UA governing body, upon recommendation of the academic department, has authorized credit and/or placement for students who present qualifying scores in the AP courses listed on the next page.

**International Baccalaureate Program (IB)**

The International Baccalaureate (IB) program is a comprehensive and rigorous two-year high school curriculum offered in the United States and in 72 countries around the world. The IB program provides students with a balanced education, facilitates geographic and cultural mobility, and promotes international understanding through a shared academic experience. The IB program gives students the opportunity to pursue college-level studies while in upper secondary school and to receive credit for final examinations upon entering the University.

The IB examinations are offered annually, usually in May, by high schools participating in this program. Students seeking credit for examinations must request that a final, official IB transcript of certificate or diploma results be sent by mail to the Office of the Registrar, 146 Silas H. Hunt Hall, University of Arkansas, Fayetteville AR 72701. These materials may be requested from International Baccalaureate North America, 200 Madison Avenue, Suite 2007, New York, NY 10016, telephone: 212-696-4464.

Approval has been granted by appropriate academic departments to award credit in the following courses. The minimum scores were established by the departments of the subject areas concerned.

INTERNATIONAL BACCALAUREATE (IB)		
International Course	UA Course	Score (Higher Level)
Anthropology	ANTH 1023	4-7 HL
Biology	BIOL 1543/1541L BIOL 1543H/1541M	4,5 HL 6,7 HL
Chemistry	CHEM 1103/1101L & CHEM 1123/1121L	5-7 HL
Computer Science	CSCE 2014 Pending departmental examination	4-7 HL
Economics	ECON 2013 & ECON 2023	5-7 HL
English	ENGL 1013 ENGL 1023	5-7 HL 6,7 HL
Geography	GEOG 1123	5-7 HL
History (U.S.)	HIST 2003 or 2013 HIST 2003 & 2013	4 HL 5-7 HL
History (World)	HIST 1113 & 1123 HIST 1113H & 1123H	4,5 HL 6,7 HL
Mathematics	Up to 8 hours possible (To be determined by the Math Department)	5-7 HL
Philosophy	PHIL 2003 PHIL 2003H	4,5 HL 6,7 HL
Physics	PHYS 2013/2011L & PHYS 2033/2031L PHYS 2054 & PHYS 2033/2031L	4,5 HL 6,7 HL
Psychology	PSYC 2003	4-7 HL

ADVANCED PLACEMENT PROGRAM (AP)					
AP Examination	UA Course	Minimum Score	AP Examination	UA Course	Minimum Score
Art History	ARHS 1003	3C	Human Geography	GEOG 1123	4C
	ARHS 1003H or ARHS 2913	4C	Latin: Virgil <sup>3</sup>	LATN 1013	2 Pq, 3C
	ARHS 1003H or ARHS 2913 & ARHS 2923	5C		LATN 2003	4C <sup>3</sup>
Biology	BIOL 1543H/1541M	3P		LATN 2013	5C <sup>3</sup>
	BIOL 1543/1541L	4C	Latin: Literature <sup>3</sup>	LATN 1013	2 Pq, 3C
	BIOL 1543H/1541M	5C		LATN 2003	4C <sup>3</sup>
Calculus AB	MATH 2554	3C 4C	Macroeconomics <sup>1</sup>	ECON 2013	4C 5C
	MATH 2554H	5C	Microeconomics <sup>1</sup>	ECON 2023	4C 5C
	MATH 2554 & MATH 2564	3C 4C	Music Theory	MUTH 1603 & MUTH 1621	2P, 3Cq, 4C
Calculus BC	MATH 2554H & MATH 2564H	5C		MUTH 1003	2Cq, 3C
	MATH 2554	4C	Physics B	MUTH 1631 & MUTH 2603	4Cq, 5C
	MATH 2554H & MATH 2564H	5C	Physics B with Calculus AB or BC score of 3 <sup>3</sup>	PHYS 2013/2011L & PHYS 2033/2031L	3C
AB Subscore	MATH 2554	4C		PHYS 2054 & PHYS 2033/2031L	3 Cq <sup>3</sup> , 4C
Chemistry	CHEM 1103/1101L & CHEM 1123/1121L	4C		PHYS 2054H & PHYS 2033/2031L	5C
	CHEM 1103/1101L & CHEM 1123H/1121M	5C	Physics C Mechanics <sup>2</sup>	PHYS 2054	3 Cq <sup>(2,3)</sup> , 4C
	ENGL 1023 ENGL 1023 ENGL 1023H	3E 4C 5C		PHYS 2054H	5C
Literature or English	ENGL 1013 ENGL 1013 ENGL 1013H	3E 4C 5C	Physics C, E & M <sup>2</sup>	PHYS 2074	3 Cq <sup>2</sup> , 4C
Language and Composition	ENGL 1013 ENGL 1013 ENGL 1013H	3E 4C 5C		PHYS 2074H	5C
	ENSC 1003	3C	Psychology	PSYC 2003	3C
	HIST 1123	4C	Spanish Language	SPAN 1013 & 2003	3C
French Language	FREN 1013 & 2003	3C		SPAN 1013, 2003 & 2013	4C
	FREN 1013, 2003 & 2013	4C		SPAN 1013, 2003, 2013, & 3003	5C
	FREN 1013, 2003, 2013, & 3003	5C	Spanish Literature	SPAN 3103	5C
French Literature	FREN 3103	5C	Statistics	STAT 2303	3C <sup>4</sup>
German Language	GERM 1013 & 2003	3C		STAT 2023	4C
	GERM 1013, 2003 & 2013	4C	Studio Art: Drawing	ARTS 1013	5C
	GERM 1013, 2003, 2013, & 3003	5C	Studio Art: 2D Design	ARTS 1313	5C
Government and Politics: Comparative	PLSC 2013	3C	Studio Art: 3D Design	ARTS 1323	5C
Government and Politics: U.S.	PLSC 2003 PLSC 2003H	3C, 4C 5C	U.S. History	HIST 2003 or HIST 2013 HIST 2003 & HIST 2013	4C 5C
			World History	HIST 1123	4C
				HIST 1123H	5C

Symbols for placement and credit: P = placement; Pq = qualified placement (student may be placed in an advanced course, with credit awarded for prerequisite courses upon satisfactory completion, subject to departmental review.); C = credit; Cq = qualified credit (placement and credit subject to departmental review).

<sup>1</sup> Credit will be awarded upon satisfactory completion of a junior or senior-level economic course.

<sup>2</sup> Students must pass a departmental test to receive credit.

<sup>3</sup> To receive credit for courses preceding the course for which AP credit has been granted, students must enroll in and complete with a grade of "C" or higher, that course which follows in sequence the course for which AP credit was granted.

<sup>4</sup> At most, 3 hours credit allowed for AP Statistics.

# Academic Resources and Facilities

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## ENHANCED LEARNING CENTER

The Enhanced Learning Center is designed to provide assistance to all University of Arkansas students in meeting their academic goals here and beyond. The center's goal is for every University of Arkansas student who needs or wants academic assistance to participate in the programs and services of the center without hesitation or barrier. Almost 8,000 students took advantage of the center's programs last year including:

- Tutoring in a variety of subjects (math, the sciences, English, foreign languages, composition and other courses taught throughout the University);
- Supplemental instruction in math and the sciences;
- Study skills workshops;
- Math and writing resources;
- Study rooms; and
- State-of-the art computers.

Center partners include the Math and Tutoring Resource Center (Science Engineering Building); Mullins Library; and University Housing. These partnerships allow the Enhanced Learning Center to deliver academic-success services to students in a variety of locations and formats. For all services, see [elc.uark.edu](http://elc.uark.edu) and [qwc.uark.edu](http://qwc.uark.edu)

The Enhanced Learning Center has two primary locations: The E.L.C., which is on the Garden Level of Gregson Hall and focuses on math, the sciences, world languages, and the social sciences; and the Quality Writing Center, which is located in 316 Kimpel Hall and focuses on both undergraduate- and graduate-level writing assistance.

Enhanced Learning Center satellites are located in Futrell Hall, Mullins Library, and the Freshman Engineering Center. Search for specific times, locations and tutors on the ELC website at <http://elc.uark.edu>. Other satellite locations are in Mechanical Engineering, Mullins Library and the Freshman Engineering Center. Check the Enhanced Learning Center's website for tutor and subject availability.

Contact the Enhanced Learning Center by phone at 479-575-2885 or visit the center's website at <http://elc.uark.edu/>.

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## INFORMATION TECHNOLOGY SERVICES

University of Arkansas IT Services provides information technology leadership and support for academics, research, and public services. A variety of services are hosted by IT Services, including email, the campus network, wireless access, technical support, computer labs, the online student information system, and the learning management system. Student-centered technology services are funded by the Student Technology Fee, assessed by the Associated Student Government and managed by IT Services.

The campus network offers two wireless options for laptops and other mobile devices. UA Secure is an encrypted, secure network for UARK users, providing full access to all online services. UA Wireless is a guest network designed to provide anyone with Internet access on campus. For security, some services are blocked when connecting with UA Wireless.

Email service for students at the University of Arkansas is provided by Google. Students can configure various email applications to connect to [email.uark.edu](mailto:email.uark.edu), including Outlook, OS X Mail, smartphone apps, and open-source applications. New or returning students can refer to the Get Started section of <http://its.uark.edu> for information on activating a UARK account and setting up a personal computer for access to email and wireless.

General Access Computing Labs (GACLs) offer over 300 Windows and Mac computers for use by UARK users. Labs are open during day and evening hours, including weekends, and some are open 24/7. GACLs are located in the Arkansas Union, Mullins Library, J.B. Hunt Center for Academic Excellence, Administrative Services Building (ADSB), and Northwest Quad. PrintSmart, the GACL printing system for students, provides a printing quota equivalent to 700 single-sided black and white pages per student per semester.

Laptops with GACL software installed are available for checkout along with digital cameras, video recorders, and microphones, to students with a University ID at the Student Technology Center in the Arkansas Union. Laptops are also available for checkout at Mullins Library. Students can also work from anywhere 24/7 using VLab at <http://vlab.uark.edu>, a virtual Windows 7 desktop providing real time access to GACL software from their own computers.

The Student Technology Center houses the Gaming Studio, the Digital Media Lab, a tech lounge, and a team room. Students can receive individual tutoring and technical support for multimedia projects working on a number of high-end digital project workstations with a wide range of multimedia software packages in the Digital Media Lab or meet with friends for work or play in the tech lounge or Gaming Studio.

The Faculty Technology Center in Gibson Annex assists faculty in finding and using effective technological tools to enhance classroom learning. The Center's staff works with faculty to support classroom initiatives that involve students using technology. The university's learning management system, Blackboard Learn, is supported by the Center. Other systems, such as Blackboard Collaborate and Echo360, integrate with Blackboard Learn for collaboration, communication, and lecture capture. Technical support for Blackboard Learn, Blackboard Collaborate, and Echo360 is available through the Center.

The Help Desk provides technical support to students, faculty, and staff via telephone at 575-2905, email at [helpdesk@uark.edu](mailto:helpdesk@uark.edu), or through the online AskIT system at <http://askit.uark.edu>. A satellite Help Desk, providing one-on-one technical support and phone support, is located in the Arkansas Union near the entrance to the General Access Computing Lab.

Symantec AntiVirus software downloads are available free of charge from the IT Services website to all university users. Installation is required for all computers accessing the university network, and students living in residence halls are required to install Symantec to gain access to ResNet, the university's residence hall network. See the Get Started section of <http://its.uark.edu> to get Symantec.

A variety of collaborative technologies are available through IT Services, providing members of the university community with the tools to collaborate in and out of the classroom, on campus, and around the globe, including:

- UA Chat offers instant messaging services between UARK users, as well as

MSN, Yahoo!, ICQ, Google, and AIM contacts. Lync provides instant messaging, including audio and video, for faculty and staff.

- Blackboard Collaborate web-based conferencing allows participants to see via web cam, hear and ask questions via voice messaging, collaborate by sharing documents and presentations, discuss in real time, or use a common whiteboard.
- WordPress offers personal web and blogging space for all UARK users.
- Microsoft SharePoint is a web-based application that allows UARK users to create team web pages, manage projects, share documents and calendars, host discussion, create surveys, assign tasks, and control workflow.
- DropboxIT offers a secure online file sharing facility for exchanging large files on and off campus.
- Listserv mailing lists allow for group email communication and provide web-based archives.

Students, faculty, and staff have access to information technology resources on campus through a 10-billion-bits-per-second connection to the fiber-optic National LambdaRail and Internet2 networks. Each year, IT Services upgrades its computer systems, networks, and information system resources to ensure that all information technology at the university is on par with other doctoral-granting research universities.

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## MULTICULTURAL CENTER

The Multicultural Center is here to welcome students to the Razorback family at the University of Arkansas. The Multicultural Center is a department that enhances the student academic experience by preparing them for life in a rich and diverse society. The Multicultural Center is committed to providing an optimal learning environment that promotes cross-cultural interaction among all students by collaborating with university and community constituents to create educational, cultural, and social programs.

The Multicultural Center can be used for educational programming, art displays, and cultural exhibits. Students are encouraged to take advantage of the mentoring programs within the Multicultural Center and the educational and entertainment resources that include books, video and board games, and study areas. The Multicultural Center is located on the fourth floor of the Arkansas Union in Room 404. Contact information: 479-575-8405; Web: multicultural.uark.edu.

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## QUALITY WRITING CENTER

The Quality Writing Center provides face-to-face and online tutorials for undergraduate and graduate students who want to improve their writing. Clients make appointments via the center's web-based scheduling system (<http://qwc.uark.edu>). The main facility is in 316 Kimpel Hall, and a satellite center is located on the Mullins Library ground floor.

Graduate tutors help clients with any writing project. The center's staff of undergraduate peer tutors assist students with freshman composition assignments.

Quality Writing Center tutors take a non-directive approach, allowing students to maintain ownership of their writing and to control the important editorial decisions that improve their drafts. The tutors provide assistance to students at any stage of the writing process: brainstorming, pre-writing, outlining, drafting, and revising.

The center's website at <http://qwc.uark.edu> has 40 handouts covering a wide variety of composition and grammar issues.

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## STUDENT SUPPORT SERVICES

The department of Student Support Services is designed to provide a powerful combination of programs and services to students who are first-generation, and/or modest-income, and/or individuals with disabilities. The services provided by Student Support Services place an emphasis on individual assessment, counseling, advising, and skill building. Some of these services include: academic/financial/personal counseling, financial scholarships, social etiquette instruction, career and graduate school preparation, academic/cultural enrichment, assistance with tutoring, and mentorship.

The overarching goal of the University of Arkansas Student Support Services program is to empower students, assist them in achieving academic excellence, and seeing them through to graduation.

Student Support Services is a department in Diversity Affairs. The office is located on the Garden Level of Gregson Hall. For more details, call Student Support Services at 479-575-3546 or visit the website at <http://sss.uark.edu/>.

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## TALENT SEARCH PROGRAMS

### College Project Talent Search, Educational Talent Search, and University Access Talent Search

College Project, University Access and Educational Talent Search are early-intervention college preparatory projects. Serving more than 2,000 students in grades 6-12, the programs promote the skills and motivation necessary for successfully completing a baccalaureate degree. They prepare students to meet their college goals by emphasizing personal and career development, technological and academic skills, ACT readiness/payment, college preparatory workshops, financial aid, financial literacy, and support for completing a rigorous high school curriculum. Academic monitoring and guidance counseling are incorporated to facilitate student progress. Services are provided at participating schools on an outreach basis, and summer enrichment and campus-based events provide ongoing opportunities for institutional and faculty involvement. The Talent Search programs are under the federal umbrella of "TRIO" programs funded by the U.S. Department of Education. Eligibility requirements include but are not limited to having first-generation/low income status and exhibiting academic potential. For additional information, visit [ts.uark.edu](http://ts.uark.edu)

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## TESTING SERVICES

Testing Services is charged with the responsibility of administering standardized academic tests at the University of Arkansas. The office administers such national tests as the ACT Assessment, the Law School Admission Test (LSAT), the Graduate Management Admission Test (GMAT), the Graduate Record Examination (GRE), and CLEP exams in addition to others throughout the year. National testing companies determine testing dates and deadlines. Testing Services also offers a number of institutional tests such as the Test of English as a Foreign Language (TOEFL) and the Spoken Language Proficiency Test (SLPT). These tests are scheduled at various times as demand dictates. Test fees vary depending on the test.

To obtain a registration bulletin or information about exam dates and deadlines, please stop by 700 Hotz Hall or call 479-575-3948.

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## UNIVERSITY LIBRARIES

The library system of the University of Arkansas, Fayetteville, is composed of the David W. Mullins Library, the main research facility on campus, and four branch libraries:

- The Robert A. and Vivian Young Law Library
- The Fine Arts Library
- The Chemistry and Biochemistry Library
- The Physics Library

The spacious Helen Robson Walton Reading Room is the Libraries' most popular quiet study area, and group study rooms are also available. More than 200 reference databases and thousands of electronic journals are accessible from anywhere with a University ID. Reference librarians assist users in locating and using library resources. Students may send questions by e-mail, telephone, or 24/7 chat, and can schedule a one-on-one session with a librarian for more extensive research questions. Reference librarians also conduct orientation sessions on research methods throughout the semester. Students may also visit the tutors from the Quality Writing Center and the Enhanced Learning Center on site in Mullins Library Sunday through Thursday. With more than 1.9 million volumes and 27,000 journal subscriptions, students will find plenty of research material for every subject. Other resources in the collections include several thousand maps, manuscripts, and more than 33,000 audio and visual materi-

als, including music scores, recordings, and movies, that you can hear or view in the Performing Arts and Media Department.

A full-service computer University Commons is located on the lobby level of Mullins, and students may check out a laptop and log onto the Internet from anywhere in the library using wireless access. Visit the Libraries' Web page at <http://libinfo.uark.edu> to learn more about services and collections or access the My Library function that allows users to check library records, renew books, request holds and save catalog searches. Items not owned by the University Libraries may be obtained through inter-library loan by completing the online registration and request forms. Requested items in electronic format will be sent directly to desktops, usually within 24 hours; physical items will be held for pickup at the main service desk on the Lobby Level.

The University Libraries have had official United States government depository status since 1907. The Federal Depository Library Program provides free public access to U.S. government information by distributing information products from Federal agencies to depository libraries throughout the nation. The Government Documents Department has also been a depository for Arkansas state publications since 1993. The University Libraries' map collection and GIS (Geographic Information Systems) program, including a public GIS workstation equipped with ArcGIS Desktop Suite, are available.

In Special Collections, students can read rare books from around the world, consult the largest book collection related to Arkansas, handle historic letters and diaries, magazines, and old photographs related to Arkansas, as well as watch old black and white films made in or about the state. A number of digital collections can be accessed online through the Special Collections' website at <http://digitalcollections.uark.edu/>.

For information concerning collections and services, please inquire at 479-575-4104. For any other library matter, please contact the Dean's Office at 479-575-6702.

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## UPWARD BOUND PROGRAMS

### **Upward Bound, Upward Bound Academy for Math and Science, and Veterans Upward Bound**

Upward Bound and Upward Bound Math and Science are early intervention programs that help low-income and potential first-generation college students prepare for higher education. These programs bring high school students in grades 9 – 12 to the University of Arkansas campus on weekends and during the summer to receive instruction in mathematics, laboratory sciences, composition, literature, and foreign languages. The programs also provide academic and social support through tutoring, counseling, mentoring, cultural enrichment, financial literacy, field trips, college planning, and financial aid assistance. For students just completing their senior year of high school, Upward Bound provides a summer residential bridge program that enables participants to earn up to six hours of college credit.

Veterans Upward Bound is designed to identify and serve the unique needs of veterans who have the academic potential and desire to enter and succeed in a program of higher education. Eligible veterans must have completed a minimum of 180 days of active duty in the military or Coast Guard and hold any discharge other than dishonorable. Services include tutoring; guidance counseling; assistance in filing financial aid and VA benefit forms; academic/career advisement; test preparation for entrance exams; and courses in English, Spanish, math, science, and computer technology. Courses are offered days and evenings each semester. Funding is provided through grants from the U.S. Department of Education.

# University Centers and Research Units

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Research programs are the means by which the University contributes to the generation as well as to the preservation and dissemination of knowledge. With nationally recognized programs in many areas and funding from government, industry, and other private sources, the research effort of the University is strong and diversified and provides special learning opportunities for students as discoveries are made.

In addition to the extensive work performed by faculty through individual and team efforts in academic departments, special programs of research are conducted by the University divisions described below.

Graduate students are likely to be involved in research conducted by these research units, but the university encourages undergraduates as well to pursue research in their areas of academic interest. Students who wish to engage in research of any kind should seek the guidance of their advisers and professors to identify research teams and projects. In addition to the extensive work performed by faculty through individual and team efforts in academic departments, special programs of research are conducted by faculty members and staff in many associated University research centers. The University invites students to learn more about these centers and the research opportunities they offer by visiting the Web sites or by contacting the individuals listed below.

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## AGRICULTURAL EXPERIMENT STATION

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<http://aaes.uark.edu/>

Richard A. Roeder, associate director

AFLS E108

479-575-2120

The Arkansas Agricultural Experiment Station, a statewide unit of the UA Division of Agriculture, conducts scientific research on the dynamic biological, environmental, economic, and social systems involved in the production, processing, marketing, and utilization of food and fiber, community development, and family studies.

The experiment station is one of the most comprehensive research organizations in Arkansas, with a faculty of approximately 200 doctoral-level scientists. It is an essential part of the research and technology infrastructure that supports Arkansas agriculture and the food and fiber sector.

Experiment station research is conducted in agricultural and environmental sciences, marketing and economics, social issues affecting families and rural communities, nutrition, microbiology, genetics, molecular biology, and other dynamic scientific disciplines.

Many experiment station scientists also are on the teaching faculty of the Dale Bumpers College of Agricultural, Food and Life Sciences. The result is a wealth of opportunity for students to study and work with some of the nation's most respected scientists. Graduate students work on master's thesis and doctoral dissertation research projects as part of a team of experiment station scientists in modern laboratories, greenhouses, and field research facilities.

Experiment station research is closely coordinated with the Arkansas Cooperative Extension Service. Together, they comprise the statewide UA Division of Agriculture.

The Vice President for agriculture heads the Division of Agriculture for the UA

system. The Associate Vice President - extension provides leadership to the cooperative extension service and reports directly to the Vice President for agriculture. The Dean of the Dale Bumpers College of Agricultural, Food and Life Sciences also serves as the Associate Vice President - academic affairs. The Associate Vice President - research also provides leadership for the agricultural experiment station and reports directly to the Vice President for agriculture for agricultural research programs. The Associate Vice President - academic programs reports primarily to the Provost/Vice Chancellor for Academic Affairs for instructional programs and also reports to the Vice President for agriculture.

The mission of the Division of Agriculture, through the combined efforts of the Experiment Station and Extension Service, is to provide new knowledge to strengthen the state's food and fiber sector; assure a safe food supply; conserve natural resources and protect the environment; and assist in the economic and social development of communities, families, and individuals, particularly in the rural areas of the state.

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## APPLIED SUSTAINABILITY CENTER

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<http://asc.uark.edu/>

Jon Johnson, director

479-575-3556

The Applied Sustainability Center in the Sam M. Walton College of Business has a mission to coordinate research and education efforts across the campus with the aim of meeting current demands without compromising the needs of future generations. Some existing research areas are in agile agriculture, life cycle assessment, and reducing the carbon footprint of commercial products. Sustainability projects are undertaken in collaboration with a broad spectrum of businesses, governmental and not-for-profit organizations and academic partners.

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## ARKANSAS ARCHEOLOGICAL SURVEY

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<http://www.uark.edu/campus-resources/archinfo/>

Thomas Green, director

ARAS 147

479-575-3556

[archinfo@cavern.uark.edu](mailto:archinfo@cavern.uark.edu)

The Arkansas Archeological Survey is a research and public service organization charged by the legislature with statewide responsibility for conserving and investigating the state's archeological heritage and with making information on this rich heritage available to all.

To this end it has an extensive publication and public relations program. With a staff of 40 (approximately half of whom are professional archeologists), it is recognized as one of the most effective state-supported archeological research organizations in the country. The survey's coordinating office on the Fayetteville campus consists of the director, the state archeologist, computer services, editorial, graphics, and other support staff. There are also several research archeologists who carry out archeological

investigations under contracts as required by law to protect the state's archeological resources.

There are station archeologists at all 10 research stations around the state, including the Fayetteville campus, who are available for graduate guidance. The survey works closely with the University's Department of Anthropology in training students, cooperates with the state historic preservation officer and other state and federal agencies, and trains and assists citizen groups interested in archeological conservation.

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## ARKANSAS BIOTECHNOLOGY CENTER

The Arkansas Biotechnology Center is home for the University of Arkansas Herbarium. The center houses food safety research efforts of the Department of Food Science as well as the Agricultural Research Services Laboratories and Offices. The center also accommodates the curation laboratory and offices for the university collections. The coordinator of the Arkansas Biotechnology Center is Dr. James Rankin, Ozark Hall 118, 479-575-2470.

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## ARKANSAS CENTER FOR SPACE AND PLANETARY SCIENCES

<http://spacecenter.uark.edu/>  
 William Oliver, director  
 MUSE 202  
 479-575-7625  
[csaps@uark.edu](mailto:csaps@uark.edu)

The Arkansas Center for Space and Planetary Sciences is a research institute of the University of Arkansas, created by faculty from six departments, including Biological Sciences, Chemical Engineering, Chemistry and Biochemistry, Electrical Engineering, Geosciences, Mechanical Engineering, and Physics. Those departments, representing the J. William Fulbright College of Arts and Sciences and the College of Engineering, work closely with the Graduate School and the Honors College.

The center operates world-class research facilities and cutting-edge research projects. It houses the only university-based, large-scale planetary simulation chamber in the country along with major facilities for the analysis of extraterrestrial samples. Major research interests include the analysis of returned samples from space, the nature of Mars, and instrumentation for use in space. The center also operates a number of programs of interest to the university community, grade school teachers and students, and the public.

The space center administers master's and doctoral degree programs in space and planetary science. These provide a unique integrative interdisciplinary education and research training based on a suite of core courses spread across the departments and specialist courses appropriate to the student's specific interests. Professional development in communications, ethics and space policy is also included. Such training gives graduates a competitive edge in today's space and planetary job market.

Additionally, the Departments of Biological Sciences, Geosciences and Physics offer space and planetary science as an option in their own graduate programs. Admission procedures are outlined on the space center Web site along with detailed information about the programs, the research areas, and current research projects.

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## ARKANSAS COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT

<http://new-www3.uark.edu/biscweb/Coop/home/coophome.htm>  
 David Kremrentz, unit leader  
 SCEN 632  
 479-575-6709  
[coopunit@uark.edu](mailto:coopunit@uark.edu)

The Coop Unit is a cooperative venture among the U.S. Geological Survey, Arkansas Game and Fish Commission, the University of Arkansas Department of Biological Sciences, and the Wildlife Management Institute. The Arkansas Coop

Unit was established in 1988 and is part of a network of cooperative fish and wildlife research units that exist in 43 state and land-grant colleges across the United States. The purpose of the Coop Unit program is to conduct applied and basic wildlife and fish research, to train graduate students in research and management methods, and to participate in graduate education and technical assistance. The three unit personnel are federal employees stationed on the University of Arkansas campus.

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## ARKANSAS HIGH PERFORMANCE COMPUTING CENTER

<http://hpc.uark.edu/>  
 Amy Apon, director  
 479-575-6794

The Arkansas High Performance Computing Center is a campuswide provider of supercomputing resources for research by students and faculty. The Star of Arkansas became operational in June 2008 with partial funding from the National Science Foundation. At that time, Star ranked 339 on the list of the world's 500 fastest supercomputers with a sustained performance of 10.75 teraflops (trillions of floating point operations per second). The Center supports a full breadth of research applications including computational condensed matter physics, computational chemistry, and nanoscale material behavior. The Center also provided educational experiences for students seeking experience in a parallel computing environment.

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## ARKANSAS HOUSEHOLD RESEARCH PANEL

The Arkansas Household Research Panel (AHRP) is a continuing project of the Department of Marketing and Logistics. AHRP consists of several hundred Arkansas households that respond to quarterly questionnaires. The AHRP has been used for academic, student, and business-related research. The panel's funding comes from the professional fees that are generated.

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## ARKANSAS LEADERSHIP ACADEMY

<http://www.arkansasleadershipacademy.org/>  
 Debbie Davis, director  
 WAAX 300  
 479-575-3030

The Arkansas Leadership Academy in the College of Education and Health Professions is a model program that prepares leaders for the classroom and the board room, develops accountability to communities, and facilitates the creation of results-driven educational environments. The academy supports reform of the educational system and provides direct services to school districts through district support activities or strategic leadership institutes. Academy graduates become part of a statewide network that pursues educational reform. The network includes representatives from business, industry, state government, the public schools, and higher education. The academy is governed by partners from higher education institutions, education service cooperatives, professional education organizations, state education agencies, foundations and corporations. The synergy created among the partners builds the expertise and capacity for Arkansas to become a true community of learners.

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## ARKANSAS WATER RESOURCES CENTER

<http://www.uark.edu/depts/awrc/>  
 Brian E. Haggard, director  
 OZAR 112  
 479-575-4403  
[awrc@uark.edu](mailto:awrc@uark.edu)

The Arkansas Water Resources Center, a unit of the Division of Agriculture, was established by Public Law in 1964. The Center utilizes scientific personnel and

facilities of all campuses of the University of Arkansas system (and other Arkansas colleges and universities) in maintaining a water resources research program. The center supports specific research projects throughout Arkansas, which often provide research training opportunities for undergraduate and graduate students, and it disseminates information on water resources via publications and conferences. The center works closely with federal, state, municipal, educational, and other public groups concerned with water resources in development of its research, training, and dissemination programs.

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## **BESSIE BOEHM MOORE CENTER FOR ECONOMIC EDUCATION**

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<http://bmcee.uark.edu>

Rita Littrell, director

RCED 217

479-575-2855

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The Bessie Boehm Moore Center for Economic Education, established in 1978 and located in the Walton College of Business, promotes an understanding of the American economy among the people of Arkansas. Its major efforts are directed to elementary and secondary school children. The center's faculty and staff hold workshops and seminars for public school teachers, conduct research in economic education, develop instructional materials, maintain a lending library, and sponsor adult economic educational programs for business, labor, industry, and the general community. In recent years, center personnel have been involved in educating teachers in transitional or developing economies about market economics. The center is officially certified by the Arkansas Council on Economic Education and the National Council on Economic Education.

For college-level students, the center sponsors the Walton College Students In Free Enterprise (SIFE) team. SIFE's mission provides college students the best opportunity to make a difference while developing leadership, teamwork, and communication skills through learning, practicing, and teaching the principles of free enterprise. The Walton College SIFE team welcomes members from other colleges who embrace their mission and want to grow through benefiting the local community. The University SIFE team is quickly becoming a nationally recognized organization.

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## **CENTER FOR ADVANCED COMPUTING AND COMMUNICATIONS RESEARCH**

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The Center for Advanced Computing and Communications Research is housed in the College of Engineering. The Center was established to engage collaborative research in areas that benefit national and international computing and communications industries and Arkansas communities. These include, but are not limited to: algorithms development for information processing and testing, network processors, dependable, secure networks and computing resources, sensor and high performance networks, software and data engineering, cyber security, grid and cluster computing, DNA computing, agent-based computing, and low-power systems.

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## **CENTER FOR ADVANCED SPATIAL TECHNOLOGIES**

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<http://cast.uark.edu/>

Jackson Cothren, director

OZAR 12

479-575-6159

[info@cast.uark.edu](mailto:info@cast.uark.edu)

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The Center for Advanced Spatial Technologies (CAST) focuses on application of geospatial technologies in research, teaching, and service. These technologies include geomatics, GIS, GPS, remote sensing, photogrammetry, geospatial software and systems design, interoperability, and large (multi-terabyte) geospatial databases.

Established in 1991, CAST is a unit of the J. William Fulbright College of Arts and Sciences. CAST has a campus-wide focus, working with the departments

of anthropology; architecture; crop, soil, and environmental science; biology; bioengineering; civil and industrial engineering; geosciences; entomology; and landscape architecture. Other related partners include the Environmental Dynamics Program, the Arkansas Water Resources Center, Mullins Library, and the Arkansas Archeological Survey.

CAST has been selected as a Center of Excellence by many corporations, including the Intergraph Corporation, Trimble Navigation Inc., the Oracle Corporation, Definiens Imaging, Sun Microsystems, Spatial Acquis, and PCI Geomatics. These and other corporate sponsors have provided more than \$22 million of in-kind support of the research teaching facilities of the center. The center has extensive hardware and software capabilities, including more than 100 high-performance workstations, multiple Linux, Windows XP and Solaris servers (combined seven terabyte of on-line disk), large-format plotters, mapping and survey-grade GPS, MSS instruments, spectroradiometers, terrestrial laser scanners, and an extensive inventory of software.

University of Arkansas undergraduate and graduate students have a wide range of geomatics courses available to them that utilize CAST faculties and laboratories. These courses, taken along with related courses in cartography, remote sensing, image interpretation, photogrammetry, surveying, and spatial statistics, provide the student with a range of career options. In addition to classroom instruction, CAST facilities are used by students in both undergraduate and graduate research projects. The internship program in Applied Spatial Information Technologies offers students an opportunity to gain hands-on experience in geospatial technologies.

CAST staff are engaged in research projects in a wide range of areas. A few recent research projects focused on areas such as the creation of a seamless, on-line spatial data warehouse; K-12 GIS education; soil survey by remote sensing; land-use/land-cover identification; remote sensing for historic resources; natural resources wetlands analyses; multi-sensor remote sensing for historic resources; and predicting red oak borer populations.

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## **CENTER FOR ARKANSAS AND REGIONAL STUDIES**

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<http://www.uark.edu/misc/carsinfo/>

Robert Cochran, director

MAIN 506

479-575-7708

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A multidisciplinary agency within the J. William Fulbright College of Arts and Sciences, the Center for Arkansas and Regional Studies encourages research, publication, and dissemination of knowledge about life and culture in Arkansas and the surrounding region. The center administers the interdisciplinary major in American Studies and sponsors lectures, seminars, conferences, radio programs, and international student exchanges. The center also produces workshops and audio and video documentary recordings, and works with Mullins Library to locate and collect Arkansiana and other regional materials.

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## **CENTER FOR BUSINESS AND ECONOMIC RESEARCH**

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<http://cber.uark.edu/>

Kathy Deck, director

WJWH 545

479-575-4151

[cberinfo@cavern.uark.edu](mailto:cberinfo@cavern.uark.edu)

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The Center for Business and Economic Research (CBER) is a public service/outreach center and a student-faculty research center. An integral part of the Sam M. Walton College of Business, CBER conducts externally sponsored research for local and state government, as well as the state business community. The staff responds daily to requests for state and local economic and demographic data.

In addition to conducting externally funded research, CBER maintains several electronic database libraries of economic and financial information to serve the needs of students and faculty. Examples of organizations with which CBER has been involved include the Arkansas Department of Finance and Administration, Arkansas Department of Parks and Tourism, U.S. Army Corps of Engineers, Beverly Enterprises Inc.,



Mercury Energy, and the Arkansas Research and Technology Park planning group.

CBER publishes the Arkansas Business and Economic Review, a quarterly business and economics journal, which is dedicated to providing information about Arkansas' business and economic environment. The review covers state, regional, and national business and economic issues. It includes state and regional economic indices relating to personal income, industrial output, employment, population, and other factors.

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## CENTER FOR COMMUNICATION AND MEDIA RESEARCH

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[http://www.uark.edu/depts/comm/Center\\_for\\_Communication\\_and\\_Media\\_Research.html](http://www.uark.edu/depts/comm/Center_for_Communication_and_Media_Research.html)

Robert H. Wicks, director

KIMP 417

479-575-3046

[rwicks@uark.edu](mailto:rwicks@uark.edu)

The Center for Communication and Media Research (CCMR) advances knowledge and supports scholarly and applied inquiry into the study of interpersonal, group, organizational, and media communication. The center sponsors outreach programs designed to help under-served populations, educational institutions, media companies, businesses, and non-profit organizations.

Multidisciplinary in nature, the center facilitates scholarship among allied disciplines such as journalism, law, business, political science, psychology, sociology, and computer science. Research topics include

de communication and advertising, dispute resolution, education, environmental concerns, family, health, information technology, legal concerns, life stages, media audiences, organizational concerns, politics, and religion.

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## CENTER FOR CHILDREN AND YOUTH

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<http://coehp.uark.edu/9740.php/>

Chris Goering, director

PEAH 305

479-575-4209

[cgoering@uark.edu](mailto:cgoering@uark.edu)

The Center for Children and Youth is designed to address issues of intellectual growth, social development, literacy, the arts, and techniques for addressing generational or regional poverty issues. This will be accomplished through teacher professional development, pre-service education, research, as well as curriculum development and dissemination. The center was established by a generous gift of the Windgate Family Foundation in 2006 to the College of Education and Health Professions.

In 2010, the Center for Children and Youth hosted a national conference in Springdale, Ark., focused on the confluence of literacy and the arts. The conference featured speakers from the Kennedy Center for Performing Arts, Temple University, the National Council of Teachers of English, and local experts on arts integration approaches to teaching. Later in 2010, Dr. Chris Goering in the Curriculum and Instruction Department was appointed as the center's first director. E-mail Dr. Goering or call him at 479-575-4209.

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## CENTER FOR ENGINEERING LOGISTICS AND DISTRIBUTION

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<http://celdi.ineg.uark.edu/>

Russell D. Meller, executive director

BELL 4207

479-575-2124

The Center for Engineering Logistics and Distribution (CELDi) is a multi-university, multi-disciplinary, National Science Foundation sponsored Industry/University Cooperative Research Center located in the Department of Industrial

Engineering. CELDi emerged in 2001 from The Logistics Institute (1994) to provide integrated solutions to logistics problems, through research related to modeling, analysis, and intelligent-systems technologies. Research endeavors are driven and sponsored by representatives from a broad range of member organizations, including manufacturing, maintenance, distribution, transportation, information technology, and consulting. Partner universities include the University of Oklahoma, Oklahoma State University, and the University of Louisville. This partnership among academic institutions and industry represents the effective integration of private and public sectors to enhance a U.S. competitive edge in the global market place.

CELDi helps industry partners excel by leveraging their supply chain to achieve a distinguishable, sustainable difference. Member companies realize a measurable return on their investment by creating competitive value chains in terms of cost and service quality. Through basic research, collaborative applied research with industry, technology transfer, and education, CELDi is a catalyst for developing the engineering logistics methodology necessary for logistics value chain optimization.

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## CENTER FOR EXECUTIVE EDUCATION

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<http://cmed.uark.edu/>

Therese Steifer, director

RCED 140

479-575-2856

[cmed@walton.uark.edu](mailto:cmed@walton.uark.edu)

The Center for Executive Education in the Sam M. Walton College of Business provides executive and middle management training opportunities designed to enhance quality in leadership, management decision making, and human resource skills and abilities for corporate and public clients. Programs provide training for implementation of current acceptable practices and approaches to problem solving that support progressive management achievements. Programs are custom designed for individual clients, or they are designed in modular fashion from several pre-prepared programs to meet the general leadership needs of organizations and include such topics as customer service, leadership, team development, total quality and continuous improvement, and personal skills development. The center serves local, national, and multinational businesses. The center operates on a fee-for-service basis, and its activities are supported from fee based revenues. It also provides directive support for Arkansas manufacturers who seek to produce and market products for the mass market and for its retailers through the Support Arkansas Made program. Support Arkansas Made assists manufacturers in the evaluation of new products and product ideas based upon marketable criteria.

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## CENTER FOR INFORMATION SECURITY AND RELIABILITY

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<http://cmed.uark.edu/>

Brajendra Panda, director

JBHT 504

479-575-2067

[bpanda@uark.edu](mailto:bpanda@uark.edu)

The center was established to promote education and research in the field of computer security and information assurance at University of Arkansas. The activities of this center includes, but not limited to the following: fostering multidisciplinary research, securing large-scale funding from federal, state, and other funding agencies, providing education and training to future work-force, increasing awareness in the field of information security and reliability by offering appropriate seminars and workshops.

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## CENTER FOR INNOVATION IN HEALTHCARE LOGISTICS

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<http://cihl.uark.edu/>  
 Ron Rardin, director  
 479-575-6033

Founded in March 2007, the Center for Innovation in Healthcare Logistics in the College of Engineering seeks ways to adapt logistics and supply chain solutions from other industries to improve the delivery of health care. The goal is to recover significant costs and achieve new efficiencies, while enhancing safety, quality and equity of patient care.

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## CENTER FOR MATHEMATICS AND SCIENCE EDUCATION

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<http://cmase.uark.edu>  
 Lynne Hehr, director  
 346 N. West Avenue, No. 102  
 479-575-3875

The Center for Mathematics and Science Education (CMASE) – a University of Arkansas K-16 education outreach facility within the College of Education and Health Professions – works in conjunction with the Arkansas Department of Higher Education as part of a network of twelve mathematics and science centers on university and college campuses around Arkansas. The main objectives of the center are to 1) provide science, mathematics and technology professional development for K-16 pre-service and in-service teachers; 2) assist in statewide K-16 education initiatives; 3) coordinate regionally beneficial grant-funded programs among universities and colleges for K-16 education; 4) provide science, mathematics and technology educational materials, resources, and information to the K-16 community; and 5) link common K-16 education allies throughout the state.

University Day, Science/Engineering Fairs, Springfest, and various K-16 teacher and student programs are conducted through CMASE. Day-to-day educational outreach information is sent to local, regional, and statewide constituencies through the Center's Web site and various e-mail listservs. CMASE is a host site for the federally sponsored Eisenhower National Clearinghouse and the Southwest Educational Development Laboratory Consortium. CMASE also serves as the Arkansas National Aeronautics and Space Administration (NASA) Educator Resource Center, responsible for warehousing and disseminating NASA materials and providing regular updates on NASA programs and materials to the state.

Web pages specifically designed to provide a wealth of material resources and information available for public, private and home-school educators across the state can be accessed at the Web site.

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## CENTER FOR PROTEIN STRUCTURE AND FUNCTION

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<http://protein.uark.edu/>  
 Frank Millett and Roger Koeppel, co-directors  
 CHEM 119  
 479-575-4601

The Center for Protein Structure and Function is an interdisciplinary unit for research and teaching within the departments of chemistry/biochemistry and biological sciences in the J. William Fulbright College of Arts and Sciences. The center raises funds from federal, state, and private sources and sponsors faculty- and student-initiated basic research on the folded structures of protein molecules, their dynamic properties, and their diverse functions in biological systems. The center has been awarded funding from the National Science Foundation, the Arkansas Science and Technology Authority, and the National Institutes of Health.

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## CENTER FOR RETAILING EXCELLENCE

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<http://cre.uark.edu/>  
 Claudia B. Mobley, director  
 WJWH 538  
 479-575-2643

The Center for Retailing Excellence in the Sam M. Walton College of Business promotes superior performance in retail practice through both research and education programs. Through its efforts, the center promotes student interest in and preparation for careers in retailing and closely related businesses. The center works to develop strategic alliances between business academics and industry by focusing on interdisciplinary issues and concerns of retailers and vendors in both its activities and research programs. By means of its initiatives and support, the center stimulates research that advances knowledge of retailing and addresses problems faced by retailing organizations and vendor firms. The Center for Retailing Excellence provides a range of benefits for constituent groups comprised of students, retail organizations and their suppliers, and faculty researchers.

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## CENTER FOR SEMICONDUCTOR PHYSICS IN NANOSTRUCTURES

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<http://www.nhn.ou.edu/cspin>  
 Greg Salamo, co-director  
 PHYS 226  
 479-575-5931

The University of Arkansas and University of Oklahoma are equal partners in the Center for Semiconductor Physics in Nanostructures (C-SPIN). C-SPIN is funded by the National Science Foundation under the Materials Research Science and Engineering Center program, with \$4.5 million in NSF funding committed to C-SPIN over five years.

C-SPIN personnel include faculty from the physics and chemistry departments. C-SPIN students are enrolled in physics, chemistry, and microelectronic- photonic graduate programs and pursue research ranging from the study of quantum dots grown one atom at a time to colloidal nanocrystals destined to become future detectors of biological processes. In addition to the nanoscience emphasis of C-SPIN, the center also strongly supports K-12 outreach efforts to move the excitement of advanced research into school systems. The efforts of C-SPIN personnel in this area are designed to increase the level of science and technology competency in both Oklahoma and Arkansas. For more information, visit the C-SPIN website.

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## CENTER FOR SOCIAL RESEARCH

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William Schwab, director  
 Main 211  
 479-575-3206  
 bschwab@uark.edu

Since 1982 the Center for Social Research has provided research services to government agencies, communities and businesses. Located in the Department of Sociology, the center can conduct survey and public opinion research, impact assessment, evaluation and policy assessment. The center's staff can provide assistance with research methodology and design, sampling, data collection and analysis.

The center's professional staff has vast experience in virtually every aspect of social research. In addition, the center's resources include computer-assisted telephone interviewing facilities; extensive archival data holdings, including online access to the archival holdings of the Inter-University Consortium for Political and Social Research at the University of Michigan; and, in-house statistical analysis.

For more information, contact Director William Schwab at 479-575-3206.

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## CENTER FOR STATISTICAL RESEARCH AND CONSULTING

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Joon Jin Song, director  
 SCEN 309B  
 479-575-6319  
 csrc@uark.edu

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The Center for Statistical Research and Consulting will be a service and research unit of UA, administratively housed in Department of Mathematical Sciences, providing faculty and graduate students in the university with an environment for collaboration in research and instruction emphasizing statistical / quantitative approaches. It offers statistical consulting and statistical software support to faculty, staff, graduate and undergraduate students conducting research at UA. The center will extend this statistical support to the State of Arkansas, directly providing some consulting services but primarily acting as a conduit for industry, government, and non-profit organizations to engage campus faculty and graduate students in consulting opportunities. The community support activities from the center will stimulate and enhance campus research and instructional efforts as well as provide important services to organizations throughout the region.

The mission of the Center for Statistical Research and Consulting is to participate in research to provide high quality statistical input to high quality research projects, train statisticians to interact effectively with investigators from other disciplines, and encourage collaborative research between statisticians and investigators from other disciplines.

The center is a fee-for-service unit. The initial consulting meeting with a client is provided at no cost. All subsequent and follow-up visits will require financial support.

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## CENTER FOR THE UTILIZATION OF REHABILITATION RESOURCES FOR EDUCATION, NETWORKING, TRAINING AND SERVICES

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<http://www.rcep6.org/>  
 Jeanne Miller, director  
 105 Reserve St., Building 35  
 Hot Springs, AR 71902  
 501-623-7700

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Established in 1974, this center provides human resource and organization development services for a broad audience in the rehabilitation and disability communities. Projects managed by CURRENTS vary in scope from state and local to regional and national levels. The center is housed at the Hot Springs Rehabilitation Center, Hot Springs, Arkansas.

## REHABILITATION RESEARCH AND TRAINING CENTER FOR PEOPLE WHO ARE DEAF OR HARD OF HEARING

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<http://www.uark.edu/depts/rehabres/>  
 Douglas Watson, project director  
 26 Corporate Hill Drive  
 Little Rock, AR 72205  
 501-686-9691 (v/tty)

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Established in 1981, this national center conducts research and training programs to enhance rehabilitation efforts on behalf of the 31 million U.S. citizens who are deaf or hard of hearing. These programmatic efforts are directed toward enhancing the career preparation, job entry and placement, career advancement, and workplace communication accommodations consistent with the Americans with Disabilities Act. The center is located in Little Rock and is currently conducting research focused on improving the nation's services for those individuals with functional limitations that necessitate intensive and longer-term education, rehabilitation and related services to enhance employment, independent living and community participation.

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## CENTER OF EXCELLENCE FOR POULTRY SCIENCE

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<http://www.poultryscience.uark.edu/>  
 Michael Kidd, director  
 POSC 114  
 479-575-3699

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With designation by the University of Arkansas Board of Trustees to make poultry science a center of excellence in the state's university system, the department of poultry science became a reality in 1992.

The Center of Excellence for Poultry Science (CEPS) is comprised of full-time poultry science faculty members, full-time USDA/ARS Poultry Research Group faculty members, graduate assistants, adjunct faculty, and poultry science departmental staff. CEPS receives multidisciplinary contributions from several University departments including animal science; biological and agricultural engineering; biological sciences; crop, soil, and environmental sciences; entomology; food science; industrial engineering; the School of Human and Environmental Sciences; and the UALR College of Pharmacy.

The Department of Poultry Science and the research group are housed in the John W. Tyson Building, which is a 112,000-square-foot, state-of-the-art laboratory and office complex that was completed the fall of 1995 on the UA campus. In addition to the John W. Tyson Building on the main campus, CEPS comprises the following facilities:

- FDA-licensed feed mill;
  - 10,000-square-foot processing plant used for teaching processing techniques and for ongoing food safety research projects;
  - 12,000-square-foot John Kirkpatrick Skeeles Poultry Health Laboratory, which holds the highest bio-safety rating (P3) available in the country;
  - A poultry research farm facility including hatchery, genetics unit, pullet-rearing facility, battery brooder, caged layer house, broiler breeder houses and turkey houses;
  - Four full-sized broiler houses equipped with computerized environmental control and data collection systems capable of commercial-type production research; and
  - A broiler breeder research facility that includes two full-size broiler breeder houses, a pullet-rearing facility, and quality assurance building with offices, classroom, and egg holding capacity.
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## CHEMICAL HAZARDS RESEARCH CENTER

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<http://www.cheg.uark.edu/4444.php/>  
 Jerry Havens, director  
 BELL 3157  
 479-575-3857  
 jhavens@uark.edu

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The Chemical Hazards Research Center determines the consequences of atmospheric release of potentially hazardous materials with a present emphasis on liquefied natural gas in transportation and storage operations. Computational models are used in conjunction with the wind tunnel at the center, which is presently the largest low-speed wind tunnel suited for such studies.

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## THE COMMUNITY AND FAMILY INSTITUTE

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<http://sociology.uark.edu/3550.php>  
 Kevin Fitzpatrick, director  
 MAIN 211  
 479-575-3777  
 kfitzpa@uark.edu

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The Community and Family Institute is a joint effort of the University of Arkansas and the Harvey and Bernice Jones Center for Families in Springdale, Arkansas. The institute is a multidisciplinary research center in the J. William Fulbright College

of Arts and Sciences that conducts basic and applied research, as well as policy-related studies on the critical issues facing families and communities in the region and the nation. The institute raises funds from federal, state, and private sources and sponsors applied research by faculty and students on the family and the community.

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### DAVID AND BARBARA PRYOR CENTER FOR ARKANSAS ORAL AND VISUAL HISTORY

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<http://libinfo.uark.edu/specialcollections/pryorcenter/>

Kris Katrosh, director  
MULN 403  
479-575-6829

The mission of the Pryor Center for Arkansas Oral and Visual History is to document Arkansas' rich history by collecting the "living memories" of those who have been witness to various aspects of the state's past. Using traditional oral history methodology, the center interviews individuals, transcribes those interviews, and deposits them with the Special Collection's Division of the University of Arkansas Mullins Library. The center is responsible for preserving these memories and making them available to scholars and researchers interested in the culture and heritage of Arkansas. The center is located in Mullins Library, Room 403, 365 N. McLroy Ave., University of Arkansas, Fayetteville, AR 72701; to contact the center, call 479-575-6829, or visit the website.

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### DIANE D. BLAIR CENTER OF SOUTHERN POLITICS AND SOCIETY

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<http://www.uark.edu/ua/tshield>

Todd Shields, director  
MAIN 428  
479-575-3356

The Blair Center, located in the Department of Political Science, is dedicated to fostering political scholarship, public service, civic consciousness, and the study of Southern politics, history and culture. The center supports graduate students studying topics relevant to the South and hosts conferences and periodic speakers discussing issues relevant to Southern politics and society.

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### ENGINEERING EXPERIMENT STATION

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Research is a major function of each of the faculties within the seven departments in the College of Engineering. Research coordination is achieved through the Engineering Experiment Station, which was established for that purpose by an act of the Arkansas Legislature in 1920.

The overall goal of research in the College of Engineering is to provide engineering solutions to important problems that face our society. We utilize our faculty, staff, students, and facilities to enhance the well-being of both public and private sectors. Student involvement in research is especially important in that it helps link them to the needs of their future employers. All departments – biological and agricultural, chemical, civil, computer engineering, electrical, industrial, and mechanical engineering – conduct research over a broad spectrum of subjects that includes areas such as biological and chemical processes; electronics manufacturing; environmental and ecosystems analysis; material and manufacturing; software and telecommunications; and transportation, logistics, and infrastructure. Funding for research within the college comes primarily through grants received from government and industry sources.

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### ENGINEERING RESEARCH CENTER

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<http://www.uark.edu/ua/artp/facilities/enrc.html>

Mike Brosius, facility manager  
700 Research Center Blvd.  
479-575-7318  
brosius@uark.edu

The Engineering Research Center provides the facilities and support services for a wide variety of research activities of the College of Engineering. The center houses the Engineering Experiment Station through which the research of individual departments of the college is handled, the Genesis Technology Incubator program, the Southwestern Regional Calibration Center, the High Density Electronics Center, the Arkansas Center for Technology Transfer, the Industrial Training Laboratory, the Center for Interactive Technology, the Systems Technology Laboratory, the Highway Construction Materials Laboratory, the Hydrology Laboratory, the Low-Speed Wind Tunnel Laboratory, and the engineering extension office.

The center is located in a modern 186,000-square-foot facility on 32 acres approximately two miles south of the main campus in Fayetteville.

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### FULBRIGHT INSTITUTE OF INTERNATIONAL RELATIONS

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<http://www.uark.edu/~fiir/>

Donald R. Kelley, director  
MAIN 428  
479-575-2006

An interdisciplinary unit within the J. William Fulbright College of Arts and Sciences, the Fulbright Institute of International Relations encourages student and faculty research and scholarly analysis of foreign policy and international affairs. The institute sponsors instructional activities, conferences, seminars, public events, and publications, including a major spring symposium on a significant topic in international affairs. The institute's office of Study Abroad and International Exchange coordinates a number of overseas programs and provides support services for students interested in study abroad.

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### GARRISON FINANCIAL INSTITUTE

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<http://gfi.uark.edu>

Wayne Lee, executive director  
RCED 205  
479-575-4399

The Garrison Financial Institute is an institute organized within the Sam M. Walton College of Business to advance financial education and knowledge through practice. Its mission is to enhance student learning through experience, foster research that extends and perfects best practices, and contribute to the economic development of the State of Arkansas and the welfare of its citizens. The center was founded in 2005.

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### GARVAN WOODLAND GARDENS

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<http://www.garvangardens.org/>

Bob Byers, Garden Director  
550 Arkridge Road, PO Box 22240  
Hot Springs National Park, AR 71913  
1-800-366-4664  
gardeninfo@garvangardens.org

Garvan Woodland Gardens is the botanical garden of the University of Arkansas, established in 1993 by an endowment from Mrs. Verna C. Garvan. Her vision is the foundation of the Garden's mission to serve the public and provide teaching and

research opportunities for the Department of Landscape Architecture and the Fay Jones School of Architecture.

As early as 1985, the Department of Landscape Architecture was utilizing portions of the 210 acres on Lake Hamilton, in Hot Springs, AR, as a resource to teach local ecology and design principles. Teaching opportunities continue in these areas and currently feature urban forestry, wetland ecology, construction methods and materials, design implementation, and horticulture. Numerous designed features offer case studies for landscape architecture and architecture students as well as professionals, including the Asiatic Garden by David Slawson, a nationally recognized Japanese garden designer, and the Verna C. Garvan Pavilion, by internationally recognized architects Fay Jones and Maurice Jennings.

Research opportunities lie in wetland ecology and constructed wetland design, sustainable design, and therapeutic gardens. Ongoing public programs feature workshops on gardening techniques, bonsai collections, and perennials.

An annual symposium focuses on timely issues affecting the quality of life of people in Arkansas and the nation. Past topics include historic landscape preservation practice in Arkansas and sustainable golf course design.

Garvan Woodland Gardens is a member of the American Association of Botanical Gardens and Arboreta.

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## GENESIS TECHNOLOGY INCUBATOR

<http://www.uark.edu/ua/artp/>  
 David Whitmire, director of finance  
 700 Research Center Blvd.  
 479-575-7446

Located at the Arkansas Research and Technology Park and acting as a resource for the University, GENESIS provides technology-based companies with research and development support by allowing these firms access to University labs and facilities as well as technical support from University researchers. Firms accepted into GENESIS are provided physical space in University research centers as well as office space, shared support services, and both business and technical guidance. GENESIS' goal is that of creating jobs for Arkansans skilled in the science and engineering professions as well as helping to diversify both Arkansas' technology and economic base. Applicants must meet strict technical guidelines as determined by a committee of University researchers, administrators, and a 15-member advisory board comprised of community business leaders. GENESIS was conceived to span all University colleges and departments by providing entrepreneurs needing research and development support a method for obtaining and coordinating the same through a program which focuses the resources of the entire campus for this common objective.

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## HIGH DENSITY ELECTRONICS CENTER

<http://www.hiddec.uark.edu/>  
 Simon Ang, director  
 HiDEC/ENRC 700  
 479-575-4627

The High Density Electronics Center (HiDEC) was established in 1991 as an interdisciplinary research program in advanced electronic packaging technologies, particularly the rapidly developing technology of multichip modules (MCMs), which allow electronic systems to be small, fast, and cheap.

With generous support from the Defense Advanced Research Projects Agency (DARPA), a large clean room was constructed, and an MCM fabrication facility, unique among universities, was installed. Current research programs focus on 3-D electronic packaging, high density laminate substrates, co-fired ceramic substrates for wireless applications, high temperature superconducting (HTSC) tunable filters, micro electromechanical systems (MEMS), and integrated passives development. The program is located in the Department of Electrical Engineering but involves faculty from six departments and more than 25 graduate students. Continuing funding comes from DARPA and several industrial sponsors. Significant national recognition has resulted from work performed at HiDEC.

HiDEC also houses the Center of Excellence for Nano-, micro-, and Neuro-Electronics, Sensors and Systems (CENNESS).

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## HUMAN PERFORMANCE LABORATORY

<http://hpl.uark.edu>  
 Ro DiBrezzo, director  
 HPER 321  
 479-575-6762

The Human Performance Laboratory in the College of Education and Health Professions in the Department of Health Science, Kinesiology, Recreation and Dance has a dual-purpose mission: educational outreach and research programs for targeted populations. The program is committed to the pursuit of knowledge about the health and well-being of people through research, research dissemination, outreach, and service. Known for an emphasis on fitness, the program provides an opportunity for faculty and students to conduct ongoing research and service programs.

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## INFORMATION TECHNOLOGY RESEARCH INSTITUTE

<http://itrc.uark.edu/>  
 Eric Bradford, managing director  
 JPHT 409  
 479-575-4261

The Information Technology Research Institute (ITRI) is an interdisciplinary unit for research within the Sam M. Walton College of Business. The mission of the ITRI is to advance the state of research and practice in the development and use of information technology for enhancing the performance of individuals and organizations; provide a forum for multi-disciplinary work on issues related to information technology; promote student interest in the study of information technology; and facilitate the exchange of information between the academic and business communities. The ITRI was established by a grant from the Walton Family Charitable Support Foundation.

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## INSTITUTE FOR NANOSCIENCE AND ENGINEERING

<http://nano.uark.edu/>  
 Gregory Salamo, director  
 NANO 104  
 479-575-4187

The Institute for Nanoscience and Engineering is based in the Nanoscale Material Science and Engineering Building, opened in 2011 with the state-of-the-art equipment and clean rooms necessary for building materials one atom at a time. The institute provides an interdisciplinary team of researchers in the fields of physics, engineering, chemistry and biology whose mission, in part, is to develop businesses in Arkansas based on nanoscience and engineering.

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## INSTITUTE OF FOOD SCIENCE AND ENGINEERING

<http://www.uark.edu/depts/ifse/>  
 Jean-Francois Meullenet, director  
 Food Science Building  
 2650 N. Young Ave.  
 Fayetteville, AR 72704  
 479-575-4040

The Institute of Food Science and Engineering and its three technology centers grew from the commitment of the University of Arkansas Division of Agriculture to finding creative ways to bring its expertise and resources to bear on specific problems and issues that affect productivity and growth in the food processing industry, with the mission of strengthening that critical component of the agricultural sector and the entire economy.

The institute assists industry by fostering cooperative, multidisciplinary efforts that provide research to solve problems, technology transfer to put new information to work, and education in skills needed by specific industries. Alliances between the institute and private industry devise solutions to identified problems. This demand-driven approach assures a direct, positive impact on the value-added processing of food products.

The Center for Food Processing and Engineering's primary objective is to facilitate research leading to value-added products and improving the efficiency and effectiveness of the processing of agricultural products. Activities of the Center for Food Safety and Quality seek to maintain or improve the safety of foods through production, harvest, processing, distribution, and storage. The main thrust of the Center for Human Nutrition is to develop new value-added functional foods with elevated levels of health-promoting compounds and ways to motivate people to include generous amounts of these foods in their daily diets. These efforts will assure food safety and improve the sensory and nutritional quality of food to meet the nutritional requirements and food preferences of a changing society.

The offices of the Institute of Food Science and Engineering are located in the Food Science Building at the Arkansas Agricultural Research and Extension Center.

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## INTERNATIONAL CENTER FOR THE STUDY OF EARLY ASIAN AND MIDDLE EASTERN MUSICS

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<http://www.uark.edu/ua/eeam>

Rembrandt Wolpert, director

MUSC 201

479-575-4701

[ceam@cavern.uark.edu](mailto:ceam@cavern.uark.edu)

The International Center for the Study of Early Asian and Middle Eastern Musics, established in 2000, is a research center located in the Department of Music in the J. William Fulbright College of Arts and Sciences.

The center coordinates the international Tang Music Project and is linked with the Ancient Asian Music Preservation Project of the Library of Congress, a partnership that includes internships at the Library as well as an acquisitions program. The center also functions as the base for graduate training in historical ethnomusicology and related fields, specifically tailored toward early documented repertoires of ritual- and art-music and present day performance practices in historically significant musical traditions of Asia and the Middle East. The recovery of early Asian musics and the design of music-centered algorithms and their implementation in computer programs are central aspects of the center's research and teaching activities. The center works closely with both the Department of Music and the King Fahd Center for Middle East and Islamic Studies in sponsoring lectures, seminars, concerts, and workshops, and it collaborates in developing international ties to other institutions and in promoting student and performing-artist exchanges. For more information, contact Elizabeth Markham or Rembrandt Wolpert at 479-575-4702.

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## KING FAHD CENTER FOR MIDDLE EAST STUDIES

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<http://mest.uark.edu/>

Joel Gordon, director

MAIN 202

479-575-4755

The King Fahd Center for Middle East Studies is an academic and research unit in the J. William Fulbright College of Arts and Sciences. It is an interdisciplinary and interdepartmental area studies center that offers diverse cultural, intellectual, and educational opportunities for the University of Arkansas community. Its functions include the promotion of research and teaching in interdisciplinary Middle East studies and global Islamic studies.

Through the King Fahd Middle East Studies Program (MEST), the center offers an undergraduate major in Middle East Studies and supports graduate studies in Middle East-related departments and programs. Middle East studies majors of

superior ability may apply for MEST scholarships to help fund their studies. The center also supports summer language study and research assistantships for graduate students and teaching and research by visiting scholars from affiliated universities and programs.

Through its core faculty, the center coordinates with University departments to offer a full range of Middle East courses, supports faculty research in Middle East and Islamic studies, engages in outreach activities, and supports an ambitious program of visiting speakers and workshops. The King Fahd Center currently maintains relationships with universities in Saudi Arabia, Jordan, Morocco, Tunisia, and Russia. The center also cooperates with the Aga Khan Humanities Program in Central Asia, the Middle East Institute in Washington, D.C., and the Elijah Center for the Study of Wisdom in World Religions in Jerusalem.

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## MACK-BLACKWELL NATIONAL RURAL TRANSPORTATION STUDY CENTER

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<http://www.mackblackwell.org/>

Heather Nachtmann, director

BELL 4190

479-575-5857

The Mack-Blackwell National Rural Transportation Study Center (MBTC) was established by a grant from the U.S. Department of Transportation to provide educational opportunities and conduct research in the area of rural transportation. Additional support is received from the Arkansas Highway and Transportation Department.

The broad objective of the center is to improve the quality of life in rural areas through transportation. The educational objective is to provide graduates qualified to enter the transportation-related professions with the diversity of backgrounds needed to lead transportation development in the 21st century. Although housed within the Department of Civil Engineering, MBTC's activities are not limited to engineering. All disciplines related to or impacted by transportation participate in MBTC research and educational activities.

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## NATIONAL AGRICULTURAL LAW CENTER

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<http://www.NationalAgLawCenter.org/>

Harrison Pittman, director

WATR 107

479-575-7646

[nataglaw@uark.edu](mailto:nataglaw@uark.edu)

The National Agricultural Law Center is a federally funded agricultural law research and information center located at the University of Arkansas School of Law. Created in 1987, the center fulfills its mission by conducting and sponsoring objective and authoritative agricultural and food law research and by providing bibliographic and other resources on agricultural and food law.

The center works closely with the UA School of Law Graduate Program in Agricultural Law, an academic program that awards the Master of Laws degree in Agricultural Law. Selected students in the graduate program serve as research fellows at the center during their residency in the graduate program.

The center is the only one of its kind in the United States and has received national recognition. It recently enhanced its national reach by establishing a collaborative relationship with the Agricultural Law Center at Drake University School of Law in Des Moines, Iowa.

Publications and research assistance are available in print and through the website.

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## NATIONAL CENTER FOR RELIABLE ELECTRIC POWER TRANSMISSION

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<http://ncrept.eleg.uark.edu/>  
 Alan Mantooh, executive director  
 2055 South Innovation Way  
 479-575-4838

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The National Center for Reliable Electric Power Transmission (NCREPT) in the College of Engineering is located in a new building at the Arkansas Research and Technology Park. The Center seeks to research and develop prototypes of advanced power electronics systems for applications in the power grid, including both protection and storage devices.

The Center also serves as a test facility for advanced power electronic circuit and package designs for distribution-level voltages and high currents. The Center is a unique educational resource for students interested in working in the power utility and power electronics sectors.

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## NATIONAL OFFICE OF RESEARCH, MEASUREMENT, AND EVALUATION SYSTEMS

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<http://normes.uark.edu>  
 Sean Mulvenon, director  
 WAAX 302  
 479-575-5593  
[orme@cavern.uark.edu](mailto:orme@cavern.uark.edu)

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The Office of Research, Measurement, and Evaluation, organized in 1998, is a research and service unit in the College of Education and Health Professions in the Department of Curriculum and Instruction. Its mission includes the analysis and dissemination of data to facilitate school improvement and reform in Arkansas. The faculty and staff of the office offer expertise in the areas of educational statistics, test and measurement theory, research design, standardized assessment, program evaluation, and policy analysis. The mission of the office is to conduct targeted educational research, drawing on the talents of faculty from several disciplines. The research conducted through the office addresses significant issues affecting the educators and students of the public schools of the state.

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## NORTHWEST ARKANSAS WRITING PROJECT

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<http://nwawp.org/>  
 Chris Goering, director

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Established in 1997, the Northwest Arkansas Writing Project is affiliated with the National Writing Project at the University of California, Berkeley. Based in the College of Education and Health Professions in the Department of Curriculum and Instruction, the project involves teachers in workshops and institutes to prepare them to be creative and effective in their classroom writing programs. The project supports collaborative efforts with the public schools to enhance the teaching of writing, extend the uses of writing in the curriculum, and foster the professional development of teachers. Project institutes enable teachers to develop relationships with fellow teachers to create communities of professionals focused on the improvement of writing by students in K-12 schools and at the college level. During the school year, institute graduates attend follow-up sessions, provide workshops in local schools, and serve as resources in their communities. Kidswrite, a companion program for children, provides a summer experience for the exploration of writing and guided practice through the writing of poems, plays, short stories, songs, and newsletters.

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## OAK RIDGE ASSOCIATED UNIVERSITIES

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<http://www.orau.org/>

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Since 1948, students and faculty of the University of Arkansas have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 96 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, and postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students may participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are specifically designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the ORISE Catalog of Education and Training Programs, which is available at <http://www.orau.gov/orise/educ.htm>, or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research, and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact the Vice Provost for Research and Economic Development, and ORAU Councilor for the University of Arkansas; or Monnie E. Champion, ORAU Corporate Secretary, 865-576-3306; or visit the ORAU website. (<http://www.orau.org>).

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## OFFICE FOR EDUCATION POLICY

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<http://www.uark.edu/ua/oep/>  
 Gary Ritter, director  
 GRAD 201  
 479-575-3773  
[oep@uark.edu](mailto:oep@uark.edu)

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The Office for Education Policy was established in the College of Education and Health Professions in 2003 and is currently housed in the Department of Education Reform. The office serves as an objective, third-party source of data, gathering and disseminating evidence that would aid lawmakers and policymakers in making thoughtful decisions regarding education in the state of Arkansas. The primary objective of the Office for Education Policy is to collect and analyze data relevant to educational policy issues and disseminate the findings to policymakers in a timely and accessible manner. The office addresses questions of specific interest to Arkansas education policymakers in regularly published policy briefs, fact sheets and its newsletter, Education Policy News.

The Office for Education Policy also responds to specific requests of lawmakers and anticipates and addresses potential areas of interest to lawmakers. Finally, the office examines and follows national trends in education and shares the information with Arkansas policymakers.

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## OFFICE FOR STUDIES ON AGING

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<http://www.uark.edu/misc/aging/>

Ro DiBrezzo and Barbara Shadden, co-directors

HPER 321X

479-575-5262

[aging@uark.edu](mailto:aging@uark.edu)

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The Office for Studies on Aging in the College of Education and Health Professions was established in August 1999 to coordinate the resources of the University in addressing the needs of the aging population in Arkansas and beyond. The office was developed to be the center for research and study of the physical, social, and psychological aspects of the aging process drawing on a host of disciplines across campus. The office conducts research, provides services, and acts as an interface between the University and the variety of service modalities for the aging population. Initial efforts of the office are directed toward a variety of issues facing older Americans to provide meaningful solutions so that the process of aging is a positive experience, both emotionally and physically.

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## RADIO FREQUENCY IDENTIFICATION RESEARCH CENTER

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<http://itri.uark.edu/rfid.asp>

Justin Patton, managing director

2700 S. Armstrong

Dock Door 28

Fayetteville, AR 72701

479-236-5890

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On February 4, 2005, the Information Technology Research Institute created its first subunit, the RFID Research Center. This new center spans many disciplines including retail, supply chain, industrial engineering, and computer science, among others. The center's base of operations is a lab which models a production warehouse environment in 7000 square feet of space donated to the center by Hanna's Candles and located within Hanna's manufacturing and warehouse facility.

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## SMALL BUSINESS AND TECHNOLOGY DEVELOPMENT CENTER

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<http://sbtdc.uark.edu/>

Larry Brian, director

RCED 210

479-575-5148

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The Small Business and Technology Development Center (SBTDC), located in the Walton College of Business, provides small business consulting and technical assistance to the business community of Northwest Arkansas. The SBTDC serves as the focal point for linking together resources of the federal, state, and local governments with resources of the University, the Sam M. Walton College of Business, and the private sector. These resources are utilized to counsel and train small businesses in resolving organizational, financial, marketing, technical, and other problems they might encounter. The SBTDC offers free consulting services to small business clients. Seminars for small businesses are offered on a wide range of topics. Small Business Administration publications, other relevant small business publications, and Internet access are available for small business owners in the SBTDC resource center.

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## SOUTHWEST RADIATION CALIBRATION CENTER

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Dwight Salisbury, manager

479-575-6309

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The Southwest Radiation Calibration Center (SRCC) provides services for neutron radiation survey equipment that requires periodic calibration. Since 1983,

the SRCC has provided an expanding range of calibration services to a large number of clients around the United States including federal and state agencies, nuclear power stations, universities with research reactors or radiation research programs, oil exploration drilling companies, and nuclear medicine centers.

SRCC Services include NIST-traceable, D 2 O-moderated Californium- 252 calibrations of virtually any neutron survey instruments used for radiation protection purposes. The calibrations are offered in two types: Type 1 - Calibration consists of radiation measurements at six points on one decade scale for digital instruments. For analog instruments, this is followed by electronic calibration of the remaining scales via detector sensitivity. Type 2 - Calibrations consist of radiation measurements at two points per scale on 2-4 scales per instrument. This type is mainly for non-autoranging instruments.

In addition, other services include NIST-traceable irradiation of personal neutron radiation monitoring badges or electronic cumulative monitors (chirpers), including TLDs and all other types. Delivered dose equivalents offered are from 50 mrem to 5 rem on a neutron phantom per ANSI N13.11. Stated accuracy is to within  $\pm 5$  percent. Full documentation, including calibration certificate and calibration sticker showing correction factor, sources used, optional next calibration date, current calibration date, person(s) calibrating the instrument, and instrument identification.

The Southwest Radiation Calibration Center is located in the UA Engineering Research Center complex.

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## SPEECH AND HEARING CLINIC

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<http://cdis.uark.edu/spcl.php>

Barbara Shadden, director

606 N Razorback Road

479-575-4509

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The Speech and Hearing Clinic in the College of Education and Health Professions in the Department of Rehabilitation, Human Resources, and Communication Disorders provides evaluation, treatment, on-site consultation in schools and homes, and small group therapy services. The clinic offers evaluation and treatment for children and adults in the areas of hearing loss, central auditory processing, articulation, fluency, voice, language, augmentative and alternative communication, swallowing, and spoken English for foreign speakers. These services are provided by graduate students in the program under the direct supervision of audiologists and speech-language pathologists on the program faculty. It continues to expand its reputation as a regional center for services in augmentative communications and assistive technology.

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## SUPPLY CHAIN MANAGEMENT RESEARCH CENTER

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<http://scmr.uark.edu/>

Jim Crowell, director

WJWH 538

479-575-6107

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The Supply Chain Management Research Center (SCMRC) at the Sam M. Walton College of Business sponsors and promotes supply chain, logistics, and transportation research and education. Center faculty view the supply chain as the channel that integrates business processes from suppliers through end users, providing value-added products, services, and information. Supply chain management incorporates both inter- and intra-company logistics, transportation, and management systems.

The center undertakes research and training in all aspects of the supply chain. It has sponsored research on VMI, trained salespersons and developed MRP systems, and simulated supply chains for logistics executives. The SCMRC has a broad range of interests and capabilities and has close ties to and cooperative programs within the Walton College (e.g., Center for Retail Excellence, Information Technology Research Center) and with other centers at the University (e.g., The Logistics Institute in the College of Engineering). The SCMRC is unique in that its capabilities span the technical and managerial arenas of supply chain management.

The SCMRC's Board of Directors includes representatives of firms such as AFB Freight Systems, American Freightways, Colgate-Palmolive, Federal Express, J.B.



Hunt Transport, Pillsbury, Sunbeam, Tyson Foods, Unilever HPC, and Wal-Mart. The Board of Directors, along with notable supply chain professionals from business and academia, meet annually to discuss the state of the art in supply chain management and to provide advice and direction for the center.

For additional information about the Supply Chain Management Research Center at the Sam M. Walton College of Business contact the center at 479-575-7334 or fax 479-575-4173.

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## TERRORISM RESEARCH CENTER

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<http://trc.uark.edu/>

Brent L. Smith, director

MAIN 228

479-575-3401

[bls@uark.edu](mailto:bls@uark.edu)

The Terrorism Research Center in the J. William Fulbright College of Arts and Sciences houses the American Terrorism Study, the nation's only comprehensive longitudinal database on American terrorism. Conducted in cooperation with the Federal Bureau of Investigation and sponsored by the U.S. Senate Judiciary Committee, the American Terrorism Study provides a record of federal terrorism cases resulting from indictment under an FBI "terrorism enterprise" investigation from 1980 to the present. The center is also engaged in several projects examining the spatial and temporal dimensions of terrorism, precursor and preparatory terrorist crimes, and prosecutorial and defense strategies in terrorism trials. The center's research is funded by the Department of Homeland Security through the Memorial Institute for the Prevention of Terrorism and the Department of Justice through the National Institute of Justice.

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## TYSON CENTER FOR FAITH AND SPIRITUALITY IN THE WORKPLACE

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<http://trc.uark.edu/>

Judith Neal, director

WJWH 518

479-575-3721

[jan002@uark.edu](mailto:jan002@uark.edu)

The center's vision is to be recognized as an international center networked with other international centers, where students, academics, practitioners, business leaders and faith leaders come together to understand the effects of faith and spirituality in the workplace and develop methodologies to help transform organizations in a way that

has a positive impact on the world. The center teaches courses on faith and spirituality in the workplace, provides resources to businesses and community, and maintains a database of relevant research, including conducting its own case studies.

The Tyson Center for Faith and Spirituality in the Workplace was established by a grant from Tyson Foods Inc. and the Tyson Family Foundation in 2009.

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## UNIVERSITY OF ARKANSAS COMMUNITY DESIGN CENTER

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<http://uacdc.uark.edu/>

Stephen Luoni, director

104 N. East Ave.

Fayetteville, AR 72701

[uacdc@uark.edu](mailto:uacdc@uark.edu)

The mission of the University of Arkansas Community Design Center is to advance creative development in Arkansas through education, research, and design solutions that enhance the physical environment. As an outreach center of the Fay Jones School of Architecture, UACDC is developing a repertoire of new design methodologies applicable to community development issues in Arkansas, with currency at the national level. UACDC design solutions introduce a multiple bottom line, integrating social and environmental measures into economic development. Integrative design solutions add long-term value and offer collateral benefits related to sustained economic capacity, enhanced ecologies, and improved public health. The design center also offers hands-on civic design experience to students who work under the direction of design professionals. UACDC was founded in 1995 and has provided design and planning services to more than 30 communities across Arkansas. UACDC planning has helped Arkansas communities and organizations to secure nearly \$62 million in grant funding to enact suggested improvements.

# Student Affairs

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## VISION STATEMENT

The University of Arkansas Division of Student Affairs engages students to develop their strengths, inspiring leadership for a global society.

### Mission Statement

The University of Arkansas Division of Student Affairs strengthens students for success.

### Values

The University of Arkansas Division of Student Affairs values inclusion, service, inquiry, partnership, and excellence:

**Inclusion:** We embrace the uniqueness of individuals and engage every member of our diverse community.

**Service:** We connect students to resources, opportunities, and experiences transforming them into active, engaged citizens of a global society.

**Inquiry:** We engage ourselves and our students in the acquisition, application, and creation of knowledge for lifelong learning.

**Partnership:** We explore and welcome opportunities to collaborate with our students, colleagues, and members of our global community.

**Excellence:** We apply our varied talents and strengths with integrity to providing exceptional service to our students.

### Strategic Goals

To achieve this Mission the University of Arkansas Division of Student Affairs will:

- Foster the ongoing development of an inclusive community.
- Enhance students learning through effective programs and services.
- Advocate rights and responsibilities through service to students and collaboration with partners.
- Steward all of the Division's resources responsibly.
- Communicate and collaborate effectively.

The Vice Provost for Student Affairs/Dean of Students administers the departments of the Division of Student Affairs and provides leadership in the development of programs and services that supplement the classroom experience of students and enrich the quality of campus life. The Vice Provost/Dean of Students serves as a liaison to other administrative offices, faculty, and student governing groups. The office is a central source of information concerning University policies and procedures affecting student life and co-curricular programs and services.

The Division of Student Affairs and the office of the Vice Provost/Dean of Students emphasizes student advocacy while broadening the development of services and programs that address a range of student and campus needs. Departments in the Division are dedicated to developing exceptional programs and services that enhance the University of Arkansas Experience and enrich the quality of student and campus life. Staff members are available and willing to assist with any problem or question a student, staff, or faculty member may have regarding student and campus life at the University of Arkansas. The office is available for the clarification of University policies and procedures, confidential consultation, formal academic grievances, personal and

family crisis assistance for students, and referral to all campus and community services. The office also seeks to assist students and faculty members in cases of emergency or extenuating circumstances. Staff members are firmly committed to addressing the challenges and individual needs of the University of Arkansas family.

The Division of Student Affairs is committed to strengthening students for success. In this effort, the Division is developing a two-tier model of student development and staff development. StrengthsQuest is a trademarked online assessment tool that helps individuals discover, define, and develop their talents into strengths to achieve success. The Division of Student Affairs at the University of Arkansas is committed to providing opportunities for university members to discover, develop and apply their talents and strengths for personal and professional success. Ultimately, success is defined by each student and staff member and comes as a result of understanding their unique talents, developing knowledge related to those talents, engaging in experiences to expand on those talents, and ultimately leveraging those talents to become strengths which lead to success.

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## STUDENT LIFE

### Off Campus Connections

Off Campus Connections provides friendly and helpful resources and referrals for off-campus undergraduates, which includes:

- First-year students living at home
- Upperclassmen living off campus
- Adult, returning, and transfer students

Off-campus students are defined as undergraduates not living in a residence hall, fraternity, or sorority house. Approximately 15,000 University of Arkansas undergraduate students live off-campus. This group of students is extremely broad, ranging from teenagers to senior citizens. There are traditional-aged students, as well as nontraditional student and adult learners who meet one or more of the following criteria: age 24-plus, married, with dependents, work full-time, part-time student, financially independent, non-traditional high school diploma, interrupted higher education. Some off-campus students live close to the university and some commute from hours away. Some participate in alternative delivery or online classes, so they may seldom visit campus at all.

Off Campus Connections assists in student retention efforts by providing information, referrals, support, and recognition to students who are living off campus. Peer Assistance Leader Students (PALS) are trained to assist their fellow students. PALS can provide helpful information and answer many questions, so students should not hesitate to take advantage of their knowledge.

Finding a place to live is a basic need. To facilitate the housing search, <http://offcampushousing.uark.edu> is a searchable website provided free of charge for current and prospective students. The area properties listed on the website are interested and normally experienced in having student tenants. A very popular Off-Campus/Commuter Meal Plan is available to students through Chartwells Campus Dining Service.

Campus involvement is important, especially for off-campus students. Students who are involved or work on campus are more likely to graduate. To encourage student involvement, timely information about deadlines, campus life and other pertinent events are shared through weekly e-mail announcements. A friendly and comfortable

Commuter Lounge is located on the Sixth Floor West of the Arkansas Union. Off Campus Connections' desire is for each student to feel a part of the university and earn a degree from the University of Arkansas.

For further information, visit the Off Campus Connections Web site at <http://occ.uark.edu/> or send an e-mail to [occ@uark.edu](mailto:occ@uark.edu). Students may also visit the office in Arkansas Union Room 632 or contact the OCC by telephone at 479-575-7351. In order to provide better customer service, appointments are appreciated and may be made in advance from the OCC website.

### Veteran Resource and Information Center

The University of Arkansas Veterans Resource and Information Center ensures the academic and professional success of student veterans by understanding their unique needs and by serving as a central point of contact into a seamless collaboration between prospective and current student veterans, the University of Arkansas, the U.S. Department of Veterans Affairs, and a diverse network of community partners.

Veterans and dependents of service members may be eligible to receive monthly educational assistance from the Veterans Administration while enrolled at the University of Arkansas. For more information, including GI Bill eligibility, contact the Veterans Resource and Information Center at [vrvc@uark.edu](mailto:vrvc@uark.edu) or 479-575-8742. Students may also visit the center in Arkansas Union Room 632 or online at <http://veteranscenter.uark.edu/>.

### Student Ombuds Services

*EDITOR'S NOTE: The Division of Student Affairs eliminated the office of Student Ombuds Services after the Undergraduate Catalog of Studies went to press, but this online PDF version has been updated to reflect its removal.*

### Reasonable Accommodations for Students with Disabilities

The Center for Educational Access (CEA), 104 Arkansas Union, is the central campus resource for students who require reasonable accommodations in order to access the programs, services and activities offered through the University. CEA staff work in partnership with the individual student to communicate and facilitate any accommodation needs to faculty and staff. Accommodation determination is based on an analysis of medical or psychological documentation provided to the CEA by the student. Students must meet with one of the CEA staff to discuss their needs and provide such documentation before any accommodations can be granted.

To register for services or for more information, contact the Center for Educational Access, University of Arkansas, 104 ARKU, Fayetteville, AR 72701, phone 479-575-3104 (voice) or 479-575-3646 (TTY); e-mail: [ada@uark.edu](mailto:ada@uark.edu); Web: <http://www.uark.edu/us/csd/>.

### Office of Academic Integrity and Student Conduct

The mission of the Office of Academic Integrity and Student Conduct (OAISC) is to provide an equitable and effective educational system that promotes responsibility, individual growth, accountability, and student learning through community outreach, peer mentoring, and enforcement of the Code of Student Life. The Office of Academic Integrity and Student Conduct is designed to provide an equitable process for addressing alleged infractions of University policies, regulations, and/or laws by

students. This system is informal, non-adversarial, and intended to be a part of the overall educational process. Students are encouraged to make responsible decisions and to be accountable for their actions. In addition, students who witness violations of the Code of Student Life or the Academic Integrity policy or who are victims of inappropriate or illegal behavior perpetrated by other students are encouraged to report such activity to the Office of Academic Integrity and Student Conduct.

Students who are interested in involvement with the All-University Conduct Board or the All-University Academic Integrity Board should contact the director of OAISC at [judicial@uark.edu](mailto:judicial@uark.edu) or [honesty@uark.edu](mailto:honesty@uark.edu). The All-University Conduct Board comprises faculty, staff, and students and is responsible for the adjudication of cases of alleged student misconduct as outlined in the Code of Student Life. The All-University Academic Integrity Board comprises faculty and students and is responsible for the adjudication of cases of alleged violations of the Academic Integrity policy. Both of these boards are advanced leadership opportunities for students who would like to gain valuable experience working with faculty and staff on an impartial peer review board.

For more information regarding the Code of Student Life, please see the Student Handbook at <http://handbook.uark.edu>. For more information regarding the Academic Integrity policies, please review the Provost's website at <http://provost.uark.edu/>. The Office of Academic Integrity and Student Conduct is located in the Arkansas Union Room 634, phone 479-575-5170; Web: <http://ethics.uark.edu/>.

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## UNIVERSITY CAREER DEVELOPMENT CENTER

The University Career Development Center helps students achieve great job search results. Students can take advantage of the center's valuable resources:

**Career Advising:** Advisers in the CDC are available to assist students who may need help selecting a college major, looking for career information, researching or exploring careers, preparing for their job search or considering a graduate school.

**Career and Strength-Awareness Assessments:** The STRONG Interest Assessment, FOCUS 2 and TypeFocus are career assessments that can help students make career decisions based on their interests and values. StrengthsQuest is an assessment which helps individuals discover their talents and strengths. After discovering talents, the Career Center assists students in learning how to use their talents to achieve academic, career, and personal success.

**Career Fairs:** In partnership with academic areas on campus, the CDC hosts a number of career fairs is offered each year to provide opportunities for students to connect with employers and to learn more about companies and organizations. These connections could lead to valuable internships or full-time employment.

**Job Search Preparation:** The CDC offers resume critiques, interview skills training, mock interview, networking opportunities, and several professional development events throughout the academic year to prepare students for internships, co-ops or full-time jobs.

**Cooperative Education Opportunities:** Cooperative Education is a program that enables students to gain professional work experience in paid, degree-related positions. Co-op students earn credit, a competitive wage and valuable "real world" work experience.

**Internet Job Search Resources:** Through the CDC's website, students are able to access a number of job search sites. These resources enable University of Arkansas students to apply for jobs online and to sign up for on-campus interviews.

**Professional Development Institute:** This nationally recognized program creates opportunities for UA students to develop professional career-building skills. Participation in this program can help students gain the valuable skills which give them the competitive advantage in their job or graduate school search.

For more information, check out [career.uark.edu](http://career.uark.edu).

The University Career Development Center is conveniently located in Arkansas Union Room 607, or call 479-575-2805.

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## UNIVERSITY HEALTH CENTER

### Pat Walker Health Center

The Pat Walker Health Center, an AAAHC accredited medical institution, provides professional and comprehensive medical care, mental health care, health education, and health promotion for the University of Arkansas community including students, faculty, and staff. Committed to physical, mental, spiritual, emotional, and social health, the highest standards of quality, and an appreciation of the value of each individual, the Pat Walker Health Center's services and programs support the education and development of each individual.

The current facility opened in November 2004 with expanded services for the University of Arkansas community. Students pay a small fee to help cover the cost of the new building and a per credit hour semester health fee that covers professional office visits. Student spouses are eligible for services and may elect to pay the health fee. Services other than professional office visits are the responsibility of the patient and/or their health insurance plan. The University strongly recommends that all students maintain health insurance. A student health insurance policy is available to all students, student spouses, and their dependent children. Students may enroll in this plan at the Pat Walker Health Center.

The Pat Walker Health Center is conveniently located at 525 North Garland and welcomes inquiries about specific services at 479-575-4451; TTY 479-575-4124. More information is available on the center's Web site at <http://health.uark.edu>.

Pat Walker Health Center services include:

### Medical Services

Professional medical staff, including physicians, nurse practitioners and registered nurses, provide primary health care as well as women's health care. An allergy clinic and a travel immunization clinic are also available in addition to the services with a psychiatrist, orthopedist and a dietician. The Pat Walker Health Center is particularly advantageous to the campus community with a comprehensive clinical laboratory and X-ray facilities.

### Counseling and Psychological Services

Counseling and Psychological Services (CAPS) provides a wide range of consultations to students, students' partners, staff, and faculty of the University of Arkansas. Psychologists, social workers, a psychiatrist, and professional counselors work with students to solve problems, understand themselves, grow personally, and develop more satisfying relationships with friends and family. In addition to office consultations and therapy sessions, students have opportunities to participate in educational programs on campus as well as access to 24-hour services for mental health crises. To access daily walk-in services or 24-hour emergency services, call 479-575-5276.

### Health Promotion and Education

A unique feature of the Pat Walker Health Center is the complete focus on the promotion of good health and prevention of negative health conditions. Professional health educators serve the campus community with wellness and prevention activities delivered in a variety of educational settings including individual consultations, group presentations, awareness events, outreach activities, one-hour credit classes, and a variety of other educational programs. Students benefit from the breadth of health and lifestyle topics addressed, which help them attain success in all aspects of their lives.

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## UNIVERSITY HOUSING

University Housing is committed to providing a quality living and learning environment that both challenges and supports the personal, social, and academic development of our residents and their diverse communities.

National research has shown that academic success in the first year and beyond is directly linked to residing in an on-campus residence environment. The University of Arkansas recognizes the benefits that students receive from living on campus their first year. Therefore, all single students who are admitted to the University with a freshmen classification and under 21 years of age are required to live on campus in a residence hall, or in their parent or legal guardian's permanent home. Students who are admit-

ted to the University of Arkansas as transfer students from another post-secondary institution, and who have completed at least 24 credit hours at that institution are not required to live on campus.

Requests for a newly admitted freshmen to live somewhere other than with parents or a legal guardian in their permanent home are not likely to be approved under most circumstances. Students planning to live with their parents or legal guardian in their permanent home should complete the Living with Parent Notification Form prior to attending an orientation session. Students requesting an exemption from the University of Arkansas Freshmen Residency Requirement should send all required paperwork to University Housing at least three weeks prior to attending an orientation session to ensure the student receives approval or denial prior to attending orientation. Failure to do so could cause long delays in the orientation process. Students needing a Living with Parent Notification Form or who wish to apply for an exemption to the University's requirement for single freshmen to live on campus may refer to the information on the Housing Web site: <http://housing.uark.edu/forms2/>.

Residence Halls are managed by a full-time Coordinator for Residence Education who has completed a master's degree program in higher education, counseling or a related degree. This individual is selected for his or her academic credentials and interest in helping others as well as his or her ability to work well with college students. In addition, every area or floor is staffed by a Resident Assistant who is an upperclass student with training, experience, and knowledge to answer students' questions and, more importantly, to help students find their own answers. Counselors in Residence (graduate assistants) provide short-term counseling for students living in the residence halls in response to personal, social, academic, and developmental needs.

University Housing offers innovative Living/Learning Communities for University of Arkansas students. These Living/Learning Communities comprise major- or discipline-specific Academic Learning Teams as well as more general and exploratory Thematic Learning Communities. These opportunities have been designed to help students in their transition to college, to fit their interests and needs, and to help them achieve success academically and socially. Most importantly, students get to live with peers who have similar interests, majors, or career plans. Members of Living/Learning Communities have the chance to get to know faculty on a personal level and develop strong friendships with fellow students. Living/Learning Communities cost nothing extra, and residents have the opportunity to participate in fun experiences that connect learning in and out of the classroom.

Living options include traditional halls, suites and apartments with designations of single-gender or co-ed. Rooms are available for visually or hearing-impaired students as well as those who are physically challenged. Residence hall entry/exit doors are secured and/or monitored 24 hours a day. Some entries are unlocked to accommodate offices housed in our facilities and classes that are held in our classrooms. Most, but not all, of these areas have interior doors that secure the living floors. Residents are provided access via an electronic access system. Students should be careful not to allow non-residents to follow them into their residence hall. Residents are provided access via a fob issued when they check-in. Students are responsible for escorting all visitors and guests at all times.

Each of the three separate dining facilities on campus is managed by Campus Dining Services and provides a natural setting for socializing with friends and enjoying a wide variety of high quality, nutritious meals. All students living in a residence hall, except those residing in summer school housing, are required to have a meal plan. There are several meal plans available to meet the needs of both on-campus and off-campus students. Learn more about Campus Dining Services online at <http://dineoncampus.com/razorbacks>.

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## ARKANSAS UNION

The Arkansas Union seeks to support unique and diverse programs, provide professional services, and satisfy the ever-changing needs of students, faculty, staff, alumni, and guests.

### Tenets

Staff and students involved with the Arkansas Union pursue the following positions with regard to:

- **Facilities** – Offer a welcoming and inviting facility that provides a functional and exciting “Woo Pig Sooi” atmosphere for all Union constituents

- **Services** – Promote student admission and retention by offering services, conveniences and amenities, while also serving the larger University of Arkansas community
- **Program Support** – Support departments and organizations in promoting the growth and development of students through civic, cultural, educational, social, and recreational programs

The Arkansas Union serves as the community center of the University for all members of the college family. As the “living room” of campus, the Union is the gathering place of the college. The Union provides services and conveniences that members of the campus community need in their daily lives and creates an environment for getting to know and understanding others through formal and informal associations. Located inside the Union are:

**Retail Outlets**

ATM’s (various banks)	Razorback Shop
Catering and Dining Services	RZ’s Coffeehouse®
Club Red Convenience Store	U.S. Post Office
First Security Bank	Union Hair Care
PMC - Drop-Off Copy Center	

**Union Market**

The Wok	El Grande Rojo Taqueria
Burger King®	Chick-Fil-A® Express
Sub Generation sandwiches	Mama Leone’s Pizza & Pasta
The Diner	Au Bon Pain Soups & Garden Emporium Salads

**Facilities**

24-hour computer lab	Meeting rooms
Anne Kittrell Art Gallery	Reception rooms
Ballroom	Union Information Center
Banquet rooms	Union Theatre
Lounges	Union Programs Theater
Student Technology Center	University Recreation Fitness Center

The Arkansas Union is the center of student activity and is a perfect place for students to get involved on campus. The Union is a student-centered organization that values participatory decision-making. Through volunteerism, committees, and student employment, the Union offers first-hand experience in citizenship and educates students in leadership, social responsibility, and values. As the center of the college community life, the Union complements the academic experience through an extensive variety of cultural, educational, social, and recreational programs. These programs offer the opportunity to balance course work and free time as cooperative factors in education. The Union supports these departments and programs by hosting these events. In addition, housed within the Union are 14 offices dedicated to providing programs and services to students.

**Student Services**

- Arkansas Union Administration/Reservation Services
- Associated Student Government
- Campus Card Office
- Career Development Center
- Center for Community Engagement
- Center for Educational Access
- Greek Life
- Multicultural Center
- New Student and Family Programs
- Off Campus Connections
- Office of Academic Integrity and Student Conduct
- Student Activities
- Student Ombuds Office
- Treasurer’s Office and Student Accounts
- University Productions
- Veterans Resource and Information Center

**CAMPUS LIFE**

**Center for Community Engagement**

The purpose of the Center for Community Engagement (CCE) is to promote civic engagement and leadership by connecting University of Arkansas students, faculty and staff with nonprofit organizations in the Northwest Arkansas area and beyond.

In order to serve this purpose, the CCE maintains [volunteer.uark.edu](http://volunteer.uark.edu) which enables volunteers to search for agencies and service projects. It allows users to log service hours and earn opportunities for community recognition, such as the Presidential Service Award. Northwest Arkansas agencies and University of Arkansas registered student organizations also utilize the site to post service opportunities and recruit volunteers. Over 170 organizations are registered on the site, such as Habitat for Humanity, the U of A Friday Night Live program and Potter’s House Thrift.

**Volunteer Action Center**

The Center for Community Engagement also houses the Volunteer Action Center, a student led volunteer coordination board with 30 members who are dedicated to active service in the community. Each year the VAC provides meaningful service opportunities through events and ongoing projects that engage the university and NWA communities. VAC sponsors programs and events including the Full Circle Food Pantry, Make a Difference Day, and the MLK Day of Service. Full Circle Campus Food Pantry is the newest program of the Volunteer Action Center Board; the pantry serves students, staff and their families. Requests and more information can be found at <http://fullcircle.uark.edu>.

Get involved in the following ways:

- Drop by the Center for Community Engagement, Arkansas Union, Room A643, and chat with the office’s great staff and students.
- Look for service opportunities on [volunteer.uark.edu](http://volunteer.uark.edu) and log your hours. Just one hour makes you a VAC volunteer.
- Participate in events hosted by VAC and CCE throughout the year.
- Become a Volunteer Action Center board member. Applications are accepted annually.

**Greek Life**

The Office of Greek Life facilitates the educational process and provides resources related to programs that strengthen the growth and development of students affiliated with fraternities and sororities on campus. The overall mission is to strengthen the academic, cultural, moral, and social development of students in Greek organizations; provide training in strengths-based leadership and other personal and social skills; promote involvement in extracurricular activities and community service projects; and promote Greek Life as a productive and viable lifestyle on campus. The Office of Greek Life coordinates programs such as Recruitment, Greek Getaway, Greek Life Facilitators, and Greek Summit in collaboration with the Interfraternity Council, the National Pan-Hellenic Council, and the Panhellenic Council.

The Interfraternity Council (IFC), National Pan-Hellenic Council (NPHC), Panhellenic Council (PHC) and Multicultural Greek Council govern 12 national sororities and 17 fraternities. The officers and representatives of each council work with the Office of Greek Life to provide positive programs and strengths-based leadership opportunities to the members of the Greek organizations. The Greek Life office is in the Arkansas Union A687; phone 479-575-5001 or fax 479-575-3531; Web: [uagreeks.uark.edu](http://uagreeks.uark.edu).

**New Student & Family Programs**

New Student & Family Programs at the University of Arkansas is a collaborative effort developed to enhance the academic and social integration of incoming students through a variety of classroom and co-curricular activities. The department supports and collaborates on many initiatives including: R.O.C.K. Camp; R.O.C.K. Camp Adventure; Hog W.I.L.D. (Welcome, Involvement, Leadership and Diversity) Welcome Weeks; New Student Assembly & Burger Bash; Help-A-Hog; Friday Night Live; Fall Family Weekend and Spring Family Reunion; Leadership Programs including Emerg-

ing Leaders and the UA Student Leadership & Career Academy; Parent and Family Programs; and the Parent Partnership Association. By providing transitional support for incoming students, their parents, and family members, our programs effectively promote the students' academic growth and support the mission of the University.

New Student & Family Programs is located in the Arkansas Union, Room A688; phone 479-575-5002; Web: <http://fye.uark.edu/>.

## Student Activities

With a students-first philosophy, the Office of Student Activities provides an environment for involvement, empowerment, and collaboration through student organizations, programmatic experiences, and shared governance. The office maximizes the UA experience by advocating for all students, promoting intercultural understanding, and developing citizens who are prepared to positively impact their communities.

The Office of Student Activities, located in the Arkansas Union A665, is the central location for student organizations and activities for the University. The Office of Student Activities is responsible for the oversight and administration of the following areas:

## Student Organizations

All student organizations must register annually with the Office of Student Activities. The Office of Student Activities provides student organizations with assistance and services to help them succeed, including the annual Student Involvement Fair known as Razorbash, information on facility reservations and fund-raising, trademark forms, mailboxes, and locker space. The office also assists student organizations in event planning, provides educational workshops for students and advisors, and conducts retreats for student organizations. A limited number of offices are also awarded annually in the Arkansas Union to organizations.

Types of Registered Student Organizations (RSOs):

**Governing** – An organization whose primary purpose is to serve as a governing body for a large or specific constituency of students.

**Greek** – An organization with Greek letters who is a member of the National Inter-Fraternity Council, the Pan-Hellenic Council, or the National Pan-Hellenic Council.

**Honorary/Service** – An organization that requires a minimum grade point average as a prerequisite to membership and/or is affiliated with a national service or honorary organization.

**International/Cultural** – An organization whose primary purpose is to provide a forum in which participants create awareness for a specific culture through educational, social, and recreational activities.

**Professional** – An organization whose primary purpose is to provide a forum for participants to discuss and develop professional careers and/or is affiliated with a national or regional association.

**Religious** – An organization whose primary purpose is to provide information and activities associated with one or more religions.

**Special Interest** – An organization whose primary purpose is to provide an organized format for the practice and/or pursuit of a special or common interest.

## Associated Student Government

The Associated Student Government (ASG) provides important services to the University community and is an integral part of the shared campus governance system. Associated Student Government is a student-led organization that enables students to have an active voice in the decisions and policy that directly affect all students at the University of Arkansas. Students involved in Associated Student Government have the opportunity to positively impact the quality of student life, work with and allocate student fees, provide a voice for student concerns as well as oversee programs and policies for all students. Through the executive, legislative and judicial branches of student government, students have the opportunity to work for and among their peers to make a difference on all levels of the University. Involvement levels and time commitment vary upon duties. Visit the student government website at <http://asg.uark.edu> or the Associated Student Government office (ARKU A669) to find out more.

## University Programs

University Programs is a volunteer student organization responsible for planning and coordinating more than 150 events annually for the campus community. University Programs provides students with cultural and educational experiences, entertainment, and fun. Seven committees, all made up of students, select, schedule and produce events such as concerts, movies, lectures, fine arts performances, gallery exhibitions, and daytime programs. Being a part of University Programs gives the student committee members leadership training and real opportunities to gain practical planning experience. Supported by a student activity fee, University Programs events are free to students.

For further information, visit our website at <http://osa.uark.edu/>.

## Student Media

The Office of Student Media administers and advises the official student media outlets of the University. These outlets are: the student newspaper, *The Arkansas Traveler*; the University of Arkansas yearbook, *The Razorback*; the student television station, UATV; and the student radio station, KXUA. All provide a forum for student expression, entertainment, news and information of interest to the campus community. Other than a small support staff, these groups are entirely staffed by student employees and volunteers, including editors and station managers. For more information, contact Student Media at 479-575-3406.

# Honors College

## Honors College Office

418 Administration Building, 479-575-7678

### Dean

Robert C. McMath

### Associate Dean

Carol Gattis

### Academic Scholarship Office

101 Old Main, 479-575-4464

### Advanced Placement Summer Institute

418 Administration Building, 479-575-7678

### World Wide Web:

<http://honorscollege.uark.edu/>

E-mail: [honors@uark.edu](mailto:honors@uark.edu)

## MISSION AND OBJECTIVES

The Honors College at the University of Arkansas brings together more than 2,400 high-achieving students and 500 of the University's top faculty members in a learning environment characterized by discovery, creativity, and service. Founded in 2002 by a \$200 million gift from the Walton Family Charitable Support Foundation, the Honors College has the nation's largest endowment for undergraduate research and study abroad at a public university. The mission of the Honors College is to create a vibrant, campus-wide learning community that fosters the pursuit and application of knowledge among undergraduates. To achieve this mission, the Honors College focuses on providing transformational educational experiences through interdisciplinary learning, study abroad and real-world research; and cultivating a diverse body of honors students who work comfortably in challenging environments to address crucial issues locally and globally. The Honors College encompasses the honors programs from each undergraduate college or school.

## FACILITIES AND RESOURCES

The Dean's Office is housed on the fourth floor of the Administration Building alongside a computer lab equipped with the latest technology and a coffee lounge where students gather to study individually or in groups. Honors lounges are also available throughout campus where the college honors programs are housed.

Smartrooms, classrooms outfitted with state-of-the-art computers, projectors, document cameras, and media equipment, are available in many of the buildings across campus — Old Main, Willard Walker Hall, J.B. Hunt Transport Services Center for Academic Excellence, Science and Engineering Building, Science Building, Fine Arts Center, Memorial Hall, Ozark Hall, Chemistry Building, and Kimpel Hall.

In Pomfret Honors Quarters, the Honors College has developed an innovative

computer lab with twenty 24-inch iMacs, each fully loaded with the latest operating systems for Mac and Windows, Adobe Creative Suite 4, iWorks, and Microsoft Office for Mac. Beginning in 2013, the Honors College will be housed in a new wing of historic Ozark Hall, located in the heart of campus.

## DEGREES OFFERED

Honors programs are offered in all disciplines, tailored to students' academic interests, with interdisciplinary collaborations encouraged. The college or school of major confers honors degrees. Students must be members of the Honors College to graduate with the distinction of *cum laude*, *magna cum laude* or *summa cum laude*.

## OTHER PROGRAMS

### Honors College Grants

Each year the Honors College awards from \$500,000 to \$1 million in study abroad and undergraduate research grants, which are available to honors students who submit competitive proposals and meet all other requirements. Honors College faculty and staff work closely with the Office of Study Abroad and International Exchange to help honors students find programs that best meet their academic and professional goals. Research grants support laboratory or creative work and travel to an archive or conference. Deadlines and application instructions are available on the Honors College website at <http://honorscollege.uark.edu>.

### Celebrating Discovery

Honors students have the opportunity to travel to their hometown high school to present research findings. Students may be from any discipline.

### Nationally Competitive Awards

The Honors College coordinates with the Office of Nationally Competitive Awards to provide assistance to all students who are applying for national and international graduate fellowships and scholarships (i.e. Marshall, Rhodes, Gates Cambridge, Rotary, Fulbright, and National Science Foundation). For more information, refer to the Enrollment Services section of this catalog.

### Advanced Placement Summer Institute

The Honors College coordinates the annual Advanced Placement Summer Institute (APSI), a College Board endorsed summer program that typically lasts for four days in July. The institute provides training to high school and middle school teachers for AP certification in various subjects. Course listings and registration information is available at <http://apsi.uark.edu>.

## COLLEGE ADMISSION REQUIREMENTS

To sign up for honors, new freshmen go to orientation and attend the honors meeting for their college or school of major. At the meeting, the student fills out an honors request form. After the form is processed, the student is in the honors program and eligible to take honors courses. The chart below contains basic requirements for each of the honors programs. For detailed information, see the individual honors program sections for each college or school in this catalog. Current students who are eligible should contact the appropriate honors program to request honors status.

College or School	New Freshmen	Current Students
Fulbright College of Arts and Sciences	Minimum 28 ACT or SAT Critical Reading +Math score of 1240 and 3.5 high school GPA	3.5 cumulative University of Arkansas GPA
Fay Jones School of Architecture		
College of Education and Health Professions		
College of Engineering		
Bumpers College of Agricultural, Food and Life Sciences		
Walton College of Business	Minimum 28 ACT or SAT Critical Reading +Math score of 1240 and 3.75 high school GPA	

## COLLEGE SCHOLARSHIPS

The Honors College administers the most prestigious new freshman award at the University of Arkansas. The Honors College and Bodenhamer Fellowships, which provide \$50,000 over a four-year period, are highly competitive and require an in-depth application process and interview. For more details, visit the Honors College website at <http://honorscollege.uark.edu> and click on Prospective Students.

The Academic Scholarship Office awards scholarships to a variety of students. Students do not have to be in the Honors College to receive many of these scholarships though honors participation is encouraged. Scholarships awarded to incoming freshmen include the Chancellor's Scholarship, the Honors College Academy Scholarship, the Silas Hunt Scholarship, the Leadership Scholarship, the Chancellor's National Merit Scholarship, the Freshmen Leadership Scholarship, and the Freshmen Academic Scholarship. Scholarships for current students, transfer students, and students with a military background are also available to students across the University. For additional information, visit the Academic Scholarship Office website at <http://scholarships.uark.edu> and see the chapter on Financial Aid and Scholarships in this catalog.

## STUDENT ORGANIZATIONS

All honors students are eligible to join the Honors College Ambassadors, a group with no membership fees or dues. The Honors College Ambassadors support the honors community by participating in campus recruiting events and meeting with prospective students.

## COLLEGE ACADEMIC REGULATIONS

The college or school of major sets specific requirements for graduating with honors including a minimum of 12 honors credit hours and the completion of an undergraduate thesis. A combination of honors credit hours, thesis quality, and GPA requirements (minimum 3.5) lead to Latin designation of *cum laude*, *magna cum laude* or *summa cum laude*. Registration for honors courses is restricted to honors students or other students who meet the honors criteria and who have been approved by the honors program offering the course. For more information, see the honors sections for the college or school major.

# Interdisciplinary Studies

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## MISSION AND OBJECTIVES

The University provides several options for students to pursue education more broadly than one field of undergraduate study might allow, including interdisciplinary and multidisciplinary programs. These programs allow broader instruction and research opportunities, especially in emerging fields that haven't reached the academic breadth to constitute a full academic department or in cases in which collaboration between one or more departments allows faculty from each existing department to contribute to the interdisciplinary or multidisciplinary major. In the Catalog of Studies, requirements for each interdisciplinary program are listed in the chapter of the college or school that oversees the program.

Two interdisciplinary minors — Microelectronics-Photonics and Sustainability — are not administered by an academic department. The minor in Microelectronics-Photonics is administered by the Division of Interdisciplinary Studies in the Graduate School. The minor in Sustainability is administered by the Provost's Office. The requirements for completing each minor are listed below.

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## MICROELECTRONICS-PHOTONICS (MEPH)

Ken Vickers  
Program Director  
248 Physics  
479-575-2875

Russell DePriest  
Assistant Program Director for microEP minor  
131 Engineering Hall  
479-575-4719  
microep@cavern.uark.edu  
<http://microEP.uark.edu>

### Biological and Agricultural Engineering Faculty:

- Professor Li
- Assistant Professors Jin, Kavdia, Kim, Ye

### Chemical Engineering Faculty:

- Professors Beitle, Ulrich
- Associate Professor Roper
- Assistant Professors J. Hestekin (J.), Servoss

### Chemistry Faculty:

- Professors Fritsch, Peng, Stenken
- Assistant Professors Tian, Chen

### Civil Engineering Faculty:

- Professor Selvam

### Computer Science/Computer Engineering Faculty:

- Assistant Professor Di

### Electrical Engineering Faculty:

- Distinguished Professors Varadan (V.K), Varadan (V.V)
- Professors Ang, Balda, Manasreh, Mantooth, Naseem
- Associate Professor El-Shanawee
- Assistant Professors Ji, Yu
- Research Professor Lostetter
- Research Associate Porter

### Mechanical Engineering Faculty:

- Professors Gordon, Malshe
- Associate Professors Tung, Zou
- Assistant Professors Huang, Spearot, Wejinya

### Microelectronics-Photonics Faculty:

- Research Assistant Professor Benamara
- Adjunct Professors DePriest, Foster

### Physics Faculty:

- Distinguished Professors Salamo, Xiao
- Professors Bellaiche, Singh
- Research Professor Vickers
- Associate Professors Fu, Oliver
- Assistant Professors Gross, Li, Tchakhalian

Microelectronics-Photonics (microEP) is an interdisciplinary program based in the Division of Interdisciplinary Studies in the Graduate School that prepares students for careers involving micro/nano materials, processing, and devices applied in areas such as photonics, microelectronics, bio/chemical analysis, etc. The microEP Graduate Program offers M.S. and Ph.D. degrees, as well as an undergraduate minor in Microelectronics-Photonics.

The purpose of this minor is to allow undergraduates in science and engineering to be able to capitalize on the research and educational core of the microEP Graduate Program as they prepare to enter the job market or compete for positions in top level graduate programs.

Requirements for a minor in Microelectronics-Photonics: Three hours of required courses (One of INEG 4323, INEG 4433, or INEG 4443). At least 12 additional hours must be taken from the following undergraduate courses (BENG 4123, CHEM 4213, ELEG 4203, ELEG 4223, MEEG 4303, MEPH 488V, PHYS 3603, PHYS 4713, and PHYS 4213), or from other appropriate courses not on this list if approved first by the microEP Program and by the course instructor. See examples at the microEP Web site.

Students accepted into the microEP minor must attend an orientation session at the beginning of each semester as well as the monthly microEP graduate student research presentations. Students enrolled in the microEP minor must attend at least one public presentation of a Master of Science thesis in microEP or a Doctor of Philosophy dissertation in microEP each semester. Students wishing to declare this minor must apply through the microEP Program Web site, <http://microEP.uark.edu>, and be accepted into the minor at least two regular semesters before their graduation date.



**SUSTAINABILITY (SUST-M)**

Stephen K. Boss  
Co-Director  
113 OZAR  
479-575-6603  
sboss@uark.edu

Tahar Messadi  
Co-Director  
106 WALK  
479-575-7102  
tmessadi@uark.edu

sust@uark.edu  
http://sust.uark.edu

**Sustainability Curriculum Steering Committee**

- Professor Stephen Boss, co-director, Geosciences
- Associate Professor Tahar Messadi, co-director, Architecture
- Associate Dean Carol Gattis, Honors College
- Professor Kevin Fitzpatrick, Sociology
- Professor Jon Johnson, Management
- Professor Kim LaScola-Needy, Industrial Engineering
- Professor Marty Matlock, Biological and Agricultural Engineering
- Professor Jennie Popp, Agricultural Economics and Agribusiness
- Research Assistant Professor Harrison Pittman, Agricultural Law
- Assistant Professor Gregory Benton, Recreation and Sports Management

The minor in Sustainability is interdisciplinary, drawing from faculty and course work across all colleges of the University of Arkansas. The minor is accessible to all undergraduate students, regardless of degree program. The purpose of the minor in Sustainability is to provide foundational knowledge and skills related to the emerging discipline of sustainability, organized around four thematic areas reflecting strength in scholarship of University of Arkansas academic colleges: Sustainability of Social Systems, Sustainability of Natural Systems, Sustainability of Built Systems, and Sustainability of Managed Systems. Students who complete the minor in Sustainability will be expected to:

- Articulate commonly accepted definitions of sustainability and discuss various nuances among those definitions;
- Have an understanding of the interdisciplinary nature of sustainability issues, particularly as they pertain to the thematic areas of knowledge addressed by the minor (sustainability of natural systems, sustainability of managed systems, sustainability of built systems, and sustainability of human social systems);
- Be conversant regarding acquisition and analysis of data pertinent to sustainability issues;
- Communicate orally and in writing organized thoughts defining sustainability issues;
- Identify appropriate potential strategies to address sustainability issues using data and provide results of rudimentary analyses of data using novel metrics or statistics;
- Make recommendations, based on data analysis and interpretation, to advance sustainability of individuals or institutions.

**Required Courses for a Minor in Sustainability**

Students must earn a grade of 'C' or better for all courses used to fulfill requirements of the minor in Sustainability.

	Hours
SUST 1103 Fundamentals of Sustainability	3
SUST 2103 Applications of Sustainability	3

Elective courses with sustainability focus selected from a broad menu of offerings in four thematic areas: 3

- Sustainability of Social Systems
- Sustainability of Natural Systems
- Sustainability of Built Systems
- Sustainability of Managed Systems

Elective courses are categorized as Tier 1 and Tier 2. Tier 1 courses are those with dominant sustainability content or fundamental principles related to understanding sustainability. Tier 1 courses must comprise at least 6 hours of the 9 elective hours.

Tier 2 courses are those with subordinate sustainability content or associated principles related to understanding sustainability, but with content useful in preparing students with prerequisite knowledge for Tier 1 courses.

Only 3 hours of Tier 2 courses will be accepted in fulfillment of the elective hours in the Minor in Sustainability.

Complete lists of Tier 1 and Tier 2 courses by thematic areas are presented below.

SUST 4103 Capstone Project in Sustainability or substitute approved by UA Sustainability Curriculum Steering Committee to serve as capstone experience for the Foundations in Sustainability minor. 9

**List of Available Elective Courses:** Students choose 9 hours from menus below; at least 6 hours must be chosen from Tier 1 courses (prerequisites are in italics):

**Sustainability of Natural Systems Courses**

Tier 1

- BENG 4903 Watershed Ecology & Hydrology (*CVEG 3213*)
- BIOL 3863/BIOL 3861L General Ecology and lab  
General Ecology 7 hours of biological sciences
- CSES 3214 Soil Resources & Nutrient Cycles (*CSES 2203 and lab component*)
- ENSC 3003 Introduction to Water Science (*ENGL 1023 and ENSC 1003 or CHEM 1053 or higher or GEOL 1113 or higher or BIOL 1543*)
- ENSC 3103 Plants and Environmental Restoration (*CSES 1203 or HORT 2003 or BIOL 1613*)
- ENSC 3223/3221L Ecosystem Assessment and lab (*BIOL 1543, CSES 2203, ENSC 3003*)
- ENSC 3263 Soil and Water Conservation (*CSES 2203*)
- ENSC 4023 Water Quality (*CHEM 1123/1121L*)
- ENSC 4263 Environmental Soil Science (*CSES 3214*)

Tier 2

- BIOL 1543/1541L Principles of Biology and lab
- CHEM 1103 University Chemistry I; the lab component, CHEM 1101L, is recommended (*MATH 1203 and Drill*)
- CHEM 1123/1121L University Chemistry II and lab (*MATH 1203, CHEM 1103*)
- CSES 2203/2201L Soil Science and lab (*CHEM 1103 or CHEM 1073; Same as ENSC 1003 Environmental Science*)
- GEOG 2003 World and Regional Geography
- GEOG 3333 Oceanography (*Junior standing*)
- GEOG 3383 Principles of Landscape Evolution
- GEOG 4353 Elements of Weather (*Junior standing*)
- GEOG 4363 Climatology (*GEOG 1003 or GEOG 4353*)
- GEOL 1113/1111L General Geology and lab (Pre- or corequisite: *GEOL 1113*)
- GEOL 1133/1131L Environmental Geology and lab (*GEOL 1113/GEOL 1111L*)
- GEOL 4033 Hydrogeology (*MATH 2564, GEOL 3513/GEOL 3511L*)
- GEOL 4053 Geomorphology (*GEOL 1113 or GEOL 3002*)
- GEOL 4063 Principles of Geochemistry (*CHEM 1121L and CHEM 1123*)
- GEOS 4413 Principles of Remote Sensing (*University science course*)

MATH 4163/BIOL4163 Dynamic Models in Biology (*MATH 2554; Same as BIOL 4163*)

PHYS 2054 University Physics I (*MATH 2554*)

PHYS 2074 University Physics II (*PHYS 2054, Prerequisite or corequisite: MATH 2564*)

#### Sustainability of Managed Systems courses

##### Tier 1

AGEC 3413 Principles of Environmental Economics (*AGEC 1103 or ECON 2023*)

AGEC 3523 Environmental and Natural Resource Law

AGED 4003 Issues in Agriculture Junior standing

CSES 3214 Soil Resources and Nutrient Cycles with lab (*CSES 2203*)

ECON 3843 Economic Development, Poverty, & the Role of the World Bank and IMF in Low-Income Countries (*ECON 2013 and ECON 2023, or ECON 2143*)

ENSC 3103 Plants and Environmental Restoration (*CSES 1203 or HORT 2003 or BIOL 1613*)

ENSC 3223/3221L Ecosystems Assessment and lab (*BIOL 1543, CSES 2203, and ENSC 3003*)

ENSC 3263 Soil and Water Conservation with lab component (*CSES 2203*)

ENSC 4023 Water Quality with lab component (*CHEM 1123/CHEM 1121L*)

ENSC 4263 Environmental Soil Science (*CSES 3214*)

HORT 3503 Sustainability and Organic Horticulture (*suggested but not required: BIOL 1613, CSES 1203, CSES 1003, or HORT 2003*)

WCOB 3023 Sustainability in Business (*Junior standing*)

##### Tier 2

AGED 4443 Methods of Technological Change (*Junior standing*)

AGME 1613 Fundamentals of Agricultural Systems Technology with lab component

CSES 2012 Organic Crop Production

CSES 2203/2201L Soil Science with drill (*CHEM 1103 or CHEM 1073*)

ENSC 1003 Environmental Science

MGMT 4243 Ethics and Corporate Responsibility (*Junior standing*)

#### Sustainability of Built Systems courses

##### Tier 1

ARCH 4023H Sustainability and Design Permission of instructor

CVEG 488V Sustainability in Civil Engineering (*CVEG majors*)

GEOG 4383 Hazard Assessment and Risk Policy (*Junior standing*)

INEG 4583 Renewable Energy: Green Power Sources (*Senior standing*)

MEEG 4453 Industrial Waste and Energy Management (*MEEG 4413 or equivalent*)

MEEG 4473 Indoor Environmental Design (*MEEG 4413 or equivalent*)

LARC 5043 Housing As If The Future Matters

LARC 5063 Alternative Storm Water Management

##### Tier 2

GEOG 3543 Geographic Information Science

GEOG 4063 Urban Geography (*Junior standing*)

ARCH 2114 Building Environmental Technology: Passive Systems Buildings (*ARCH 1024 and ARCH 1222, Corequisite: ARCH 2016*)

ARCH3134 Building Systems: Lighting, Acoustics, and HVAC (*ARCH 2124, Corequisite: ARCH 3016*)

LARC 4743 Site Planning in Landscape Architecture

CVEG 3243 Environmental Engineering with lab component (*MATH 3404 and CHEM 1123*)

CVEG 4243 Environmental Engineering Design (*CVEG 3243*)

CVEG 4323 Design of Structural Systems (*CVEG 4303 and CVEG 4313*)

CSCE 4233 Low Power Digital Systems (*CSCE 2123*)

#### Sustainability of Social Systems courses

##### Tier 1

AGEC 3523 Environmental and Natural Resource Law

AGEC 4163 Agriculture and Rural Development (*AGEC 1103 or ECON 2023*)

COMM 4643 Environmental Communications

ENGL 4133 Environmental Literature and Nature Writing

ENSC 3933/ PHIL 3113 Environmental Ethics (*ENSC 1003 or PHIL 2003 or PHIL 2103*)

GEOS 4693 Environmental Justice

RESM 1023 Recreation and Natural Resources (*RESM 1003*)

RESM 4023 Outdoor Adventure Leadership

RSOC 4603/SOCI 4603 Environmental Sociology

##### Tier 2

ANTH 4143 Ecological Anthropology

HIST 4773 Environmental History

CHLP 6553 Environmental Health

CHLP 4643/5643 Multicultural Health

SCWK 4093 Human Behavior and Social Environments I (*PSYC 2003, SOCI 2013, SCWK 2133, and SCWK 3193 and either BIOL 1543/1541L, or ANTH 1013/1011L*)

SCWK 4103 Human Behavior and Social Environments II (*SCWK 4093 and SCWK 4153*)

SCWK 3193 Human Diversity and Social Work

SOCI 2033 Social Problems

SOCI 3193 Race, Class, Gender in the U.S. (*SOCI 2013*)

SOCI 4013 Special Topics: The City (*SOCI 2013*)

#### Capstone Experience

All students participating in the minor in Sustainability must complete a capstone experience focused on service learning, research learning, or internship in sustainability. Student engagement in community service, research, or relevant work on sustainability through a summer internship provides opportunities for students to apply sustainability theories and principles learned from prior coursework toward advancing sustainability across society.

Students may formally petition the University of Arkansas Sustainability Curriculum Steering Committee to substitute sustainability-oriented senior design projects, Honors College research projects, other service learning courses, or equivalent internship experiences for SUST 4103 to satisfy the capstone element of minor in Sustainability. Details of the procedure to substitute alternative experiences for SUST 4103 can be found in the Foundations of Sustainability Program Handbook.

To qualify for SUST 4103 or other sustainability capstone experience, students must have successfully completed SUST 1103, SUST 2103, and 6 hours of elective course work toward the minor in Sustainability.

# Dale Bumpers College of Agricultural, Food and Life Sciences

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## Office of the Dean of the College

E-108 Agricultural, Food and Life Sciences Building, 479-575-2252

### Dean

Michael E. Vayda

### Associate Dean

Lona J. Robertson

### Student Affairs Coordinator

Alice Griffin

### Curricular Affairs Coordinator

Kaaron "Jody" Davis

### Director of Honors Program

Curt Rom, 479-575-7434

### Advising, Scholarships, Student Relations

E-108 Agricultural, Food and Life Sciences Building, 479-575-2252

### World Wide Web

<http://bumperscollege.uark.edu/>

**E-mail:** [afldsdean@uark.edu](mailto:afldsdean@uark.edu)

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## MISSION AND OBJECTIVES

The mission of the College of Agricultural, Food and Life Sciences is to prepare graduates who are intellectually enriched, technically competent, environmentally conscious, and ethically responsible. We honor the land-grant tradition and respect the many values of its fabric and heritage while demonstrating sensitivity toward change for the future. Our goal is for our graduates to commit to being self-directed, lifelong learners and to be responsible leaders, possessing strong communication skills and problem-solving abilities.

To accomplish this, the broad curricula include basic courses in the general sciences and liberal arts, as well as the agriculture and human environmental sciences.

### History and Organization

As the state's land-grant university, the University of Arkansas has the responsibility for leadership in teaching, research, and service in the agricultural and human environmental sciences. This responsibility is shared with the Division of Agriculture.

The Bumpers College is an integral component of the University of Arkansas and addresses the teaching responsibility of the land-grant university. Its roots lie in the First Morrill Act of 1862, which created the land-grant system by providing a grant of land to each state for the establishment of a college "where the leading objective shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanical arts in such manner as the legislatures of the state may prescribe to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." Agricultural sciences have been taught at the University of Arkansas almost

from the beginning of the institution in 1872. The University conferred the first degrees in agriculture in 1904.

Early instruction and outreach efforts focused on improving rural life for men, women, and children. Farm wives were interested in beautifying the home, food preparation and safety, and gardening. Foods and nutrition, bacteriology, chemistry, and other related subjects held a common scientific interest for both agriculture and home economics, so it naturally evolved that studies in home economics should develop within the realm of agricultural education. Domestic science classes were offered as early as 1909, and a department of home economics was established in 1913. The department was elevated to school status in 1994, and its name was changed to the School of Human Environmental Sciences.

The passage of the Hatch Act in 1887 and subsequent legislation made possible the Agricultural Experiment Station, the research component of the Division of Agriculture. Most faculty who teach in the Bumpers College also hold appointments in the Experiment Station and are able to incorporate active research into their teaching.

The dissemination of University research in agriculture and human environmental sciences is carried out by personnel in the Cooperative Extension Service, created by the Smith-Lever Act of 1914. Many Extension specialists also hold adjunct faculty status and bring their expertise to the teaching program.

It is this blending of teaching, research, and service functions that create a unique learning environment in the college. As students learn to relate basic areas of science to human needs, they study in laboratory-based classes and are taught in research facilities supported by the Division of Agriculture. Similarly, students are encouraged to intern with professionals in industry and governmental agencies, including the Cooperative Extension Service.

In recognition of the land-grant mission of the University and its commitment to serve the entire state, the Dale Bumpers College of Agricultural, Food and Life Sciences has worked cooperatively with numerous community colleges to organize the Arkansas Consortium for Teaching Agriculture (ACTA). ACTA is designed to facilitate the "seamless" transfer of students from community colleges to the Bumpers College. Coordinated advising, recruiting, and curricula development are working goals of the consortium. Students interested in transferring while enrolled at an ACTA partner school should contact the dean's office.

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## FACILITIES AND RESOURCES

The Dale Bumpers College of Agricultural, Food and Life Sciences is composed of ten academic departments and the School of Human Environmental Sciences. The college offers both undergraduate and graduate level degrees.

The Agricultural, Food and Life Sciences Building houses the dean's office and the department of Animal Science and serves as the headquarters for the college academic functions. There are six other buildings on campus operated by the college including the Agriculture Building, Home Economics Building, Rosen Center, Plant Science Building, Agricultural Annex, and the Center of Excellence for Poultry Science. Additionally, the Food Science Building, Alzheimer Laboratory, Abernathy Agri-Science Laboratory, Biological and Agricultural Engineering Laboratory, Pauline

Whitaker Animal Science Arena, and the Dorothy E. King Equine Science facilities are located at the Research and Extension Center north of the main campus. These serve as additional teaching laboratories or classroom facilities. Also, the Jean Tyson Child Development Study Center is managed by the college to provide instructional training for the child development program.

Several classrooms are equipped with “class capture” technology to allow students to view lectures online and to aid distance education courses. Students can receive academic assistance through the Academic Enhancement Program (AEP) coordinated by the dean’s office. Students can also seek assistance through the Enhanced Learning Center, a campus-wide resource.

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## COLLEGE SCHOLARSHIPS

In addition to the scholarships awarded by the University, there are a number of scholarships available to students in agriculture and human environmental sciences made possible by generous gifts from many firms and individuals. To be considered for a college scholarship, students must first be admitted to the University. Most scholarships require students to be enrolled full-time, at least 12 credit hours per semester. A college scholarship application, which serves as an application to all available scholarships offered by the college, must be submitted each year. For additional information, please see the AFLS Scholarship website at <http://bumperscollege.uark.edu/39.htm>. A listing of various outside scholarships is available for review in the dean’s office, E-108, Agricultural, Food and Life Sciences Building and on the college’s Web site. There are also miscellaneous outside scholarships for which applications are available in some departmental offices. For more information on scholarships, contact the dean’s office.

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## STUDENT ORGANIZATIONS

**Agricultural Business Club** is for students interested in agricultural business and economics.

**Agricultural Communicators of Tomorrow (ACT)** is designed for students with an interest in agricultural communications.

**Agricultural Mechanization Club** is a student organization for those with an interest in agricultural technology.

**American Society of Agricultural and Biological Engineers, Student Branch, (ASABE)** is an organization for students interested in agricultural engineering.

**Apparel Studies Student Association (ASSA)** is an organization open to all students interested in the fashion industry.

**Biological Engineering Club** is a student organization for those interested in improving people’s lives and helping assure a sustainable quality of life for tomorrow. The club creates solutions to problems by coupling living systems (human, plant, animal, environmental, food, and microbial) with the tools of engineering and biotechnology through both an agricultural and environmental perspective.

**Collegiate 4-H/FFA** is for any student who has been active in 4-H or FFA or has a current interest in service to these youth-oriented organizations. This club is especially designed for students interested in teaching agricultural education or working for the Extension Service.

**Collegiate Farm Bureau** was formed in 2002 with support from the Arkansas Farm Bureau Federation. Its goals are to motivate students to become involved in shaping agricultural policy for the state and the nation.

**Crop, Soil, and Environmental Science Club** is a student organization for those interested in crops and soils through both an agricultural and environmental perspective.

**Ecological Engineering Club** is a student organization for those interested in design of sustainable systems in concert and consistent with ecological principles that integrate human activities with the natural environment to the benefit of both, through agricultural and environmental perspectives.

**Food Science Club** is an organization for those students interested in food science.

**GroGreen** is student organization for students to learn about and practice sustainable and organic farm and garden practices.

**Horticulture Club** is a student organization for those interested in horticulture including floriculture, ornamentals, turf, small fruits and vegetables.

**Hospitality and Restaurant Management Club** is for students who are interested in the food and beverage, hotel operations and tourism aspects of the hospitality industry.

**Isely-Baerg Entomology Club** is open to those who wish to stimulate interest in the field of entomology, perform outreach programs for the public and to promote and encourage professional exchange of ideas in the field of entomology.

**Minorities in Agriculture, Natural Resources Related Sciences (MANRRS):** The purpose of this organization is to promote and implement initiatives which foster inclusion and advancement of members of ethnic/cultural groups under-represented in the agricultural and natural sciences and related fields in all phases of career preparation and participation.

**National Block and Bridle Club** is for students who are interested in any phase of animal science. Students with interests in horses, cattle, sheep, dogs, cats, or swine will find this club a good place to become involved.

**Plant Pathology Graduate Student Association (PPGSA)** is an organization open to graduate students interested in plant pathology or related fields.

**Poultry Science Club** is open to all students interested in any phase of the poultry industry or related fields.

**Pre-Vet Science Club** is for students interested in veterinary medicine and is especially designed for those students in the pre-veterinary medicine curriculum.

**Student Dietetic Association (SDA)** is an organization for students who are interested in the profession of dietetics. The goals are to promote growth in professional attitudes and to provide various programs of interest to the members.

**Turf Management Club** is a student organization open to all students interested in turfgrass management.

**University of Arkansas chapter of the American Association of Family and Consumer Sciences (ArAAFCS)** offers student membership to all human environmental sciences majors. Monthly meetings highlight various phases of human environmental sciences and provide social contact with other majors. In addition, members become involved in local service projects and may attend statewide workshops and leadership training sessions.

There are also numerous general organizations on the University campus, and students of the Dale Bumpers College of Agricultural, Food and Life Sciences participate in most of them. These include fraternities, sororities, honor and scholarship organizations, religious and music groups, sports organizations, and others.

**Alpha Tau Alpha** is a national honorary professional fraternity for those preparing to become teachers of agricultural education. Its mission is to develop a true professional spirit in the teaching of agriculture, to help train teachers of agriculture who shall be leaders in their communities, and to foster a fraternal spirit among students in teacher training in agricultural education.

**Alpha Zeta** is the professional honor fraternity for students of agriculture. To be invited to become a member, a student must rank in the upper two-fifths of the class and be recognized for leadership and character.

**Eta Sigma Delta** is the professional honor society for those students studying within the Hospitality and Restaurant Management concentration in the School of Human Environmental Sciences.

**Gamma Sigma Delta** is the honor fraternity for graduating seniors, graduate students, faculty, and alumni of the Dale Bumpers College of Agricultural, Food and Life Sciences. Seniors must rank in the upper 25 percent of their class to be eligible for membership, but not more than 15 percent of the class may be elected for membership. The highest-ranking sophomore and the highest-ranking senior are recognized annually by the society.

**Phi Upsilon Omicron** is the professional honor society for human environmental sciences students. To be eligible for invitation to membership, a student must rank in the upper 35 percent of the class and be recognized for character and leadership.

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## ACADEMIC ADVISING

Bumpers College advising mission is to enhance the educational experience and maximize opportunities for students. Therefore, we are committed to a strong, effective academic advising program. Advising plays a significant role in the total process of educating students for lifelong learning. The adviser assists students with the development and implementation of their educational plans.

Research demonstrates that the more contact students have with faculty, the more

likely they are to persist and complete their educational goals in a timely manner. Therefore, the college has adopted a faculty advisement model. The faculty adviser serves as a facilitator to assist students in maximizing their education potential. The advising relationship is a partnership between the student and the faculty adviser that is dependent on effective communication and regular contact.

### Selection of a Major

A student who elects to major in some area of study in the college should plan the program with a faculty adviser. While undecided students are welcome, early selection of a major will permit better planning and proper sequencing of courses. The student and faculty adviser work closely to ensure that curriculum requirements are met in a timely fashion. A student uncertain about a major will be advised as an undeclared major through the dean's office.

## DEGREES OFFERED

All entering students (including freshmen, international and transfer students) admitted to the University of Arkansas, Fayetteville, are eligible to pursue a degree program in the Dale Bumpers College of Agricultural, Food and Life Sciences. Degrees offered are as follows:

- The Bachelor of Science in Agricultural, Food and Life Sciences (B.S.A.)
- The Bachelor of Science in Human Environmental Sciences (B.S.H.E.S.)

## MAJORS, CONCENTRATIONS AND MINORS

### Agricultural, Food and Life Sciences

#### B.S.A. Degree

##### Majors and Concentrations

- Agricultural Business (AGBS)
  - Agricultural Business Management and Marketing (ABMM)
  - Agricultural Economics (AGEC)
  - Pre-Law (PRLW)
- Agricultural Education, Communication and Technology (AECT)
  - Agricultural Communications (ACOM)
  - Agricultural Education (AGED)
  - Agricultural Systems Technology Management (ASTM)
- Animal Science (ANSC)
- Crop Management (CPMG)
- Environmental, Soil, and Water Science (ESWS)
- Food Science (FDSC)
  - Food Science (FDSC)
  - Food Technology (FDTN)
  - Food and Culinary Sciences (FDCU)
- Horticulture, Landscape, and Turf Sciences (HLTS)
- Poultry Science (POSC)

##### Minors Offered

- Agricultural Business (AGBS-M)
- Agricultural Communications (ACOM-M)
- Agricultural Education (AGED-M)
- Agricultural Systems Technology Management (ASTM-M)
- Animal Science (ANSC-M)
- Crop Biotechnology (CPBT-M)
- Crop Management (CPMG-M)
- Entomology (ENTO-M)
- Environmental, Soil, and Water Science (ESWS-M)
- Equine Science (EQSC-M)
- Food Science (FDSC-M)
- Global Agricultural, Food and Life Sciences (AFLS-M)
- Horticulture (HORT-M)
- Journalism (JOUR-M)
- Landscape Horticulture (LHRT-M)
- Pest Management (PMGT-M)
- Plant Pathology (PLPA-M)

- Poultry Science (POSC-M)
- Turf Management (TURF-M)
- Wildlife Habitat (WLHA-M)

### Certificates Offered

- Food Safety Manager Certificate of Proficiency (FMGR-CP)
- Hazard Analysis and Critical Control Point Coordinator Certificate of Proficiency (HCCP-CP)

In both certificates, students take a concentrated core of Web-based courses focused on the application of scientifically based food-safety systems through the application of HACCP systems. Applicants must have a B.S. degree or seven years of relevant experience in the food industry to be admitted. See page 96 for the list of courses.

### School of Human Environmental Sciences

#### B.S.H.E.S. Degree

##### Majors and Concentrations

- Apparel Studies (APST)
- Food, Human Nutrition and Hospitality (FHNH)
  - Dietetics (DIET)
  - General Foods and Nutrition (GFNU)
  - Hospitality and Restaurant Management (HRMN)
- General Human Environmental Sciences (HESC)
- Human Development and Family Sciences (HDFS)
  - Child Development (CDEV)
  - Birth through Kindergarten (BRKD)
  - Lifespan (LSPN)

##### Minors Offered

- General Foods and Nutrition (GFNU-M)
- Human Development and Family Sciences (HDFS-M)

### Minors in Other Colleges

Minors in other Colleges: Students in the College of Agricultural, Food and Life Sciences may pursue an academic minor in the Sam M. Walton College of Business or in the J. William Fulbright College of Arts and Sciences. These minors usually consist of 15 to 20 hours of course work. For requirements regarding minors, check the catalog under the department offering the minor. Students must notify the dean's office of their intention to pursue a minor.

### Special (Non-Degree Seeking) Students

While most students enrolled in the Dale Bumpers College of Agricultural, Food and Life Sciences work toward a degree, students who desire additional education of a specific nature but who do not wish to fulfill all requirements for a degree may enroll as special students. It is recommended that students declare a minor by the end of their sophomore year.

## GRADUATE STUDIES

The Graduate School of the University, in cooperation with the Dale Bumpers College of Agricultural, Food and Life Sciences, offers the Master of Science degree in each of its ten departments and in the School of Human Environmental Sciences. Six doctoral degrees are offered. More detailed information regarding individual programs may be obtained by contacting the administrative office of each department, or by consulting the Graduate School Catalog.

## ACCREDITATIONS

The Bachelor of Science in Human Environmental Sciences (B.S.H.E.S.) degree programs are accredited by the Council for Professional Development of the American Association of Family and Consumer Sciences. The degree program in dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics of

the Academy of Nutrition and Dietetics. The Nursery School and the Infant Development Center in the School of Human Environmental Sciences are accredited by the National Association for the Education of Young Children (NAEYC). The Bachelor of Science in Agricultural, Food and Life Sciences (B.S.A.) in food science is accredited by the Institute of Food Technologists. Teacher education programs in agriculture and family and consumer sciences are coordinated with educational programs in the College of Education and Health Professions and are accredited by the National Council for Accreditation of Teacher Education (NCATE).

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## OTHER PROGRAMS

### Pre-veterinary Medicine

Because Arkansas does not have a college of veterinary medicine, the Arkansas General Assembly has authorized funds for education in veterinary medicine at out-of-state institutions. The State Board of Higher Education is the designated agent for the State of Arkansas, and the Student Loan Authority is authorized to administer the program. Terms and conditions prescribed by the Student Loan Authority are as follows: the grant will cover only out-of-state tuition, and the student will pay his or her own fees and expenses.

Contracts have been negotiated with the Board of Control for Southern Regional Education for education in veterinary medicine at Louisiana State University and at Tuskegee University. Arrangements have also been made with the University of Missouri and Oklahoma State University. Under the provisions of the legislation, only citizens of Arkansas are eligible. They must enroll in and complete the pre-veterinary medicine curriculum to satisfy the admission requirements of these colleges of veterinary medicine.

Arkansas Act 881, passed in 2011, established a loan repayment program for Arkansas residents who attend Mississippi State University College of Veterinary Medicine. The loan repayment program will assist Arkansas residents with the repayment of federally funded student loans incurred while attending veterinary school at Mississippi State University. Beginning in April 2012, participants in the program will be required to practice in the state of Arkansas for up to five consecutive years with a minimum of 30 percent of their practice devoted to food or mixed animal medicine in rural areas of Arkansas. This may include corporate or private veterinary practice.

The pre-veterinary medicine program at the University of Arkansas is administered in the departments of Animal Science and Poultry Science of the Dale Bumpers College of Agricultural, Food and Life Sciences. There are faculty in these departments who help counsel and advise students regarding their pre-veterinary medicine program. There are also faculty veterinarians who provide some insight into the practice of veterinary medicine and are knowledgeable about many of the considerations encountered in establishing a practice upon graduation. Some of these veterinarians have been in private practice; others have been involved in full-time agricultural research since graduation from veterinary medicine and graduate school. Because there is a wide cross-section of experience among these faculty, students find their counsel valuable in planning a future in veterinary medicine.

While it is possible to complete requirements for admission to some colleges of veterinary medicine in two years, most students take three years or more to complete the requirements, and most complete a B.S. degree before being admitted. Students who carefully plan their work may complete a B.S. degree by transferring hours earned in the first two years at an accredited college of veterinary medicine back to the University of Arkansas, provided they complete certain degree requirements at the University prior to entering a school or college of veterinary medicine. These students must complete a minimum of 94 hours of a 124-hour program of prescribed courses. This will require three years and one or two 6-week summer terms for most students. Therefore, students should inform their advisers early in their program that they wish to be in a pre-vet degree program.

The Bumpers College of Agricultural, Food and Life Sciences is ready to assist students in fulfilling their pre-veterinary medicine requirements whether they desire to complete them in a two-year span or over three or four years. The supporting departments at the University, including chemistry, English, and biological sciences, all offer quality courses that give a student an excellent background for the pursuit of a degree in veterinary medicine.

To earn the professional degree, a student must complete the pre-veterinary

medicine requirements and the four-year prescribed curriculum in one of the colleges of veterinary medicine.

**Required Examinations:** All required examinations are given on campus and administered by testing services (Hotz Hall 713, phone, 479-575-3948). Exams must be taken by late fall of the year prior to entering vet school. Students interested in taking examinations should contact testing services to schedule an examination date. All contract schools accept the Graduate Records Exam (GRE), which is given frequently. Students applying for admission to Oklahoma State University must take the general test and the biology test of the GRE.

**Applications:** Students applying to Louisiana State University, Oklahoma State, and University of Missouri must fill out a Veterinary Medical College Application Service (VMCAS) form, available at their online site ([www.aavmc.org](http://www.aavmc.org)). Students must complete the application and have it postmarked by Oct. 1 of the year prior to beginning studies. Application forms for Tuskegee University may be obtained directly from Tuskegee University. Since requirements for the various veterinary schools periodically change, it is important that students check with their advisers about specific school requirements as they progress through the pre-veterinary requirements.

All students should contact the Coordinator of Veterinary Medicine, Dale Bumpers College of Agricultural, Food, and Life Sciences, AFLS B114, University of Arkansas, Fayetteville, AR 72701, phone 479-575-4351 in the spring prior to making fall application for admission to a veterinary school to verify that they can complete the requirements for the school they wish to attend. Pre-professional requirements and specific requirements for admission to colleges of veterinary medicine at Louisiana State University, Oklahoma State University, University of Missouri, and Tuskegee University are listed with information on the Web for the department of Animal Science at [http://animalscience.uark.edu/Veterinary\\_School\\_Undergraduate\\_Curriculum\\_Requirements.pdf](http://animalscience.uark.edu/Veterinary_School_Undergraduate_Curriculum_Requirements.pdf).

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## HONORS PROGRAM

The Bumpers College Honors Program provides students with opportunities for intellectual enrichment beyond the traditional undergraduate experience. This is accomplished through special honors courses, completion of an undergraduate honors thesis, and other significant activities. Students must maintain a GPA of 3.50 and subscribe to the Statement of Ethical Standards to remain in the program.

Students in the AFLS Honors Program are required to complete 9 hours of honors courses from any college. The AFLS Honors courses include:

- AFLS 1011H Honors Freshman Orientation
- AFLS 3131H Honors: Management and Leadership
- AFLS 3412H Honors Proposal Development
- AFLS 3512H Rotations in Agric. Lab Research
- AFLS 4431H Honors: Exploring Ethics
- AFLS 401VH Honors Special Topics -- Topics include: Personal Excellence, Professional Development, Global Issues in AFLS and Contemporary Readings.

Honors students are also required to complete 6 hours of thesis credit as AFLS 400VH Honors Thesis.

The AFLS Honors Program Statement of Ethical Standards states:

“As a member of the AFLS Honors Program, I pledge to uphold the ethical standards of honesty and trustworthiness in all academic and research/creative activities. I recognize that it is a privilege to be a member of the University of Arkansas Honors College and will dedicate my efforts to ensure that the highest levels of ethical standards are maintained.”

To support their research or creative projects, participants in the Honors Program are eligible to apply for undergraduate research grants from the Arkansas Student Undergraduate Research Fellowships (SURF) program awarded by the state, the University Honors College, and from the Bumpers College. The results of the student's original research or creative project can be published in *Discovery*, the undergraduate research journal of the Bumpers College or *Inquiry: the University Journal of Undergraduate Research and Creative Activity*. Honors students can also apply to the Honors College for Study Abroad and conference grants and to the Bumpers College Study Abroad program. Students who have fulfilled the requirements of the Bumpers College Honors Program will be recognized as graduating with Honors Program Distinction. The

transcript and diploma will designate the student as an honors program graduate of the college. At the college commencement ceremony, each honors graduate will wear special regalia and have the title of his or her honors thesis and mentor's name listed in the graduation program.

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## STUDY ABROAD

An educational experience outside the U.S. has become an integral component for today's student in higher education. The ability to compete and perform in the global arena requires an understanding of world cultures, economic systems, religions, trends, governments and politics. Students in the Bumpers College are encouraged to engage in study abroad that will lead to life-long partnerships, cultural awareness and understanding of the global dimensions of their majors. The college years provide the best opportunity for students to gain this understanding and experience through faculty-led group study tours; summer, semester or year-long study abroad; and international internships which closely relate to their career goals.

Bumpers College provides study abroad opportunities through its Global Studies Program in conjunction with the University of Arkansas Study Abroad Office. Although the Global Studies Program often uses standard "off-the-shelf" study abroad programs, its hallmark is customizing study abroad experiences to meet the specific interests and goals of each Bumpers student. More than 450 Bumpers students have had an international study experience since its inception in 1997, studying in 25 different countries, each earning academic credit relating to their major and global interests. The college anticipates a total of 40 to 50 Bumpers students participating in the Global Studies Program during each calendar year.

Undergraduate students who study abroad have the opportunity to earn the minor in Global Agricultural, Food and Life Sciences. Graduate opportunities are available for study in agricultural economics, agribusiness and related subjects via the UA's TransAtlantic Master of Science program at Ghent University, Belgium. Second language capability is helpful, but not required.

Bumpers students interested in a study abroad program or internships with full-time status usually can maintain their scholarships while abroad. Limited funding is available for travel grants through Bumpers and Honors colleges.

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## COLLEGE ADMISSION REQUIREMENTS

All students seeking admission to the Dale Bumpers College of Agricultural, Food and Life Sciences must meet the general requirements for admission to the University. Students transferring from other colleges at the University of Arkansas or from other institutions are expected to meet the same entrance standard.

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## COLLEGE ACADEMIC REQUIREMENTS

### All students must satisfy the following University Graduation requirements

1. Complete a minimum of 124 semester hours.
2. Fulfill University Core Requirements of 35 hours. See page 41 for a list of courses that meet the requirements. Check requirements for each major as some majors require specific core courses as prerequisites to upper level courses.
3. Earn a grade-point average of 2.00 ("C" average) on all work attempted at the University of Arkansas.
4. Present no more than 68 semester hours of lower-division transfer course work (1000/2000 level) for degree credit.
5. Present no more than 25 percent in "D" grades earned at the University of Arkansas to meet degree requirements.
6. All students must meet the University enrollment requirement found on Page 40.

### Specific Degree Requirements

1. To fulfill the residency requirements of the degree of Bachelor of Science in Agricultural, Food and Life Sciences, students must complete a minimum

of 30 semester hours within Bumpers College. In addition, a minimum of 9 hours of broadening electives (Bumpers College courses taken outside the departmental code) must be completed.

2. To fulfill the residency requirements of the degree of Bachelor of Science in Human Environmental Sciences, students must complete a minimum of 30 hours within the School of Human Environmental Sciences at the University of Arkansas.
3. A minimum of 39 hours of courses at the 3000-level or above.
4. In addition to university requirements students must meet other defined degree requirements specific to each major and concentration. Bumpers College courses outside of the major may be included in degree requirements.
5. General electives will vary by major. Electives may be selected to meet the requirements for a minor; however, all elective credits are subject to approval of the academic adviser.

### Rules Applying to Course Work Used for Degree Credit

1. No credit will be given for duplicate coursework.
2. A maximum of six hours of internship and six hours of special problems may be counted for degree credit.
3. A total of six semester hours of elective credits in University band, chorus, judging teams, drama, debate, physical education, etc., may be counted toward a degree.
4. Any course taken by correspondence, including Web-based courses, must be approved in advance in the dean's office if the credits earned in the course are to be applied toward a degree. This rule applies regardless of the school from which the course is taken.
5. All transfer course work to be applied toward the degree must be an approved course listed in the transfer equivalency guide maintained by the Registrar's office. For courses not listed in the guide, petitions can be submitted to the Dean's office by the student's academic adviser.
6. All study abroad courses must be approved in advance in the Dean's office if the credits earned in the courses are to be applied toward a degree.
7. Former students of the college who are readmitted after an absence of one year may be expected to meet the curriculum requirements in effect at the time of their readmission. Students should consult their academic adviser for degree planning before registering for classes.
8. Students interested in earning an additional bachelor's degree should refer to the University requirements on page 44.

### Requirements to Graduate with Honors

Students who have demonstrated exceptional academic performance in baccalaureate degree while completing the Honors Program in the Bumpers College will be recognized at graduation by the honors designations of *cum laude*, *magna cum laude*, or *summa cum laude*. To earn such designation, students must meet the following criteria:

1. Must have completed at least one-half of his or her degree work at the University of Arkansas.
2. Must have at least a 3.5 GPA on University of Arkansas course work, computed at graduation.
3. Must successfully complete the Bumpers College Honors Program, which includes a minimum of 9 hours of honors course work, 6 hours of honors thesis, and a completed honors capstone research or creative project culminating in a written thesis documenting the project.
4. For *cum laude*, the student must achieve a cumulative U of A GPA of 3.5 to 3.74.
5. For *magna cum laude*, the student must achieve a cumulative U of A GPA of 3.75 to 3.89.
6. For *summa cum laude*, the student must achieve a cumulative U of A GPA of 3.9 to 4.00.

These criteria may be evaluated and changed periodically by the College of Agricultural, Food and Life Sciences.

### Requirements to Graduate with Distinction

Students who have not completed the Bumpers College Honors Program, but have demonstrated excellent academic performance in baccalaureate degree programs in the Bumpers College will be recognized at graduation by the designation of “with distinction,” “with high distinction,” and “with highest distinction.” To earn this designation, students must meet the following criteria:

1. Must have completed at least one-half of his or her degree work at the University of Arkansas.
2. Must have at least a 3.5 GPA on University of Arkansas course work, computed at graduation.
3. For “with distinction,” the student must achieve a cumulative U of A GPA of 3.5 to 3.74.
4. For “with high distinction,” the student must achieve a cumulative U of A GPA of 3.75 to 3.89.
5. For “with highest distinction,” the student must achieve a cumulative U of A GPA of 3.9 to 4.00.

These criteria may be evaluated and changed periodically by the College of Agricultural, Food and Life Sciences.

### Grading System

The Dale Bumpers College of Agricultural, Food and Life Sciences utilizes a plus/minus grading system that assigns numerical values to 12 different grades. These values are used for courses when grade-point averages are calculated.

The 12-step grading system with assigned values is as follows:

A.....4.00	C .....2.00
A- .....3.67	C-.....1.67
B+.....3.33	D+ .....1.33
B.....3.00	D.....1.00
B-.....2.67	D- .....0.67
C+.....2.33	F .....0.00

## DEPARTMENTAL MAJORS

### AGRICULTURAL AND EXTENSION EDUCATION (AEED)

George W. Wardlow  
 Head of the Department  
 205 Agriculture Building  
 479-575-2035  
<http://aeed.uark.edu/>

#### FACULTY

- Professors Graham, Johnson, Wardlow
- Associate Professor Miller
- Assistant Professors Edgar (D.), Edgar (L.)
- Instructor Cox
- Adjunct Associate Professor Poling, Ballard

### Agricultural Education, Communication, and Technology (AECT)

The department of agricultural and extension education offers a degree program in agricultural education, communication and technology. Students with this major are in constant demand due to the rapidly changing educational needs of the agricultural and natural resources industries. Graduates with this degree have a broad knowledge of agricultural disciplines. They are prepared as agricultural technology transfer

specialists to enter a variety of careers in formal and non-formal teaching roles in either the public or private sector as agricultural educators, Extension agents, industry-based trainers, information specialists, or technology-management specialists. Students in agricultural education, communication and technology may choose one of three areas of concentration listed below, or, with adviser’s approval, select courses from more than one concentration area.

#### Agricultural Education Concentration (AGED)

This area of concentration is designed for students who wish to receive initial teacher licensure to teach agricultural science in public schools.

#### Agricultural Systems Technology Management Concentration (ASTM)

Students planning a professional career related to technical operations and management in agricultural industry should enroll in this concentration. Graduates assume positions of leadership and responsibility in such areas as agricultural services and sales, agricultural management, agricultural production systems, product service, product testing, and service management. The program focuses on preparing students as problem solvers in the application, management and/or marketing of agricultural technology.

#### Agricultural Communications Concentration (ACOM)

This concentration is designed to produce graduates with both technical knowledge about the food and fiber industry and the communication skills needed to convey in an effective manner the story of agriculture to consumers, policy makers, and the public at large. Interpersonal and group communication, public relations, graphic art, video and television production, electronic communication, distance learning, video conferencing, and writing for the media are emphasized in this program.

#### Requirements for a Major in Agricultural Education, Communication and Technology (AECT)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
  - \_\_ Choose from **English Core** courses (6 hours)
  - \_\_ COMM 1313 Public Speaking
  - \_\_ AGED 3142/3141L Agricultural Communications and lab
  - U.S. History or Government (3 hours)
  - \_\_ Choose from **U.S. History or Government Core** courses
- Mathematics (3 hours)
  - \_\_ Choose from **MATH Core** courses
- Sciences (15 hours)
  - \_\_ **BIOL 1543/1541L** Principles of Biology with lab
  - \_\_ BIOL 2013/2011L General Microbiology and lab or PHYS 1044 Physics for Architects I with lab component or higher level
  - \_\_ **CHEM 1073/1071L** Fundamentals of Chemistry and lab
  - \_\_ Science Elective (3 hours) for AGED Concentration
  - \_\_ Science or Math Elective (3 hours) for ASTM and ACOM Concentrations
- Fine Arts/Humanities (6 hours)
  - \_\_ Choose from **Fine Arts, Humanities Core** courses (6 hours) for ASTM and ACOM concentrations
  - \_\_ For AGED concentration, select **FNAR Core** (3 hours from category a) and
  - \_\_ **WLIT 1113** World Literature I or **WLIT 1123** World Literature II
- Social Sciences (9 hours)
  - \_\_ Choose **Social Science Core** courses (3 hours)
  - \_\_ **AGEC 1103** Principles of Microeconomics or **AGEC 2103** Principles of Agri Macroeconomics
  - \_\_ **PSYC 2003** General Psychology
- AECT Requirements (25 hours)
  - \_\_ AFLS 1011 Freshman Orientation
  - \_\_ AGED 1001 Orientation to Agri-Extension Education
  - \_\_ AGED 4003 Issues in Agriculture



- \_\_ AGME 1613/1611L Fundamentals of Agricultural Systems Technology and lab
- \_\_ AGME 2903 Applied Microcomputers
- \_\_ ANSC 1032 Introduction to Animal Science
- \_\_ ANSC 1051 Introduction to Livestock Industry
- \_\_ CSES 1203 Introduction to Plant Sciences
- \_\_ CSES 2013 Pest Management
- \_\_ CSES 2203 Soil Science
- \_\_ CSES 2201L Soil Science lab or CSES 355V(1) Soil Profile Description

### Additional Requirements for AGED Concentration

For Teacher Certification (44-45 hours):

- Mechanical Technology Courses (Choose 8 hours)
  - \_\_ AGME 2123 Metals and Welding with lab component
  - \_\_ AGME 3042 Ag Construction Technology
  - \_\_ AGME 3102/3101L Small Power Units/Turf Equipment and lab
  - \_\_ AGME 3153 Surveying Agri and Forestry
  - \_\_ AGME 3173 Electricity in Agriculture with lab component
  - \_\_ AGME 4203 Mechanized Systems Management with lab component
  - \_\_ AGME 4973 Irrigation with lab component
- Education Courses (24 hours)
  - \_\_ AGED 1031 Early Field Experience
  - \_\_ AGED 1123 Foundations of Agricultural Education
  - \_\_ AGED 3133 Methods in Agri Education with lab component
  - \_\_ AGED 4233 Program Development
  - \_\_ AGED 4632 Teaching Diverse Populations
  - \_\_ AGED 4843 Methods in Ag Labs
  - \_\_ CIED 3023 Survey of Exceptionalities or
  - \_\_ CIED 4023 Teaching in Inclusive Secondary Settings
  - \_\_ CIED 3033 Classroom Learning Theory
  - \_\_ CHLP 3633 First Responder-First Aid or equivalent (If student has completed Red Cross Life Saver certification, choose 3 hours of upper division general electives.)
- Other requirements for AGED Concentration (12-13 hours)
  - \_\_ AGED 475V Internship (6 hours) (Criminal background check is required prior to student internship)
  - \_\_ HORT Elective (3 hours)
  - \_\_ Science Elective (3-4 hours) – CHEM 2613/2611L required for Science Teacher Licensure
- Electives (6-13 hours)

### 124 Total Hours

### Additional Requirements for ACOM Concentration (39 hours)

- \_\_ AGED 2143 Introduction to Agricultural Communications
- \_\_ COMM 2303 Public Speaking
- \_\_ JOUR 1023 Media and Society
- \_\_ JOUR 1033 Fundamentals of Journalism with lab component
- \_\_ AGED 3153 Leadership Development in Ag
- \_\_ AGED 3243 Ag Reporting and Feature Writing
- \_\_ AGED 3943 Professional Development in Agricultural Communications
- \_\_ AGED 4143 Electronic Communications in Agriculture
- \_\_ AGED 4243 Graphic Design in AFLS
- \_\_ AGED 4343 Communication Campaigns in Agriculture
- \_\_ EXED 475V Internship in Extension (3 hours)
- Choose 6 hours from:
  - \_\_ AGED 4443 Principles of Technological Change
  - \_\_ AGED 4543 Ag Publications
  - \_\_ COMM 3303 Small-Group Communication
  - \_\_ COMM 3703 Organizational Communication
  - \_\_ JOUR 2013 News Reporting I

- \_\_ JOUR 2032/2031L Broadcast News Reporting I and lab
- \_\_ JOUR 2332/2331L Photo Journalism I and lab
- \_\_ JOUR 3023 News Reporting II with lab component
- \_\_ JOUR 3072/3071L Broadcast News Reporting II and lab
- \_\_ JOUR 3743 Public Relations Principles
- Electives (12-18 hours)

### 124 Total Hours

### Additional Requirements for ASTM Concentration (33 hours)

- \_\_ AGECE 2303 Intro to Agribusiness
- \_\_ AGECE 3303 Food and Agricultural Marketing
- \_\_ AGECE 3403 Farm Business Management
- \_\_ AGED 3153 Leadership Development in Agriculture
- \_\_ AGME 3102/3101L Small Power Unit/Turf Equipment and lab
- \_\_ AGME 3173 Electricity in Agriculture with lab component
- \_\_ EXED 475V Internship in Extension (3 hours)
  - \_\_ Science or Math Elective (3-4 hours)
- Choose 8-9 hours from:
  - \_\_ AGME 2123 Metals and Welding with lab component
  - \_\_ AGME 3153 Surveying Agriculture and Forestry
  - \_\_ AGME 4203 Mechanized Systems Management with lab component
  - \_\_ AGME 4973 Irrigation with lab component
  - \_\_ ENSC 3603 GIS for Environmental Science
  - \_\_ GEOS 3543 Geographic Info Science
  - \_\_ GEOS 4523 Computer Mapping
  - \_\_ GEOG 4593 Intro to GPS
- Electives (18-24 hours)

### 124 Total Hours

### Agricultural Education, Communication and Technology B.S.A.

#### Nine-Semester Degree Program

Students wishing to follow the degree plan in Agricultural Education, Communication and Technology should see page 41 in the Academic Regulations chapter for university requirements of the program. The Agricultural Education, Communication and Technology major has three concentrations: Agricultural Education, Agricultural Systems Technology Management, and Agricultural Communications.

#### Fall Semester Year 1

- 1 AFLS 1011 Freshman Orientation
- 1 AGED 1001 Orientation to Agricultural/Extension Education
- 3 AGED 1123 Foundation of Agricultural Education (AGED)
- 4 AGME 1613/1611L Fundamentals of Agricultural Systems Technology and lab
- 3 AGME 2903 Applications of Microcomputers (ACOM & ASTM concentrations)
- 2 ANSC 1032 Introductory Animal Sciences
- 1 ANSC 1051 Introduction to the Livestock Industry
- 3 University Core ENGL 1013 Composition I unless exempt

#### 15-18 Semester hours

#### Spring Semester Year 1

- 4 BIOL 1543/1541L Principles of Biology and lab
- 3 CSES 1203 Introduction to Plant Sciences
- 3 University Core ENGL 1023 Composition II unless exempt
- 3 University Core MATH 1203 College Algebra or higher math
- 3 PSYC 2003 General Psychology

#### 16 Semester hours

#### Fall Semester Year 2

- 3 AGECE 1103 Principles of Ag Microeconomics or AGECE 2103 Principles of Ag Macroeconomics
- 3 COMM 1313 Public Speaking
- 4 CHEM 1073/1071L Fundamentals of Chemistry and lab
- 3 General Elective (ACOM and ASTM concentrations)
- 3-6 Concentration Related Elective (AGED 6 hours and ASTM 3 hours concentrations)
- 3 AGME 3943 Professional Development and Agricultural Communications (ACOM concentration)

#### 16 Semester hours

**Spring Semester Year 2**

- 3 AGED 2143 Introduction to Agricultural Communications (ACOM concentration)
- 3 CSES 2013 Pest Management
- 3 History University Core Elective
- 3 AGME 2903 Applications of Microcomputers (AGED concentration)
- 6-12 Concentration Electives
- 15-18 Semester hours**

**Fall Semester Year 3**

- 3 AGED 3142/3141L Ag Communications and lab
- 4 BIOL 2013/2011L General Microbiology and lab or PHYS 1044 Physic for Architects I with lab component
- 3 CSES 2203 Soil Science
- 1 CSES 2201L Soil Science Lab or CSES 355V Soil Profile Description
- 3 Fine Arts/Humanities University Core Elective (FNAR for AGED concentration)
- 3 Concentration Elective
- 17 Semester hours**

**Spring Semester Year 3**

- 3 AGED 3153 Leadership Development in Agriculture (ACOM and ASTM concentration)
- 3 Social Science University Core Elective
- 3 Science or Math Electives (ASTM concentration)
- 3-4 Science Elective (AGED concentration)
- 3 BIOL 2103/2011L General Microbiology and lab or PHYS 104 Physics for Architects I with lab component or higher (ACOM concentration)
- 3 Fine Arts/Humanities Core (WLIT 1113 for AGED concentration)
- 3-5 Concentration Electives
- 15-17 Semester hours**

**Summer Semester Year 3**

- 3 EXED 475V Internship in Extension (ACOM and ASTM concentrations) or
- 2 AGED 475V Internship in Agri Educ (AGED concentration for Teacher Licensure)
- 2-3 Semester hours**

**Fall Semester Year 4**

- 3 AGED 4003 Issues in Agriculture
- 9-12 Concentration Electives
- 12-15 Semester hours** (15 semester hours for AGED concentration)

**Spring Semester Year 4**

- 8-14 Concentration Electives
- 4 AGED 475V Internship in Agri Educ (AGED concentration for teacher licensure)
- 12-14 Semester hours**
- 124 Total Hours**

**Minor in Agricultural Communications (ACOM-M)**

The Agricultural Communications Minor will consist of 18 hours to include the following:

- \_\_ AGED 2143 Introduction to Agricultural Communications
- \_\_ AGED 3142/3141L Agricultural Communications and lab
- \_\_ JOUR 1033 Fundamentals of Journalism with lab component
- Choose 9 hours from:
- \_\_ AGED 3243 Ag Reporting and Feature Writing
- \_\_ AGED 3943 Professional Development in Ag Communications
- \_\_ AGED 4143 Electronic Communications in Agriculture
- \_\_ AGED 4243 Graphic Design in AFLS
- \_\_ AGED 4343 Communication Campaigns in Agriculture

A student planning to minor in Agricultural Education must notify the program adviser.

**Minor in Agricultural Education (AGED-M)**

The Agricultural Education Minor will consist of 22 hours to include the following:

- \_\_ AGED 1031 Introduction to Early Field Experience
- \_\_ AGED 1123 Foundations of Agricultural Education
- \_\_ AGME 2903 Applications of Microcomputers
- \_\_ CIED 3023 Survey of Exceptionality or CIED 4023 Teaching in Inclusive Secondary Settings

- \_\_ CIED 3033 Classroom Learning Theory
- \_\_ AGED 3133 Methods in Agricultural Education with lab component
- \_\_ AGED 4233 Program Development
- \_\_ AGED 4843 Methods in Agricultural Laboratories

A student planning to minor in Agricultural Education must notify the program adviser.

**Minor in Agricultural Systems Technology Management (ASTM-M)**

The Agricultural Systems Technology Management Minor will consist of 18 hours to include the following:

- \_\_ AGME 1613 Fundamentals of Agricultural Systems Technology
- \_\_ AGME 2903 Application of Microcomputers or equivalent
- Choose 12 hours from:
- \_\_ AMGE 1611 Fundamentals of Agricultural Systems Technology Lab
- \_\_ AGME 2123 Metals and Welding with lab component
- \_\_ AGME 3153 Surveying in Agriculture and Forestry
- \_\_ AGME 3102/3101L Small Power Units/Turf Equipment and lab
- \_\_ AGME 3173 Electricity in Agriculture with lab component
- \_\_ AGME 4203 Mechanized Systems Management with lab component
- \_\_ AGME 4973 Irrigation with lab component
- \_\_ ENSC 3603 GIS for Environmental Science

A student planning to minor in Agricultural Systems Technology Management must notify the program adviser for consultation and more detailed information.

**Minor in Journalism (JOUR-M)**

The Journalism Minor allows for a combination of training in journalism with a specialization in agriculture or human environmental sciences. Its purpose is to prepare the student for employment with firms and institutions that produce agricultural or human environmental sciences publications or employ public relations personnel. Students must be majoring within the Bumpers College to pursue this minor.

Bumpers College students interested in a journalism minor may choose from one of three areas:

- Print Journalism (18 semester hours)
  - \_\_ JOUR 1023 Media and Society
  - \_\_ JOUR 1033 Fundamentals of Journalism with lab component
  - \_\_ JOUR 2013 News Reporting I
  - \_\_ JOUR 3013 Editing
  - \_\_ JOUR 3123 Feature Writing
  - \_\_ JOUR 3633 Media Law
- Broadcast Journalism (18 semester hours)
  - \_\_ JOUR 1023 Media and Society
  - \_\_ JOUR 1033 Fundamentals of Journalism with lab component
  - \_\_ JOUR 2032/2031L Broadcast News Reporting I and lab
  - \_\_ JOUR 3072/3071L Broadcast News Reporting II and lab
  - \_\_ JOUR 3633 Media Law
  - \_\_ JOUR 4863 Television News Reporting I with lab component
- Print and Broadcast Journalism (18 semester hours)
  - \_\_ JOUR 1023 Media and Society
  - \_\_ JOUR 1033 Fundamentals of Journalism with lab component
  - \_\_ JOUR 2013 News Reporting I
  - \_\_ JOUR 2032/2031L Broadcast News Reporting I and lab
  - \_\_ JOUR 3072/3071L Broadcast News Reporting II and lab
  - \_\_ JOUR 3633 Media Law

A student interested in a Journalism minor must notify his or her major adviser for detailed information. The minor is coordinated by the department of Agricultural and Extension Education in consultation with the department of Journalism. Before declaring the Journalism minor, the student must meet with and must be advised by a faculty member in Agricultural and Extension Education department.

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See Pages 311, 312 and 353 for Agricultural and Extension Education Courses (AGED, EXED, or AGME).

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## AGRICULTURAL ECONOMICS AND AGRIBUSINESS (AEAB)

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### FACULTY

- Distinguished Professor Wailes
- Professors Ahrends, Cochran, Dixon, Goodwin, Halbrook, McKenzie, Nayga, Popp (J.), Popp (M.)
- Adjunct Professors Bryant, Miller
- Associate Professors Rainey, Thomsen
- Assistant Professors Flanders, Griffin, Nalley
- Research Assistant Professor Pittman
- Instructor Ragland

The agricultural business degree program provides education suited to career opportunities in farm management, agricultural business management, and agricultural marketing in both the domestic and international areas.

Managers of farms and agricultural businesses are continually required to make organizational and operational decisions. The basic skills and knowledge needed for making sound decisions are provided by the agricultural business curriculum. Students may elect to specialize in areas compatible with their personal objectives, depending upon the extent of accounting and business orientation desired.

Students educated in agricultural business are in demand for positions in agricultural industries, farm operation, marketing agencies, agricultural service organizations, state and federal agencies, and numerous other positions. For those who go on to graduate school, teaching and research positions are available with land grant colleges as well as with other institutions. Three concentrations are available to meet career objectives:

- Agricultural Business Management and Marketing (ABMM)
- Pre-Law, for students preparing to attend law school (PRLW)
- Agricultural Economics, which emphasizes quantitative and analytical skills to prepare students for graduate school (AGEC).

### Requirements for a Major in Agricultural Business (AGBS)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
- \_\_\_ Choose from **English Core** courses (6 hours)
  - \_\_\_ COMM 1313 Public Speaking
  - \_\_\_ Choose 3 hours from AGED 3142/3141L, ENGL 2013, ENGL 3053, COMM 2303, COMM 2323, COMM 2373, COMM 3303, COMM 3383, or JOUR 1033
- U.S. History or Government (3 hours)
- \_\_\_ Choose from **U.S. History or Government** Core courses
- Mathematics and Statistics (9-13 hours)
- \_\_\_ Choose from **MATH Core** courses
  - \_\_\_ MATH 2053 Finite Mathematics
- ABMM, PRLW Concentrations (3 hours):
- \_\_\_ AGECE 2403 Quantitative Tools for Agribusiness or
  - \_\_\_ WCOB 1033 Data Analysis and Interpretation
- AGEC Concentration (6-7 hours)
- \_\_\_ MATH 2043 Survey of Calculus
  - \_\_\_ WCOB 1033 Data Analysis and Interpretation or
  - \_\_\_ STAT 4003/4001L Statistical Methods and Lab Sciences (8 hours)
  - \_\_\_ Choose from **Science Core** courses
- Fine Arts and Humanities (6 hours)
- \_\_\_ Choose from **Fine Arts/Humanities Core** courses

Social Sciences (9 hours)

- \_\_\_ **PSYC 2003** General Psychology or
- \_\_\_ **SOCI 2013** General Sociology or
- \_\_\_ **RSOC 2603** Rural Sociology
- \_\_\_ **AGEC 1103** Principles of Agricultural Microeconomics or
- \_\_\_ **ECON 2023** Principles of Microeconomics
- \_\_\_ **AGEC 2103** Principles of Agricultural Macroeconomics or
- \_\_\_ **ECON 2013** Principles of Macroeconomics

AEAB Requirements (18 hours)

- \_\_\_ AGECE 2303 Introduction to Agribusiness
  - \_\_\_ AGECE 3303 Food and Agricultural Marketing
  - \_\_\_ AGECE 3403 Farm Business Management
  - \_\_\_ AGECE 3503 Agricultural Law
  - \_\_\_ AGECE 4143 Agricultural Finance
  - \_\_\_ AGECE 4613 Domestic and International Agricultural Policy
- Bumpers College Broadening Electives (9 hours)
- Choose 9 hours outside of AGECE but within the Bumpers College.
- General Electives (23-29 hours)

### Additional Requirements for Agribusiness Management and Marketing Concentration (27 hours):

Choose 3 hours from:

- \_\_\_ AGECE 2142/2141L Agribusiness Financial Records or
- \_\_\_ WCOB 1023 Business Foundations

And take:

- \_\_\_ AGECE 3373 Futures and Options Markets
- \_\_\_ AGECE 3313 Agribusiness Sales
- \_\_\_ AGECE 3413 Principles of Environmental Economics

Choose 6 hours from:

- \_\_\_ AGECE 4113 Ag Prices and Forecasting
- \_\_\_ AGECE 4163 Agricultural and Rural Development
- \_\_\_ AGECE 4313 Agribusiness Management
- \_\_\_ AGECE 4323 Agribusiness Entrepreneurship
- \_\_\_ AGECE 4373 Basis Trading: Applied Price Risk Management

Choose 9 hours from:

- \_\_\_ MATH, STAT, AGECE or courses in WCOB or the Bumpers College.

### 124 Total Hours

### Additional Requirements for Pre-Law Concentration (27 hours):

- \_\_\_ AGECE 2142/2141L Agribusiness Financial Records
- \_\_\_ AGECE 3413 Principles of Environmental Economics
- \_\_\_ AGECE 3523 Environmental and Natural Resources Law

Choose 3 hours from:

- \_\_\_ AGECE 4313 Agricultural Business Management
- \_\_\_ AGECE 4323 Agribusiness Entrepreneurship

Choose 15 hours from at least two areas:

Area 1

- \_\_\_ BLAW 3033 Commercial Law
- \_\_\_ WCOB 1012 Legal Environment of Business

Area 2

- \_\_\_ COMM 2303 Advanced Public Speaking
- \_\_\_ COMM 2373 Intro to Debate
- \_\_\_ COMM 3303 Small Group Communication
- \_\_\_ COMM 3353 Argumentation: Reason in Communication
- \_\_\_ COMM 3383 Persuasion
- \_\_\_ COMM 3443 Intro to Rhetorical Theory
- \_\_\_ COMM 4113 Legal Communication

Area 3

- \_\_\_ PHIL 2003 Intro to Philosophy
- \_\_\_ PHIL 2103 Intro to Ethics
- \_\_\_ PHIL 2203 Logic
- \_\_\_ PHIL 3103 Ethics and the Professions
- \_\_\_ PHIL 4143 Philosophy of Law

Area 4

- \_\_ PLSC 3103 Public Administration
- \_\_ PLSC 3153 Public Policy
- \_\_ PLSC 3243 The Judicial Process
- \_\_ PLSC 4193 Administrative Law
- \_\_ PLSC 4253 The U.S. Constitution I
- \_\_ PLSC 4263 The U.S. Constitution II

Area 5

- \_\_ AGEC (any upper level)

**124 Total Hours**

**3/3 Program**

Exceptional students in the Pre-Law concentration may enroll in the Law School in their fourth year provided that the following requirements have been met:

1. completed all University, college, and department core requirements for the pre-law concentration;
2. completed 12 hours in the specialization list for pre-law;
3. attained a cumulative grade-point average in all college or University course work of at least 3.50 without grade renewal;
4. attained a LSAT score of at least 159.

A student who has satisfied these requirements may substitute law school course work for the remaining total hours required for the bachelor's degree in agricultural business. It is a requirement of the Law School's accrediting standards that no student be admitted to Law School until they have completed at least three-fourths of the work necessary for the baccalaureate degree. The requirements embodied in the 3/3 program satisfy this requirement.

**Additional Requirements for Agricultural Economics Concentration (24 hours):**

- \_\_ WCOB 1023 Business Foundations
- \_\_ WCOB 2033 Acquiring & Managing Human Capital
- \_\_ ECON 3033 Microeconomic Theory
- \_\_ ECON 3133 Macroeconomic Theory
- \_\_ AGEC 3373 Futures and Options Markets

Choose 3 hours from:

- \_\_ AGEC 4313 Agricultural Business Management
- \_\_ AGEC 4323 Agribusiness Entrepreneurship

Choose 6 hours from MATH or STAT or upper division electives from AGEC or WCOB.

**124 Total Hours**

The approved list of courses, check sheet, and degree program for all concentrations is available in the Agricultural Economics and Agribusiness departmental office.

**Agricultural Business B.S.A. with Management and Marketing Concentration Eight-Semester Degree Program**

Students wishing to follow the degree plan in Agricultural Economics and Agribusiness should see page 41 in the Academic Regulations chapter for university requirements of the program. The Agricultural Economics and Agribusiness major has three concentrations: Agricultural Business Management and Marketing, Pre-Law, and Agricultural Economics.

**Fall Semester Year 1**

- 3 University Core ENGL 1013 Composition I unless exempt
- 3 University Core MATH 1203 College Algebra
- 3 History University Core Elective
- 3 AGEC 1103 Principles of Ag Macroeconomics
- 3 AGME 2903 or Bumpers College Broadening Elective
- 0 WCOB 1120 Computer Competency Requirement (if not AGME 2903 Application of Microcomputers)

**15 Semester hours**

**Spring Semester Year 1**

- 3 University Core ENGL 1023 Composition II unless exempt

- 3 COMM 1313 Public Speaking
- 3 AGEC 2103 Principles of Ag Macroeconomics
- 3 AGEC 2303 Intro to Agribusiness
- 3 MATH 2053 Finite Math

**15 Semester hours**

**Fall Semester Year 2**

- 3 Social Science University Core Elective
- 3 Fine Arts/Humanities University Core Elective
- 4 Science University Core Elective
- 3 AGEC 2142/2141L Agribusiness Financial Records or WCOB 1023
- 3 General Elective

**16 Semester hours**

**Spring Semester Year 2**

- 3 AGEC 2403 Quantitative Tools for Agribusiness or WCOB 1033
- 4 Science University Core Elective
- 3 AGEC 3303 Food and Agri Marketing
- 3 Bumpers College Broadening Elective
- 3 General Elective

**16 Semester hours**

**Fall Semester Year 3**

- 3 General Elective
- 3 Communication Intensive Elective
- 3 AGEC 3403 Farm Business Management
- 3 AGEC 4143 Agriculture Finance
- 3 Specialization Elective

**15 Semester hours**

**Spring Semester Year 3**

- 3 Fine Arts/Humanities University Core Elective
- 3 AGEC 3503 Agriculture Law
- 3 AGEC 3413 Principles of Environmental Economics
- 3 AGEC 3313 Agribusiness Sales
- 3 AGEC 3373 Futures & Options Markets
- 3 General Elective

**18 Semester hours**

**Fall Semester Year 4**

- 3 AGEC 4613 Domestic & International Ag Policy
- 3 AGEC 4313 Agribusiness Management or Specialization Elective
- 3 Specialization Elective
- 6 General Electives

**15 Semester hours**

**Spring Semester Year 4**

- 3 AGEC 4113 Ag Prices and Forecasting with lab component (odd years) OR AGEC 4373 Advanced Price Risk Management OR AGEC 4323 Agribusiness Entrepreneurship
- 3 AGEC 4113 Ag Prices and Forecasting with lab component (odd years) OR AGEC 4373 Advanced Price Risk Management OR AGEC 4323 Agribusiness Entrepreneurship OR Specialization Elective
- 3 Bumpers College Broadening Elective
- 5 General Electives

**14 Semester hours**

**124 Total Hours**

**Minor in Agricultural Business (AGBS-M)**

The Agricultural Business Minor will consist of 18 semester hours to include:

- \_\_ AGEC 1103 Principles of Agricultural Macroeconomics
- \_\_ AGEC 2303 Introduction to Agribusiness

Choose 6 hours from:

- \_\_ AGEC 3303 Food and Agricultural Marketing
- \_\_ AGEC 3373 Futures and Options Markets
- \_\_ AGEC 3403 Farm Business Management
- \_\_ AGEC 3413 Principles of Environmental Economics
- \_\_ AGEC 4313 Agricultural Business Management; and

Choose 6 hours from:

- \_\_ AGEC 2103 Principles of Agricultural Macroeconomics
- \_\_ AGEC 2142/2141L Agribusiness Financial Records and lab
- \_\_ AGEC 2403 Quantitative Tools for Agribusiness
- \_\_ AGEC 3303 Food and Agricultural Marketing
- \_\_ AGEC 3313 Agribusiness Sales
- \_\_ AGEC 3373 Futures and Options Markets
- \_\_ AGEC 3403 Farm Business Management

- \_\_ AGEC 3413 Principles of Environmental Economics
- \_\_ AGEC 3503 Agricultural Law
- \_\_ AGEC 3523 Environmental and Natural Resources Law
- \_\_ AGEC 4113 Agricultural Prices and Forecasting
- \_\_ AGEC 4143 Agricultural Finance
- \_\_ AGEC 4303 Advanced Agricultural Marketing Management
- \_\_ AGEC 4313 Agricultural Business Management
- \_\_ AGEC 4323 Agribusiness Entrepreneurship
- \_\_ AGEC 4373 Basis Trading: Applied Price Risk Management
- \_\_ AGEC 4613 Domestic and International Agricultural Policy
- \_\_ AGME 2903 Agricultural and HES Applications of Microcomputers
- \_\_ ECON 3033 Microeconomic Theory
- \_\_ ECON 3133 Macroeconomic Theory
- \_\_ MATH 2053 Finite Mathematics
- \_\_ POSC 4213 Integrated Poultry Management Systems

Additional upper-division courses in the Sam M. Walton College of Business may be substituted with approval, provided prerequisites for those courses have been satisfied outside the minor.

A student planning to minor in Agricultural Business should contact the program adviser for consultation and more detailed information.

### Minor in Global Agricultural, Food and Life Sciences (AFLS-M)

The Bumpers College offers a minor in global agricultural, food and life sciences to provide students throughout the college opportunities to complement their major field of study with an international component. It is designed to provide learning skills and international experiences leading to greater understanding of global issues in agriculture, human and environmental sciences and the ability to participate effectively in diverse cultures.

This minor will consist of 18 semester hours to include:

- \_\_ AFLS 2003 Introduction to Global Agricultural, Food and Life Sciences
- \_\_ AFLS 300V Study/Internship Abroad (3 to 6 hours)

Choose at least 3 hours from:

- \_\_ AFLS 3313H Honors Global Issues in AFLS (and study tour)
- \_\_ AGEC 4163 Agricultural and Rural Development
- \_\_ AGEC 4613 Domestic and International Agricultural Policy
- \_\_ HESC 4653 Global Travel and Tourism Management;

Choose 6-9 hours from:

- \_\_ AFLS 3313H Honors Global Issues in AFLS (and Study Tour)
- \_\_ AGEC 4163 Agricultural and Rural Development
- \_\_ AGEC 4613 Domestic and International Agricultural Policy
- \_\_ ANTH 1023 Introduction to Cultural Anthropology
- \_\_ ANTH 3123 The Anthropology of Religion
- \_\_ ANTH 4253 Peoples and Cultures of World Regions
- \_\_ COMM 4343 Intercultural Communication
- \_\_ ECON 4633 International Trade Policy
- \_\_ ECON 4643 International Macroeconomics and Finance
- \_\_ ECON 4653 Global Competition and Strategy
- \_\_ IREL 2813 Introduction to International Relations
- \_\_ FINN 3703 International Finance
- \_\_ Foreign Language (student's choice)
- \_\_ GEOG 4033 Geography of the Middle East
- \_\_ GEOG 4783 Geography of Europe
- \_\_ GEOG 4243 Political Geography
- \_\_ HESC 4653 Global Travel and Tourism Management
- \_\_ HIST 3043 History of the Modern Middle East
- \_\_ HIST 3203 Colonial Latin America
- \_\_ HIST 3683 Europe in the 19th Century
- \_\_ PLSC 2813 Introduction to International Relations
- \_\_ PLSC 3803 International Organization
- \_\_ PLSC 3813 International Law
- \_\_ PLSC 3853 American Foreign Policy
- \_\_ Other approved courses with a global emphasis, with permission of the

Global Studies director.

A student interested in a Global Agricultural, Food and Life Sciences minor must notify his or her major adviser for detailed information.

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See Page 310 for Agricultural Economics and Agribusiness (AGEC) courses.

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## ANIMAL SCIENCE (ANSC)

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 479-575-4351  
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### FACULTY

- University Professor Yazwinski
- Professors Apple, Brown (A.H.), Coffey, Jennings, Kegley, Looper, Maxwell, Pohlman, Roeder, Rorie, Rosenkrans, Troxel
- Adjunct Professors Brown (M.A.), Baird, Burke, Chewing, Coblenz, Gunter, Pflazgraf, Nugent
- Associate Professors Beck, Gadberry, Jack, Jones, Kreider, Powell
- Adjunct Associate Professor Breeding
- Assistant Professors Phillipp, Russell
- Adjunct Assistant Professors Caldwell, Reuter, Shanks
- Instructor Kutz

The animal science major is designed to provide the scientific and technical education to prepare students for positions of leadership and responsibility. Students gain valuable experience pertaining to the production of beef and dairy cattle, swine, horses, sheep, and companion animals. In addition, extensive study is offered in the specialized areas of animal health, breeding and genetics, meat science, nutrition, and physiology.

Students majoring in animal science are prepared for a variety of careers. Pre-veterinary, pre-medical, and pre-professional course requirements may be fulfilled while meeting degree requirements. Specific career opportunities include positions and services related to the production, merchandising, processing and distribution of meat, milk, and related products. Additional opportunities include field persons, farm and herd managers, and other agribusiness-related positions. With additional academic training, animal science majors may become extension livestock specialists, nutritionists, geneticists, and physiologists.

Students should consult an animal science adviser for specific course selections in the elective areas. With appropriate advising, students have an opportunity to complete at least one minor within the 124-hour degree program.

### Requirements for a Major in Animal Science (ANSC)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

Communications (6-12 hours)

\_\_ Choose from **English Core** courses (6 hours)

\_\_ COMM 1313 Public Speaking

\_\_ Communication Intensive Elective (See adviser for approved list.)

History or Government (3 hours)

\_\_ Choose from **U.S. History or Government Core** courses

Mathematics (3 hours)

\_\_ Choose from **MATH Core** courses

Sciences (16 hours)

\_\_ **BIOL 1543/1541L** Principles of Biology and lab

\_\_ BIOL 2013/2011L General Microbiology and lab

\_\_ **CHEM 1073/1071L** Fundamentals of Chemistry and lab or

CHEM 1123/1121L University Chemistry II and lab

\_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab or

CHEM 3603/3601L Organic Chemistry I and lab  
 Fine Arts and Humanities (6 hours)  
 \_\_ Choose from **Fine Arts, Humanities Core** courses  
 Social Sciences (9 hours)  
 \_\_ Choose from **Social Sciences Core** courses  
 ANSC Requirements (22 hours)  
 \_\_ ANSC 1001L Introductory Animal Sciences Laboratory  
 \_\_ ANSC 1032 Introductory Animal Sciences  
 \_\_ ANSC 1041 Introduction to Companion Animal Industry or  
 ANSC 1051 Introduction to the Livestock Industry  
 \_\_ ANSC 2252L Introduction to Livestock and Meat Evaluation  
 \_\_ ANSC 2781 Career Preparation and Development  
 \_\_ ANSC 3133 Animal Breeding and Genetics  
 \_\_ ANSC 3143 Principles of Animal Nutrition  
 \_\_ ANSC 3433 Fundamentals of Reproductive Physiology  
 Choose 6 hours from the following:  
 \_\_ ANSC 4252 Cow-Calf Management  
 \_\_ ANSC 4262 Swine Production  
 \_\_ ANSC 4272 Sheep Production  
 \_\_ ANSC 4283 Horse Production  
 \_\_ ANSC 4452 Milk Production  
 \_\_ ANSC 4482 Companion Animal Management  
 \_\_ ANSC 4652 Stocker-Feedlot Cattle Management  
 Animal Science Electives (Choose 13 hours):  
 \_\_ ANSC 3003 Applied Animal Parasitology  
 \_\_ ANSC 3013 Parasitisms of Domesticated Non-Herbivores  
 \_\_ ANSC 3032 Animal Physiology I  
 \_\_ ANSC 3042 Animal Physiology II  
 \_\_ ANSC 3123 Principles of Genetics  
 \_\_ ANSC 3152/3151L Applied Animal Nutrition and lab  
 \_\_ ANSC 3333 Diseases of Livestock  
 \_\_ ANSC 3613 Meat Science  
 Discipline-related Electives (Choose 16 hours)  
 \_\_ ANSC 2003                      \_\_ ANSC 2213                      \_\_ ANSC 2304  
 \_\_ ANSC 3282                      \_\_ ANSC 3291                      \_\_ ANSC 3723  
 \_\_ ANSC 3822                      \_\_ ANSC 400V                      \_\_ ANSC 401V  
 \_\_ ANSC 410V                      \_\_ ANSC 4291                      \_\_ AGECE 1103  
 \_\_ AGECE 2103                      \_\_ AGECE 2303                      \_\_ AGME 2903  
 \_\_ BIOL 1601L                      \_\_ BIOL 1603                      \_\_ BIOL 2531L  
 \_\_ BIOL 2533                      \_\_ CSES 1203                      \_\_ CSES 2013  
 \_\_ CHEM 1101L                      \_\_ CHEM 1103                      \_\_ CHEM 1121L  
 \_\_ CHEM 1123                      \_\_ CHEM 2261L                      \_\_ CHEM 2263  
 \_\_ FDSC 2503                      \_\_ PHYS 2011L                      \_\_ PHYS 2013  
 \_\_ PHYS 2031L                      \_\_ PHYS 2033                      \_\_ POSC 2353  
 \_\_ POSC 3554                      \_\_ WCOB 1012                      \_\_ WCOB 1023  
 Or any upper division course in AEED, AGECE, AGME, AGST, BIOL,  
 CHEM, CSES, FDSC, POSC, or WCOB.

General Electives (23-30 hours)

**124 Total Hours**

**Animal Science B.S.A.  
 Eight-Semester Degree Program**

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 1 ANSC 1001L Intro to Animal Science Lab
- 2 ANSC 1032 Intro to Animal Sciences
- 1 ANSC 1041 Intro to Companion Animal Industry or ANSC 1051 Intro to Livestock Industry
- 3 ENGL 1013 Composition I unless exempt
- 3 MATH 1203 College Algebra or higher level math
- 4 BIOL 1543/1541L Principles of Biology and lab
- 14 Semester hours**

**Spring Semester Year 1**

- 2 ANSC 2252L Intro to Livestock & Meat Evaluation
- 3 ENGL 1023 Composition II unless exempt
- 3 Fine Arts/Humanities University Core Elective
- 3 Social Sciences University Core Elective
- 3 Discipline-related Elective as AFLS Broadening Elective
- 3 General Elective
- 17 Semester hours**

**Fall Semester Year 2**

- 1 ANSC 2781 Career Preparation & Development
- 3 ANSC 3433 Fundamentals of Reproductive Physiology
- 4 CHEM 1073/1071L Fundamentals of Chemistry and lab or CHEM 1123/1121L University Chemistry II and Lab
- 3 COMM 1313 Public Speaking
- 3 History University Core Elective
- 14 Semester hours**

**Spring Semester Year 2**

- 3 ANSC 3133 Animal Breeding & Genetics
- 3-4 CHEM 2613/2611L Organic Physiological Chemistry or CHEM 3603/3601L Organic Chemistry I and Lab
- 3 General Elective
- 3 Fine Arts/Humanities University Core Elective
- 3 Discipline-related Elective as AFLS Broadening Elective
- 15-16 Semester hours**

**Fall Semester Year 3**

- 5 Animal Science Electives
- 3 Communication Intensive Elective from an approved course list.
- 4 BIOL 2013/2011L General Microbiology and lab
- 3-4 Social Science University Core Elective or CHEM 3603/3601L Organic Chemistry I and Lab
- 2 Discipline-related Elective
- 17-18 Semester hours**

**Spring Semester Year 3**

- 5 Animal Science Electives
- 3 ANSC 3143 Principles of Animal Nutrition
- 3 Social Science University Core Elective
- 3 Discipline-related Elective as AFLS Broadening Elective
- 3 General Elective
- 17 Semester hours**

**Fall Semester Year 4**

- 3 Animal Science Elective
- 2-4 ANSC Production/Management Elective
- 6-9 General Electives
- 11-16 Semester hours**

**Spring Semester Year 4**

- 2-4 ANSC Production/Management Elective
- 5 Discipline-related Electives
- 6-8 General Electives
- 13-17 Semester hours**
- 124 Total Hours**

**Minor in Animal Science (ANSC-M)**

A minor in Animal Science prepares students for jobs in the animal industries. A student planning to minor in animal science must consult with an animal science adviser. The minor consists of 20 hours to include the following:

- \_\_ ANSC 1001L Introductory Animal Sciences Lab
- \_\_ ANSC 1032 Introductory Animal Sciences
- \_\_ ANSC 1041 Introduction to Companion Animal Industry or ANSC 1051 Introduction to the Livestock Industry
- \_\_ ANSC 2252L Introduction to Livestock and Meat Evaluation
- \_\_ ANSC 3133 Animal Breeding and Genetics
- \_\_ ANSC 3143 Principles of Animal Nutrition
- \_\_ ANSC 3433 Fundamentals of Reproductive Physiology
- Choose 5 hours from:  
 \_\_ ANSC 4252 Cow-Calf Management  
 \_\_ ANSC 4262 Swine Production

- \_\_ ANSC 4272 Sheep Production
- \_\_ ANSC 4283 Horse Production
- \_\_ ANSC 4452 Milk Production
- \_\_ ANSC 4652 Stocker-Feedlot Cattle Management

### Minor in Equine Science (EQSC-M)

A minor in Equine Science prepares students for jobs in the equine industry and is available to all students. A student planning to minor in Equine Science must notify the program adviser for consultation and more detailed information.

The minor consists of 20 hours to include the following:

- \_\_ ANSC 1032 Introduction to Animal Science
  - \_\_ ANSC 1041 Introduction to Companion Animal Industry
  - \_\_ ANSC 2003 Introduction to the Equine Industry
  - \_\_ ANSC 3433 Fundamentals of Reproduction Physiology
  - \_\_ ANSC 3723 Horse and Livestock Merchandising
  - \_\_ ANSC 3822 Equine Law
  - \_\_ ANSC 4283 Horse Production with lab component
- Choose 3 hours from:
- \_\_ ANSC 2213 Behavior of Domestic Animals
  - \_\_ ANSC 3003 Applied Animal Parasitology
  - \_\_ ANSC 3133 Animal Breeding and Genetics
  - \_\_ ANSC 3143 Principles of Animal Nutrition
  - \_\_ ANSC 3333 Diseases of Livestock
  - \_\_ ANSC 401V Internship (3 hours)

See Page 313 for Animal Science (ANSC) courses.

### BIOLOGICAL ENGINEERING (BENG)

Lalit Verma  
Head of the Department  
203 Engineering Hall  
479-575-2351  
<http://www.baeg.uark.edu/>

#### FACULTY

- Professors Carrier, Haggard, Kim, Li, Loewer, Matlock, VanDevender, Verma
- Adjunct Professors Clausen, Ingels, Raper
- Associate Professors Costello, Osborn, Saraswat, Ye
- Adjunct Associate Professors Bajwa, Sharfirstein, Yang
- Assistant Professors Henry, Liang, Sadaka
- Adjunct Assistant Professors Thorbole, Wimberly

The curriculum leading to the professional degree in biological engineering is under the joint supervision of the deans of the Dale Bumpers College of Agricultural, Food and Life Sciences and the College of Engineering. The engineering degree, Bachelor of Science in Biological Engineering (B.S.B.E.), is conferred by the College of Engineering and is described on page 267. Students who wish to receive this degree enroll in the College of Engineering.

See Page 320 for Biological Engineering (BENG) courses.

### CROP, SOIL, AND ENVIRONMENTAL SCIENCES (CSES)

Robert K. Bacon  
Head of the Department  
115 Plant Science Building  
479-575-2354  
<http://cses.uark.edu/>

#### FACULTY

- Distinguished Professor Oosterhuis
- University Professor Wolf
- Professors Bacon, Bourland, Brye, Burgos, Chen, Counce, Daniels, Deren, Gbur, Longer, Miller, Mauromoustakos, Moldenhauer, Norman, Norsworthy, Pereira, Purcell, Savin, Scott (R.), Sharpley, Slaton, Smith, Srivastava, Watson, West, Wilson
- Associate Professors Espinoza, Kelley, Ross
- Research Associate Professor Mattice
- Assistant Professors Anders, Barber, Mason, Mozaffari, Roberts, Scott (T.)

Courses in the Department of Crop, Soil, and Environmental Sciences provide fundamental and applied studies in two majors: Crop Management (CPMG) and Environmental, Soil, and Water Science (ESWS). Areas studied within the Crop Management major include crop science, production agriculture, plant breeding and genetics, crop and forage production, pest management (weeds, insects, and plant diseases), and soil fertility. The Environmental, Soil, and Water Science major includes courses in areas such as environmental science, water quality, soil science, soil and water conservation, and the sustainable productivity of natural resources.

Many graduates from both majors also choose to continue their education in graduate programs in a wide variety of disciplines both related and complementary to the B.S.A. degrees.

### CROP MANAGEMENT (CPMG)

David E. Longer  
CPMG Coordinator  
115 Plant Science Building  
479-575-2354

Opportunities for employment and post-graduate study are numerous for graduates of the Department of Crop, Soil, and Environmental Sciences. Crop Management graduates become involved in crop production or find employment in public agencies providing support services for agriculture (e.g., Extension Service, State Plant Board, Natural Resources Conservation Service), or as consultants serving production agriculture, in the agrichemical and seed industries, and in agricultural research programs.

The crop management major includes courses in crop science, production agriculture, plant breeding and genetics, crop and forage production, pest management (weeds, insects, and plant diseases), and soil fertility.

#### Requirements for a Major in Crop Management (CPMG)

State minimum core and discipline specific general education requirements. (Course work that meets state minimum core requirements is in **bold**.)

Communications (15 hours)

\_\_ Choose from **English Core** courses (6 hours) If exempt, see adviser for communications courses

\_\_ ENGL 2003 Advanced Composition or

ENGL 3053 Technical and Report Writing

\_\_ COMM 1313 Public Speaking

\_\_ CSES 3023 CSES Colloquium

U.S. History or Government (3 hours)

\_\_ Choose from **U.S. History Core** courses

## Mathematics and Computer Science (6 hours)

- \_\_ Choose from **MATH Core** courses
- \_\_ AGME 2903 Applications of Microcomputers or AGST 4023 Principles of Experimentation or STAT 2303 Principles of Statistics  
(Students minoring in Agricultural Business should choose AGME 2903.)

## Sciences (23-24 hours)

- \_\_ **BIOL 1543/1541L** Principles of Biology and lab
- \_\_ **BIOL 1613/1611L** Plant Biology and lab
- \_\_ **CHEM 1103/1101L** University Chemistry I and lab
- \_\_ **CHEM 1123/1121L** University Chemistry II and lab
- \_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab
- \_\_ BIOL 4304 Plant Physiology or ANSC/POSC 3123 Principles of Genetics or BIOL 2323 General Genetics

## Fine Arts and Humanities (6 hours)

- \_\_ Choose from **Fine Arts, Humanities Core** courses

## Social Sciences (9 hours)

- \_\_ **AGEC 1103** Principles of Agricultural Microeconomics
- \_\_ Choose from **Social Sciences Core** courses (6 hours total, 3 hours must be outside AGEC/ECON discipline) Students minoring in Agricultural Business should choose AGEC 2103.

## CPMG Requirements (27 hours)

## General Agronomy (19 hours)

- \_\_ CSES 1011 Introduction to Crop, Soil, and Environmental Sciences
- \_\_ CSES 2103/2101L Crop Science and lab
- \_\_ CSES 2203/2201L Soil Science and lab
- \_\_ CSES 4013 Advanced Crop Science
- \_\_ CSES 4224 Soil Fertility with lab component
- \_\_ CSES 462V Internship or CSES 400V Special Problems (3 hours)

Choose 8 hours from Group A or B. At least 2 courses must be from Group A.

## Group A:

- \_\_ CSES 3113 Forage Management
- \_\_ CSES 3312 Cotton Production
- \_\_ CSES 3322 Soybean Production
- \_\_ CSES 3332 Rice Production
- \_\_ CSES 3342 Cereal Grain Production
- \_\_ HORT 2303 Introduction to Turfgrass Management

## Group B:

- \_\_ CSES 3214 Soil Resources and Nutrient Cycles
- \_\_ CSES 4103 Plant Breeding with lab component
- \_\_ CSES 4234 Plant Anatomy with lab component
- \_\_ CSES 4253 Soil Classification and Genesis with lab component
- \_\_ CSES 355V Soil Profile Description (1-2 hours)
- \_\_ CSES 400V Special Problems (1-6 hours)
- \_\_ PLPA 4333 Biotechnology in Agriculture

## Pest Management (10 hours)

- \_\_ ENTO 3013 Introduction to Entomology
  - \_\_ PLPA 3004 Principles of Plant Pathology
  - \_\_ CSES 4133 Weed ID, Morphology and Ecology
- Electives for a minor: Choose 9 hours from either Group C or Group D

## Group C (Pest Management):

- \_\_ CSES 4143 Principles of Weed Control
- \_\_ PLPA 4223 Plant Disease Control
- \_\_ ENTO 4123 Insect Pest Management or ENTO 4133 Advanced Applied Entomology

## Group D (Agricultural Business):

- \_\_ AGEC 2303 Introduction to Agribusiness
- \_\_ AGEC 3403 Farm Business Management
- \_\_ AGEC 3303 Food and Agricultural Marketing or AGEC 3373 Futures and Options Markets or AGEC 3413 Principles of Environmental Economics or AGEC 4313 Agricultural Business Management

## General Electives (16-18 hours)

**124 Total hours**

**Crop Management B.S.A.****Nine-Semester Degree Program**

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I (If exempt, see adviser for communication courses.)
- 3 MATH 1203 College Algebra or higher level math
- 4 BIOL 1543/1541L Principles of Biology and lab
- 3 History University Core Elective
- 1 CSES 1011 Introduction to CSES

**14 Semester hours**

**Spring Semester Year 1**

- 4 CSES 2103/2101L Crop Science and lab
- 4 BIOL 1613/1611L Plant Biology and lab
- 3 ENGL 1023 Composition II (If exempt, see adviser for communication courses.)
- 3 COMM 1313 Public Speaking
- 3 AGEC 1103 Principles of Agricultural Microeconomics

**17 Semester hours**

**Fall Semester Year 2**

- 4 CHEM 1103/1101L Chemistry I and lab
- 3 ENGL 2003 Advanced Composition or ENGL 3053 Technical & Report Writing
- 3 Social Science University Core Elective
- 3 Fine Arts/Humanities University Core Elective
- 2-3 Select one (1) course from Group A on checksheet

**15-16 Semester hours**

**Spring Semester Year 2**

- 4 CHEM 1123/1121L Chemistry II and lab
- 3 AGME 2903 Applications of Microcomputers or AGST 4023 Principles of Experimentation or STAT 2303 Principles of Statistics
- 3 Social Science University Core Elective
- 3 Fine Arts/Humanities University Core Elective
- 2-3 Select one (1) course from Group A on checksheet

**15-16 Semester hours**

**Fall Semester Year 3**

- 4 PLPA 3004 Principles of Plant Pathology with lab component
- 3 ENTO 3013 Introduction to Entomology
- 2-4 Select one (1) course from Group B on checksheet
- 4 CSES 2203/2201L Soil Science and lab
- 3 General Elective (Rec: CSES 2003 as pre-requisite for CSES 4133)

**16-18 Semester hours**

**Spring Semester Year 3**

- 3-4 BIOL 2323 General Genetics or BIOL 4304 Plant Physiology or ANSC/POSC 3123 Principles of Genetics
- 4 CHEM 2613/2611L Organic Physiological Chemistry and lab
- 3 Select one (1) course from Group C or Group D for a minor
- 3 General Elective

**13-14 Semester hours**

**Summer Semester Year 3**

- 3 CSES 462V Internship or CSES 400V Special Problems

**Fall Semester Year 4**

- 3 CSES 3023 CSES Colloquium
- 3 CSES 4133 Weed Identification, Morphology & Ecology
- 4 CSES 4224 Soil Fertility with lab component
- 3 Select one (1) course from Group C or Group D for a minor
- 3 General Elective

**16 Semester hours**

**Spring Semester Year 4**

- 3 CSES 4013 Advanced Crop Science
- 3 Select one (1) course from Group C or Group D for a minor
- 6 General Electives
- 1-3 General Elective

**13-15 Semester hours**

**124 Total Hours**



## ENVIRONMENTAL, SOIL, AND WATER SCIENCE (ESWS)

Mary C. Savin  
ESWS Coordinator  
115 Plant Science Building  
479-575-5740

Opportunities for employment and post-graduate study are numerous for graduates of the Department of Crop, Soil, and Environmental Sciences. Environmental, Soil, and Water Science graduates find jobs with environmental consulting companies, environmental education organizations, state agencies (e.g., Extension Service, Department of Environmental Quality, Health Department), federal agencies (e.g., Environmental Protection Agency, Natural Resources Conservation Service), municipalities and local environmental services (e.g., waste management and recycling, water and wastewater treatment facilities, parks and tourism departments), a wide variety of private businesses, and environmental research.

The Environmental, Soil, and Water Science major includes courses in areas such as environmental science, water quality, soil science, soil and water conservation, and the sustainable productivity of natural resources.

### Requirements for a Major in Environmental, Soil, and Water Science (ESWS)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

Communications (12 hours)

\_\_ Choose from **English Core** course (6 hours) If exempt, see adviser for communication courses.

\_\_ COMM 1313 Public Speaking

\_\_ CSES 3023 or AGED 3142/3141L

U.S. History and Government (3 hours)

\_\_ Choose from **U.S. History Core** courses (3 hours)

Mathematics and Statistics (9 hours)

\_\_ **MATH 1203** College Algebra

\_\_ MATH 1213 Plane Trigonometry (Higher level MATH is encouraged for students with an ACT of 26 or higher and considering graduate school.)

\_\_ AGST 4023 Principles of Experimentation or STAT 2023 Biostatistics or STAT 2303 Principles of Statistics

Sciences (35-36 hours)

\_\_ **BIOL 1543/1541L** Principles of Biology and lab

\_\_ BIOL 2013/2011L General Microbiology and lab

\_\_ BIOL 3863/3861L General Ecology and lab or ENSC 3223/3221L Ecosystem Assessment and lab

\_\_ **BIOL 1613/1611L** Plant Biology or CSES 1203 Introduction to Plant Sciences

\_\_ **CHEM 1103/1101L** University Chemistry I and lab

\_\_ **CHEM 1123/1121L** University Chemistry II and lab

\_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab or CHEM 3603/3601L Organic Chemistry I and lab

\_\_ **GEOL 1113/1111L** General Geology and lab

\_\_ **PHYS 2013/2011L** College Physics I and lab

Fine Arts and Humanities (6 hours)

\_\_ Choose from **Fine Arts, Humanities Core** courses

Social Sciences (9 hours)

\_\_ Choose from **Social Sciences Core** courses

ESWS Requirements (29-31 hours)

Environmental Science Core (11 hours)

\_\_ CSES 1011 Introduction to CSES

\_\_ CSES 2203/2201L Soil Science and lab

\_\_ ENSC 1003 Environmental Science

\_\_ ENSC 3003 Introduction to Water Science

Soil Science Core (3-4 hours)

\_\_ CSES 3214 Soil Resources with lab component

\_\_ CSES 4224 Soil Fertility with lab component

\_\_ CSES 4253 Soil Classification and Genesis with lab component

\_\_ ENSC 4263 Environmental Soil Science

Water Science Core (3-4 hours)

\_\_ ENSC 4023 Water Quality

\_\_ GEOG 3333 Oceanography

\_\_ GEOL 4033 Hydrogeology with lab component

\_\_ BIOL 4814 Limnology with lab component

Natural Resources Core (Choose 12 hours from at least 2 groups)

Methods/Techniques in Environmental Science

\_\_ CSES 355V Soil Profile Descriptions

\_\_ AGME 3153 Surveying in Agriculture and Forestry

\_\_ ENSC 3603 GIS for Environmental Science

\_\_ ENSC 4034 Analysis of Environmental Contaminants with lab component

\_\_ GEOS 3543 Geographic Information Science

Environment and Society

\_\_ AGECE 3413 Principles of Environmental Economics

\_\_ AGECE 3503 Agricultural Law

\_\_ AGECE 3523 Environmental and Natural Resource Law

\_\_ ENSC 3933 Environmental Ethics

\_\_ RSOC/SOCI 4603 Environmental Sociology

Environmental Management

\_\_ CSES 2013 Pest Management

\_\_ ENSC 3103 Plants & Environmental Restoration

\_\_ ENSC 3263 Environmental Soil and Water Conservation with lab component

\_\_ ENSC 4401 Professional Certification Preparation

\_\_ GEOG 3003 Conservation of Natural Resources

General Electives (18-21 hours)

**124 Total hours**

### Environmental, Soil, and Water Science B.S.A.

#### Eight-Semester Degree Program

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

3 ENGL 1013 Composition I (If exempt, see adviser for communication courses.)

3 ENSC 1003 Environmental Science

1 CSES 1011 Introduction to CSES

4 Science University Core – BIOL 1543/1541L Principles of Biology and lab

3 Social Sciences University Core Elective

3 Fine Arts/Humanities University Core Elective

**17 Semester hours**

#### Spring Semester Year 1

3 ENGL 1023 Composition II (If exempt, see adviser for communication courses.)

3 History University Core Elective

3-4 CSES 1203 Introduction to Plant Sciences or BIOL 1613/1611L Plant Biology and lab

3 Social Sciences University Core Elective

3 MATH 1203 (pre-requisite for CHEM 1103)

**15-16 Semester hours**

#### Fall Semester Year 2

3 General Elective

4 GEOL 1113/1111L General Geology and lab

4 Science University Core – CHEM 1103/1101L Chemistry I and lab

3 COMM 1313 Public Speaking

3 MATH 1213 or higher if ACT of 26 or higher (prerequisite for PHYS 2013)

**17 Semester hours**

#### Spring Semester Year 2

4 CHEM 1123/1121L Chemistry II and lab

3 Fine Arts/Humanities University Core Elective

3 Social Sciences University Core Elective

3 ENSC 3003 Introduction to Water Science

3 General Elective (Could apply elective toward a minor)

**16 Semester hours**

**Fall Semester Year 3**

- 4 CSES 2203/2201L Soil Science and lab
- 4 PHYS 2013/2011L College Physics I and lab
- 3 Water Science or Natural Resources Core
- 3-4 General Electives as AFLS Broadening Electives (Could apply toward a minor) or CHEM 3601/3601L

**14-15 Semester hours**

**Spring Semester Year 3**

- 4 BIOL 2013/2011L General Microbiology and lab
- 3-4 CHEM 2613/2611L Organic Physiological Chemistry and lab or General Elective
- 3-4 Natural Resources Core
- 3-4 Water Science or Soil Science Core (For Water Science: Recommended: ENSC 3003; Soil Science: Pre-at least CSES 2203)

**13-16 Semester hours**

**Fall Semester Year 4**

- 3 CSES 3023 Colloquium or AGED 3142 & AGED 3141L
- 4 ENSC 3223/3221L Ecosystems Assessment and lab or BIOL 3863/3861L General Ecology and lab
- 3 Statistics or Natural Resources Core
- 3-4 Soil Science or Natural Resources Core
- 3 Natural Resources Core or General Elective (Could apply elective toward a minor)

**16-17 Semester hours**

**Spring Semester Year 4**

- 3 Natural Resources Core or General Elective
- 3-4 Statistics or Natural Resources Core
- 3 General Elective or Natural Resources Core
- 3 General Elective as Broadening Elective (Could apply toward a minor)
- 0-3 General Elective (May wish to take another elective. Could apply toward a minor)

**12-16 Semester hours**

**124 Total Hours**

See Page 339 for Crop, Soil, and Environmental Science (CSES) courses and see Page 351 for Environmental Science (ENSC) courses.

### Minor in Crop Biotechnology (CPBT-M)

A student planning to minor in Crop Biotechnology must notify the program adviser for consultation and more detailed information. The Crop Biotechnology Minor consists of 16 hours of courses and to include the following:

- \_\_ BIOL 2323 General Genetics or ANSC 3123/POSC 3123 Principles of Genetics
  - \_\_ PLPA 4333 Biotechnology in Agriculture
  - \_\_ CSES 402V Special Topics in Crop Biotechnology (two 2-hour courses taken in two different semesters)
- Choose 6 hours from the following:
- \_\_ BIOL 4303 Plant Physiology
  - \_\_ CHEM 3813 Introduction to Biochemistry
  - \_\_ CSES 4103 Plant Breeding

### Minor in Crop Management (CPMG-M)

A student planning to minor in Crop Management must notify the program adviser for consultation and more detailed information. The Crop Management Minor consists of 18 semester hours of 2000-level courses or above, including the following:

- \_\_ CSES 2103 Crop Science
  - \_\_ CSES 2203 Soil Science
- Choose 12 hours from the following, with at least two courses from Group A.
- Group A:**
- \_\_ CSES 3113 Forage Management
  - \_\_ CSES 3312 Cotton Production
  - \_\_ CSES 3322 Soybean Production
  - \_\_ CSES 3332 Rice Production
  - \_\_ CSES 3342 Cereal Grain Production
- Group B:**
- \_\_ CSES 2003 Introduction to Weed Science

- \_\_ CSES 3214 Soil Resources and Nutrient Cycles
- \_\_ CSES 4013 Advanced Crop Science
- \_\_ CSES 4103 Plant Breeding
- \_\_ CSES 4133 Weed Identification, Morphology, and Ecology
- \_\_ CSES 4143 Principles of Weed Control
- \_\_ CSES 4224 Soil Fertility
- \_\_ CSES 4234 Plant Anatomy

### Minor in Environmental, Soil, and Water Science (ESWS-M)

A student planning to minor in Environmental, Soil, and Water Science must notify the program adviser for consultation and more detailed information. The Environmental, Soil, and Water Science Minor consists of 18 hours to include the following:

- Environmental science (6 hours)
- \_\_ ENSC 1003 Environmental Science
- Choose 3 hours from:
- \_\_ AGEC 3413 Principles of Environmental Economics
  - \_\_ AGEC 3503 Agricultural Law I
  - \_\_ AGEC 3523 Environmental Science and Natural Resource Law
- Soil Science (6 hours)
- \_\_ BIOL 3863/3861L General Ecology and lab
  - \_\_ ENSC 3103 Plants and Environmental Restoration
  - \_\_ ENSC 3223/3221L Ecosystems Assessment and lab
  - \_\_ ENSC 3263 Environmental Soil and Water with lab component
  - \_\_ ENSC 3603 GIS for Environmental Science
  - \_\_ ENSC 3933 Environmental Ethics
  - \_\_ ENSC 4034 Analysis of Environmental Contaminants with lab component
  - \_\_ RSOC/SOCI 4603 Environmental Sociology

Soil Science (6 hours)

- \_\_ CSES 2203 Soil Science
- Choose 3 hours from:
- \_\_ CSES 3214 Soil Resources and Nutrient Cycles with lab component
  - \_\_ CSES 355V Soil Profile Descriptions
  - \_\_ CSES 4224 Soil Fertility with lab component
  - \_\_ CSES 4253 Soil Classification and Genesis with lab component
  - \_\_ ENSC 4263 Environmental Soil Science
- Water Science (6 hours)
- \_\_ ENSC 3003 Introduction to Water Science
- Choose 3 hours from:
- \_\_ ENSC 4023 Water Quality with lab component
  - \_\_ GEOG 3333 Oceanography
  - \_\_ GEOL 4033 Hydrogeology with lab component
  - \_\_ BIOL 4814 Limnology with lab component

### Minor in Wildlife Habitat (WLHA-M)

A student planning to minor in Wildlife Habitat must notify the program adviser for consultation and more detailed information. The Wildlife Habitat Minor consists of 20 hours of courses to include the following:

**Group A** (13-14 hours):

- \_\_ BIOL 4734 Wildlife Management Techniques
- \_\_ CSES 1203 Plant Science or CSES 2103 Crop Science or BIOL 1613/1611L Plant Biology
- \_\_ CSES 2203 Soil Science
- \_\_ ENSC 3103 Plants and Environmental Restoration

Choose 6-7 hours from Groups B and C, choosing at least one course from each group.

**Group B:**

- \_\_ ENSC 1003 Environmental Science
- \_\_ ENSC 3003 Introduction to Water Science
- \_\_ ENSC 3223/3221L Ecosystems Assessment and lab
- \_\_ ENSC 3603 GIS for Environmental Science
- \_\_ BIOL 3863/3861L General Ecology and lab
- \_\_ CSES 462V Internship (with Arkansas Game and Fish Commission)

**Group C:**

- \_\_ AGEC 3413 Principles of Environmental Economics
- \_\_ BIOL 4763 Ornithology
- \_\_ BIOL 4833 Animal Behavior
- \_\_ CSES 2201L Soil Science Lab
- \_\_ CSES 355V Soil Profile Descriptions
- \_\_ CSES 4133 Weed ID, Morphology and Ecology
- \_\_ CSES 4253 Soil Classification and Genesis
- \_\_ ENTO 3013 Introduction to Entomology
- \_\_ GEOG 3003 Conservation of Natural Resources
- \_\_ GEOG 3343 Natural Regions of North America
- \_\_ RECR 1023 Recreation and Natural Resources

A maximum of 9 hours of CSES or ENSC coursework will be allowed to count toward the student's major as well as the Wildlife Habitat minor.

**ENTOMOLOGY (ENTO)**

Robert N. Wiedenmann  
Head of the Department  
319 Agriculture Building  
479-575-2451  
<http://entomology.uark.edu/>

**FACULTY**

- University Professor Stephen
- Professors Goggin, Johnson, Kring, Lorenz, McLeod, Steinkraus, Szalanski, Teague, Wiedenmann
- Adjunct Professors Lorence, Yanoviak
- Associate Professors Akin, Hopkins, Loftin, Studebaker
- Assistant Professors Dowling, McKay
- Curator Barnes
- Adjunct Assistant Professor Crook

Entomology is the branch of science concerned with the study of insects and related organisms. It involves studies of their biology, structure, identification, economic significance, and population management. The major emphasis of the curriculum is understanding insect biology and applying that knowledge in an integrated approach to insect-pest management.

Entomology is a graduate degree at the University of Arkansas. Undergraduate students interested in entomology can pursue a minor in entomology or pest management. The requirements for a minor in pest management (PMGT) are listed on page 95.

**Minor in Entomology (ENTO-M)**

The Entomology minor will consist of a minimum of 15 semester hours to include the following:

- \_\_ ENTO 3013 Introduction to Entomology
- \_\_ ENTO 4024 Insect Diversity and Taxonomy
- Choose 3 courses from:
  - \_\_ ENTO 4013 Insect Behavior and Chemical Ecology with lab component
  - \_\_ ENTO 4043 Apiculture with lab component
  - \_\_ ENTO 4053 Insect Ecology with lab component
  - \_\_ ENTO 4133 Advanced Applied Entomology with lab component
  - \_\_ ENTO 400V Special Problems

See Page 352 for Entomology (ENTO) courses.

**FOOD SCIENCE (FDSC)**

Jean-François Meullenet  
Head of the Department  
N-201 Food Science Building  
479-575-4605  
<http://www.foodscience.uark.edu/>

**FACULTY**

- University Professors Hettiarachachy, Siebenmorgen
- Professors Buescher, Crandall, Howard, Meullenet, Proctor, Ricke, Wang
- Assistant Professors Baum, Lee, Morawicki, Seo
- Adjunct Faculty Members Apple (N.), Brady, Chalova-Zhekova, Devareddy, King, Li, Marcy, Owens-Hanning, Pohlman, Prior

Food science is the application of science and technology to processing, packaging, safety, product invention and distribution of food products. Food science deals with all aspects of food between production and consumption and involves many disciplines, including chemistry, microbiology, nutrition, engineering and sensory science.

Food science prepares students for many interesting, rewarding and challenging professional career opportunities in industry, business, governmental and educational organizations associated with food and food-related products. Due to the diversity and abundance of opportunities available, students graduating with a B.S.A. in food science readily obtain employment or continue studies for graduate school. Additionally, requirements for several pre-professional programs can be fulfilled while meeting requirements for the food science degree.

Students may choose one of three areas of concentration for their degree program: Food Science (FDSC), Food Technology (FDTN) or Food and Culinary Sciences (FDCU). The FDSC concentration at the University of Arkansas is one of only 37 programs in the United States and the only one in Arkansas that is approved by the Institute of Food Technologists. It provides students with a strong background in basic and applied sciences and food chemistry, microbiology, analysis, quality and engineering.

The FDTN concentration provides students interested in food industry careers with an integrated background in food science and business or nutrition. Students in the food technology concentration will complete a minor in agribusiness, general business, or nutrition while completing their core requirements, thus leaving elective hours available for further educational enhancement.

The FDCU concentration provides students interested in product development careers with an interdisciplinary background in food science and culinary arts. This concentration is a partnership program with Northwest Arkansas Community College (NWACC). Students complete their culinary arts courses on the NWACC campus for transfer credit to the UA. These courses can be taken prior to admission to the UA or taken while in residence at the UA. Food and Culinary Sciences concentration will provide students with the course work necessary to be eligible to become a Certified Culinary Scientist or a Certified Research Chef through the Research Chef's Association.

Students in each concentration are offered opportunities for research, internships, international experiences and selection of a minor.

**Requirements for a Major in Food Science (FDSC)**

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
  - \_\_ Choose from **English Core** courses (6 hours)
  - \_\_ COMM 1313 Public Speaking
- FDSC Concentration:
  - \_\_ ENGL 3053 Technical and Report Writing or AGED 3142/3141L Agri Communications and lab
- FDTN or FDCU Concentration:
  - \_\_ AGED 3142/3141L Agri Communications and lab
- U.S. History and Government (3 hours)
  - Choose from **U.S. History Core** courses

Mathematics and Statistics (9-13 hours)

- \_\_ Choose from **MATH Core** course
- FDSC Concentration:
  - \_\_ MATH 1213 Plane Trigonometry
  - \_\_ MATH 2554 Calculus I
  - \_\_ STAT 2303 Principles of Statistics or STAT 2023 Biostatistics or PSYC 2013 Intro to Statistics for Psychologists or AGST 4023 Principles of Experimentation
- FDTN Concentration:
  - \_\_ MATH 2043 Survey of Calculus
  - \_\_ MATH 2053 Finite Mathematics (for students declaring Agricultural Business or General Business minors only)
  - \_\_ AGEC 2403 Quantitative Tools for Agribusiness or WCOB 1033 Data Analysis and Interpretation or STAT 2303 Principles of Statistics or AGST 4023 Principles of Experimentation
- FDCU Concentration:
  - \_\_ MATH 2043 Survey of Calculus
  - \_\_ STAT 2303 Principles of Statistics or PSYC 2013 Introduction to Statistics for Psychologists

Sciences (20-27 hours)

- \_\_ **BIOL 1543/1541L** Principles of Biology and lab
- \_\_ BIOL 2013/2011L General Microbiology and lab
- \_\_ **CHEM 1103/1101L** University Chemistry I and lab
- \_\_ **CHEM 1123/1121L** University Chemistry II and lab
- FDSC Concentration:
  - \_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab or CHEM 3603/3601L Organic Chemistry I and lab
  - \_\_ CHEM 3813 Introduction to Biochemistry
  - \_\_ PHYS 2013/2011L College Physics I and lab
- FDTN Concentration:
  - \_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab
  - \_\_ CHEM 3813 Introduction to Biochemistry (for students declaring General Foods and Nutrition minor only)
- FDCU Concentration:
  - \_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab

Fine Arts and Humanities (6 hours)

- \_\_ Choose **Fine Arts, Humanities Core** courses

Social Sciences (9 hours)

- \_\_ Choose from **Social Sciences Core** courses (9 hours)
- Students declaring Agricultural Business minor must take AGEC 1103 Agricultural Microeconomics and students declaring General Business minor must take ECON 2143 Basic Economics - Theory & Practice, or both ECON 2013 Macroeconomics and ECON 2023 Microeconomics

FDSC Degree Requirements (21 hours)

- \_\_ AFLS 1011 Freshman Orientation
  - \_\_ FDSC 1011 Food Science Orientation
  - \_\_ FDSC 1103 Introduction to Food Science
  - \_\_ FDSC 3103 Principles of Food Processing with lab component
  - \_\_ FDSC 4203 Quality Evaluation and Control with lab component
  - \_\_ FDSC 4304 Food Chemistry with lab component
  - \_\_ FDSC 4413 Sensory Evaluation of Food with lab component
  - \_\_ FDSC 4713 Food Product & Process Development with lab component
- General Electives (15-24 hours)

**Additional Requirements for Food Science Concentration (15 hours)**

- \_\_ HESC 1213 Fundamentals of Nutrition
- \_\_ FDSC 4114 Food Analysis with lab component
- \_\_ FDSC 4123/4121L Food Microbiology and lab
- \_\_ FDSC 4754 Engineering Principles of Food Processing with lab component

**Additional Requirements for Food Technology Concentration (23-26 hours)**

- \_\_ FDSC 2503 Food Safety and Sanitation
- \_\_ FDSC 3202 Introduction to Food Law

- \_\_ FDSC 431V (3 hours) Internship in Food Science
- Complete one of the following options (students must declare chosen minor with Bumpers College Dean's Office)
- Option 1: Agribusiness minor (AGBS-m)
- \_\_ WCOB 1120 Computer Competency Requirement (AGME 2903 may be taken instead, but hours will be counted toward elective hours)
  - \_\_ AGEC 2142/2141L Agribusiness Financial Records and lab
  - \_\_ AGEC 2303 Introduction to Agribusiness
  - \_\_ AGEC 3303 Food and Agricultural Marketing
  - \_\_ AGEC 4313 Agricultural Business Management
  - \_\_ 3000-4000 level business course from the departmental codes: ACCT, AGEC, ECON, FINN, ISYS, MGMT, MKTG, TLOG or WCOB
- Option 2: General Business minor (GBUS-m)
- \_\_ WCOB 1120 Computer Competency Requirement
  - \_\_ WCOB 1023 Business Foundations
  - \_\_ MGMT 3563 Management Concepts and Organizational Behavior
  - \_\_ MKTG 3433 Introduction to Marketing Strategy
  - \_\_ 3000-4000 level Walton College course chosen from department codes: ACCT, ECON, FINN, ISYS, MGMT, MKTG, TLOG or WCOB
  - \_\_ 3000-4000 level Walton College course chosen from department codes: ACCT, ECON, FINN, ISYS, MGMT, MKTG, TLOG or WCOB
- Option 3: General Foods and Nutrition minor (GFNU-m)
- \_\_ HESC 1213 Fundamentals of Nutrition
  - \_\_ HESC 2112/2111L Principles of Foods and lab
  - \_\_ HESC 3203 Human Nutrition
  - \_\_ HESC 4213 Advanced Nutrition
- Choose two from the following courses
- \_\_ HESC 2203 Sports Nutrition
  - \_\_ HESC 4223 Life Cycle Nutrition
  - \_\_ HESC 4243 Community Nutrition

**Additional Requirements for Food and Culinary Sciences Concentration (29 hours)**

- \*indicates North West Arkansas Community College course codes:
- \_\_ HESC 1213 Fundamentals of Nutrition
- \_\_ BAKG 1003\* Introduction to Baking
- \_\_ FDSC 2503 Food Safety & Sanitation or CULY 1003\* Safety and Sanitation
- \_\_ HESC 2112/2111L Principles of Foods and lab or CULY 1103\* Introduction to Food Preparation
- \_\_ CULY 1203\* Stocks, Sauces and Soups
- \_\_ CULY 1303\* Center of the Plate Applications
- \_\_ CULY 1403\* Garde Manger
- \_\_ CULY 2003\* World Cuisine
- \_\_ FDSC 3202 Introduction to Food Law
- \_\_ FDSC 431V (3 hr) Internship in Food Science

**124 Total Hours**

**Food Science B.S.A., Food Science Concentration Eight-Semester Degree Program**

Students wishing to follow the degree plan in Food Science should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 4 Science University Core BIOL 1543/1541L Principles of Biology and lab
- 3 University Core MATH 1203 College Algebra
- 3 University Core ENGL 1013 Composition I unless exempt
- 1 AFLS 1011 Freshman Orientation
- 1 FDSC 1011 Food Science Orientation
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 15 Semester hours**

**Spring Semester Year 1**

- 3 FDSC 1103 Introduction to Food Science
- 3 CHEM 1103 University Chemistry I

- 3 MATH 1213 Plane Trigonometry
- 3 University Core ENGL 1023 Composition II unless exempt
- 3 University Core in Fine Arts/Humanities or Social Science or History

**15 Semester hours**

#### Fall Semester Year 2

- 4 Science University Core CHEM 1123/1121L University Chemistry II and lab
- 1 CHEM 1101L University Chemistry I lab (Credit earned when CHEM 1121L is completed with grade of "C" or better)
- 4 MATH 2554 Calculus I
- 3 COMM 1313 Public Speaking
- 3 University Core in Fine Arts/Humanities or Social Science or History

**15 Semester hours**

#### Spring Semester Year 2

- 4 CHEM 2613/2611L Organic Physiological Chemistry and lab
- 3 Statistics Elective
- 4 BIOL 2013/2011L General Microbiology and lab
- 3 HESC 1213 Fundamentals of Nutrition
- 3 University Core in Fine Arts/Humanities or Social Science or History

**17 Semester hours**

#### Fall Semester Year 3

- 6-7 FDSC 3103 Principles of Food Processing with lab component and FDSC 4203 Quality Evaluation and Control with lab component (even years) or FDSC 4413 Sensory Evaluation of Food with lab component and FDSC 4304 Food Chemistry with lab component (odd years)
- 4 PHYS 2013/2011L College Physics I and lab
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 General Elective

**16-17 Semester hours**

#### Spring Semester Year 3

- 7-8 FDSC 4123/4121L Food Microbiology and lab and FDSC 4114 Food Analysis with lab component (even years) or FDSC 4713 Food Product and Process Development with lab component and FDSC 4754 Engineering Principles of Food Processing with lab component (odd years)
- 3 AGEC 3142/3141L Agri Communications and lab or ENGL 3053 Technical and Report Writing
- 6 General Electives

**16-17 Semester hours**

#### Fall Semester Year 4

- 6-7 FDSC 3103 Principles of Food Processing with lab component and FDSC 4203 Quality Evaluation and Control with lab component (even years) or FDSC 4413 Sensory Evaluation of Food with lab component and FDSC 4304 Food Chemistry with lab component (odd years)
- 3 CHEM 3813 Introduction to Biochemistry
- 6 General Elective

**15-16 Semester hours**

#### Spring Semester Year 4

- 7-8 FDSC 4123/4121L Food Microbiology and lab and FDSC 4114 Food Analysis with lab component (even years) or FDSC 4713 Food Product and Process Development with lab component and FDSC 4754 Engineering Principles of Food Processing with lab component (odd years)
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 General Elective

**13-14 Semester hours**

**124 Total hours**

### Food Science B.S.A., Food Technology Concentration

#### Nine-Semester Degree Program

Students wishing to follow the degree plan in Food Science should see page 41 in the Academic Regulations chapter for university requirements of the program. Students in the Food Technology Concentration must also minor in agribusiness, general business or nutrition.

#### Fall Semester Year 1

- 4 Science University Core BIOL 1543/1541L Principles of Biology and lab
- 3 University Core MATH 1203 College Algebra
- 3 University Core ENGL 1013 Composition I unless exempt
- 1 AFLS 1011 Freshman Orientation
- 1 FDSC 1011 Food Science Orientation
- 3 University Core in Fine Arts/Humanities or Social Science or History

**15 Semester hours**

#### Spring Semester Year 1

- 3 FDSC 1103 Introduction to Food Science
- 3 CHEM 1103 University Chemistry I
- 3 University Core ENGL 1023 Composition II unless exempt
- 3 University Core in Social Science (business minor must choose AGEC 1103 Ag Microeconomics or ECON 2143 Basic Economics-Theory and Practice)
- 3 COMM 1313 Public Speaking
- 0 Business minors only: WCOB 1120 Computer Competency Requirement

**15 Semester hours**

#### Fall Semester Year 2

- 4 Science University Core CHEM 1123/1121L University Chemistry II and lab
- 1 CHEM 1101L University Chemistry I lab (Credit earned when CHEM 1121L is completed with grade of "C" or better)
- 3 FDSC 2503 Food Safety and Sanitation
- 6 Business minors only: MATH 2053 Finite Mathematics and (AGEC 2142/2141L Agribusiness Financial Records and lab or WCOB 1023 Business Foundations)
- 6 Nutrition minors only: HESC 2112/2111L Principles of Foods and Lab and HESC 1213 Fundamentals of Nutrition

**14 Semester hours**

#### Spring Semester Year 2

- 4 CHEM 2613/2611L Organic Physiological Chemistry and lab
- 3 Statistics Elective
- 3 MATH 2043 Survey of Calculus
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 General Elective

**16 Semester hours**

#### Fall Semester Year 3

- 6-7 FDSC 3103 Principles of Food Processing with lab component and FDSC 4203 Quality Evaluation and Control with lab component (even years) or FDSC 4413 Sensory Evaluation of Food with lab component and FDSC 4304 Food Chemistry with lab component (odd years)
- 4 BIOL 2013/2011L General Microbiology and lab
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 General Elective

**16-17 Semester hours**

#### Spring Semester Year 3

- 2-3 FDSC 4713 Food Product and Process Development with lab component (odd years) or FDSC 3202 Introduction to Food Law (even years)
- 9 Business minors only: (AGEC 2303 Introduction to Agribusiness or Business Elective) and General Electives
- 9 Nutrition minors only: CHEM 3813 Introduction to Biochemistry and HESC 3203 Human Nutrition and General Elective
- 3 University Core in Fine Arts/Humanities or Social Science or History (odd years)

**14-15 Semester hours**

#### Summer Semester Year 3

- 3 FDSC 431V Internship in Food Science

**3 Semester hours**

#### Fall Semester Year 4

- 6-7 FDSC 3103 Principles of Food Processing with lab component and FDSC 4203 Quality Evaluation and Control with lab component (even years) or FDSC 4413 Sensory Evaluation of Food with lab component and FDSC 4304 Food Chemistry with lab component (odd years)
- 6 Business minors only: (AGEC 4313 Agricultural Business Management or MGMT 3563 Management Concepts and Organizational Behavior) and (AGEC 3303 Food and Agricultural Marketing or MKTG 3433 Intro to Marketing Strategy)
- 6 Nutrition minors only: HESC 4213 Advanced Nutrition and HESC 4223 Life Cycle Nutrition
- 3 General Elective

**15-16 Semester hours**

#### Spring Semester Year 4

- 2-3 FDSC 4713 Food Product and Process Development with lab component (odd years) or FDSC 3202 Introduction to Food Law (even years)
- 3 Business minors only: Business elective
- 3 Nutrition minors only: HESC 2203 Sports Nutrition or HESC 4243 Community Nutrition
- 3 University Core in Fine Arts/Humanities or Social Science or History

- 3 AGED 3142/3141L Agri Communications and lab
- 3 General Elective
- 14-15 Semester hours**
- 124 Total hours**

**Food Science B.S.A., Food and Culinary Sciences Concentration  
Nine-Semester Degree Program**

Students wishing to follow the degree plan in Food Science should see page 41 in the Academic Regulations chapter for university requirements of the program.  
An asterisk \* indicates NorthWest Arkansas Community College course codes.

**Fall Semester Year 1**

- 4 Science University Core BIOL 1543/1541L Principles of Biology and lab
- 3 University Core MATH 1203 College Algebra
- 3 University Core ENGL 1013 Composition I unless exempt
- 1 AFLS 1011 Freshman Orientation
- 1 FDSC 1011 Food Science Orientation
- 3 University Core in Fine Arts/Humanities or Social Science or History

**15 Semester hours**

**Spring Semester Year 1**

- 3 CHEM 1103 University Chemistry I
- 3 MATH 2043 Survey of Calculus
- 3 University Core ENGL 1023 Comp II
- 3 FDSC 1103 Introduction to Food Science
- 3 FDSC 2503 Food Safety and Sanitation or CULY 1003\* Safety and Sanitation

**15 Semester hours**

**Fall Semester Year 2**

- 4 Science University Core CHEM 1123/1121L University Chemistry II and lab
- 1 CHEM 1101L University Chemistry I lab (Credit earned when CHEM 1121L is completed with grade of "C" or better)
- 3 COMM 1313 Public Speaking
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 2 General Elective (must be upper division)
- 3 CULY 1103\* Introduction to Food Preparation Theory or HESC 2112/2111L Principles of Foods and Lab

**16 Semester hours**

**Spring Semester Year 2**

- 4 CHEM 2613/2611L Organic Physiological Chemistry and lab
- 3 Statistics Elective
- 3 HESC 1213 Fundamentals of Nutrition
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 CULY 1203\* Stocks, Soups and Sauces

**16 Semester hours**

**Fall Semester Year 3**

- 6-7 FDSC 3103 Principles of Food Processing with lab component and FDSC 4203 Quality Evaluation and Control with lab component (even years) or FDSC 4413 Sensory Evaluation of Food with lab component and FDSC 4304 Food Chemistry with lab component (odd years)
- 4 BIOL 2013/2011L General Microbiology and lab
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 CULY 1403\* Garde Manger

**16-17 Semester hours**

**Spring Semester Year 3**

- 2-3 FDSC 4713 Food Product and Process Development with lab component (odd years) or FDSC 3202 Introduction to Food Law (even years)
- 3 University Core in Fine Arts/Humanities or Social Science or History
- 6-7 General Elective (must be upper division)
- 3 CULY 1303\* Center of the Plate Applications

**15 Semester hours**

**Summer Semester Year 3**

- 3 FDSC 431V Internship in Food Science

**3 Semester hours**

**Fall Semester Year 4**

- 6-7 FDSC 3103 Principles of Food Processing with lab component and FDSC 4203 Quality Evaluation and Control with lab component (even years) or FDSC 4413 Sensory Evaluation of Food with lab component and FDSC 4304 Food Chemistry with lab component (odd years)

- 3 University Core in Fine Arts/Humanities or Social Science or History
- 3 General Elective (must be upper division)
- 3 BAKG 1003\* Introduction to Baking

**15-16 Semester hours**

**Spring Semester Year 4**

- 2-3 FDSC 4713 Food Product and Process Development with lab component (odd years) or FDSC 3202 Introduction to Food Law (even years)
- 3 AGED 3142/3141L Agri Communications and lab
- 3-4 General Electives (must be upper division)
- 3 CULY 2003\* World Cuisine

**12 Semester hours**

**124 Total hours**

**Minor in Food Science (FDSC-M)**

The Food Science Minor consists of 18 semester hours to include:

- \_\_\_ FDSC 3103 Principles of Food Processing with lab component
- \_\_\_ FDSC 4123/4121L Food Microbiology and lab
- \_\_\_ FDSC 4304 Food Chemistry with lab component

Choose 7 hours from:

- \_\_\_ FDSC 2503 Food Safety and Sanitation
- \_\_\_ FDSC 3202 Introduction to Food Law
- \_\_\_ FDSC 4114 Food Analysis with lab component
- \_\_\_ FDSC 4203 Quality Evaluation and Control with lab component
- \_\_\_ HESC 1213 Fundamentals of Nutrition

A student planning to minor in food science must consult a Department of Food Science adviser.

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See Page 353 for Food Science (FDSC) courses.

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**HORTICULTURE (HORT)**

David L. Hensley  
Head of the Department  
316 Plant Sciences Building  
479-575-2603  
<http://hort.uark.edu/>

**FACULTY**

- University Professor Clark
- Professors Evans, Garcia, Hensley, Murphy, Robbins, Richardson, Rom (C.), Srivastava
- Associate Professors Andersen, Carson, Karcher, Lindstrom
- Assistant Professor McDonald
- Distinguished Professor Emeritus Moore
- University Professor Emeritus Rom (R.)
- Professors Emeriti Bradley, Einert, Klingaman, Martin
- Associate Professor Emeritus King

The Department of Horticulture offers a broad, science-based degree with technical training: Horticulture, Landscape and Turf Sciences (HLTS).

Horticulture, landscape and turf management involves selection, production, management, marketing, use and research of ornamental crops (shrubs, trees, flowers, and turf), edible crops (herbs, vegetables and fruits) and turf grasses for the economic, nutritional, aesthetic and recreational well-being of society. The major provides education and training in basic and applied sciences, arts and humanities, communication, and business and economics, to provide an understanding of the underlying principles in plant development and growth, development and use of new technologies, and the operation of a horticultural enterprise. In consultation with an academic adviser and mentor, students may individually focus their academic programs through required and elective courses to focus training in specialized areas such as production, greenhouse and floriculture sciences, turf management, golf course supervision, nursery production and management, crop production, pest management, sales and support

services, education and training, and horticultural consulting. An internship in the industry is required to gain practical, hands-on experience.

Job opportunities for horticulturists include horticulture crop production and management, horticulture merchandising and business, consulting, inspection, research, teaching, communications, allied industries serving horticultural producers, journalism, and developing private business. Students who specialize in landscape and aspects of ornamental horticulture will be prepared for careers in the landscape management industry, landscape nurseries, landscape architectural firms, private and public gardens, and public agencies such as parks and recreation. Job opportunities for students studying turf management include golf course superintendent, sports field manager, turfgrass science companies, seed or sod production, commercial landscape turf management, research, teaching or private consulting. Advanced study may be required for some careers.

### Requirements for a Major in Horticulture, Landscape and Turf Sciences (HLTS)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

Communications (6-12 hours)

\_\_ Choose from **English Core** courses (6 hours)

\_\_ COMM 1313 Public Speaking

\_\_ Communication Intensive Elective (3 hours) See adviser

U.S. History and Government (3 hours)

Choose from **U.S. History or Government Core** courses

Mathematics (3 hours)

\_\_ Choose **MATH Core** courses

Sciences (16-20 hours)

\_\_ **BIOL 1543/1541L** Principles of Biology and lab

\_\_ **BIOL 1613/1611L** Plant Biology and lab

\_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab

\_\_ **CHEM 1073/1071L** Fundamentals of Chemistry and lab or

\_\_ **CHEM 1103/1101L** University Chemistry I and lab and

CHEM 1123/1121L University Chemistry II and lab

Fine Arts and Humanities (6 hours)

\_\_ Choose **Fine Arts Core** course

\_\_ Choose **Humanities Core** course

Social Sciences (9 hours)

\_\_ Choose from **Social Science Core** courses

Of these, 3 hours must be in AGECE or ECON

HLTS Core Requirements (21-22 hours):

\_\_ AFLS 1011 Freshman Orientation

\_\_ CSES 2203/2201L Soil Science and lab

\_\_ HORT 2003 Principles of Horticulture with lab component

\_\_ HORT 3901 Horticultural Career Development

\_\_ HORT 4403 Plant Propagation with lab component

\_\_ HORT 462V Horticulture Internship (3 hours)

Choose 6-7 hours from:

\_\_ CSES 2003 Introduction to Weed Science with lab component

\_\_ ENTO 3013 Introduction to Entomology with lab component

\_\_ PLPA 3004 Principles of Plant Pathology with lab component

Horticulture Electives (Choose 18 hours)

\_\_ HORT 2303 Introduction to Turfgrass Management with lab component

\_\_ HORT 3103 Woody Landscape Plants with lab component

\_\_ HORT 3113 Herbaceous and Indoor Plants with lab component

\_\_ HORT 3133 Advanced Woody Landscape Plants with lab component

\_\_ HORT 3303 Vegetable Crops

\_\_ HORT 3403 Turfgrass Management with lab component

\_\_ HORT 4033 Professional Landscape Installation and Construction

\_\_ HORT 4043 Professional Landscape Management

\_\_ HORT 4103 Fruit Production Science with lab component

\_\_ HORT 4503 Sustainable Nursery Production

\_\_ HORT 4603 Practical Landscape Planning

\_\_ HORT 4703 Greenhouse Management and Controlled Environment

Horticulture

\_\_ HORT 4701L Greenhouse Management and Controlled Environment

Horticulture Laboratory

\_\_ HORT 4803 Greenhouse Crops Production

\_\_ HORT 4801L Greenhouse Crops Production lab

\_\_ HORT 4903 Golf and Sports Turf Management with lab component

\_\_ HORT 4913 Rootzone Management for Golf and Sports Turf

\_\_ HORT 4921 Golf Course Operations

\_\_ HORT 400V Special Problems

\_\_ HORT 401V Special Topics in Horticulture, Turf or Landscape

Discipline-related electives (Choose 12 hours)

\_\_ AGME 3102/3101L Small Power Units and Turf Equipment and lab

\_\_ AGME 3153 Surveying in Agriculture and Forestry

\_\_ AGME 4973 Irrigation with lab component

\_\_ ANSC/POSC 3123 Principles of Genetics

\_\_ LARC 3914 Planting Design I

\_\_ LARC 2113 Design Communications I

\_\_ PHYS 1023/1021L Physics & Human Affairs and lab (or higher)

\_\_ WCOB (up to 9 hours) or

any AGECE, BIOL, CHEM, CSES, ENSC, ENTO, HORT, PLPA class not taken in any other elective groups.

General Electives (19-30 hours)

**124 Total Hours**

### Horticulture, Landscape and Turf Sciences B.S.A.

#### Nine-Semester Degree Plan

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

1 AFLS 1011 Freshman Orientation

3 University Core MATH 1203 College Algebra

3 University Core ENGL 1013 Composition I unless exempt

3 COMM 1313 Public Speaking

4 University Core BIOL 1543/1541L Principles of Biology and lab

**14 Semester hours**

#### Spring Semester Year 1

3 University Core ENGL 1023 Composition II unless exempt

3 HORT 2003 Principles of Horticulture with lab component

3 Fine Arts/Humanities University Core

3 History Core Elective

3 Social Science Core

1 General Elective

**16 Semester hours**

#### Fall Semester Year 2

4 CHEM 1073/1071L Fundamentals of Chemistry and lab

3 Communication Intensive Class

6 Horticulture Electives

**13 Semester hours**

#### Spring Semester Year 2

4 University Science Core BIOL 1613/1611L Plant Biology and lab

3 Fine Arts/Humanities University Core

1 HORT 3901 Horticultural Career Development

3 Discipline-related Elective

6 General Electives

**17 Semester hours**

#### Fall Semester Year 3

4 CSES 2203/2201L Soil Sciences and lab

3-4 Pest Management Elective

3 Horticulture Elective

3 Social Sciences University Core Elective

3 Discipline-related Elective

**16-17 Semester hours**

#### Spring Semester Year 3

4 CHEM 2613/2611L Organic Chemistry and lab

3-4	Discipline-related Elective
3	HORT 4403 Plant Propagation with lab component
3	Horticulture Elective
<b>13-14 Semester hours</b>	
<b>Summer Semester Year 3</b>	
3	HORT 462V Summer Internship
<b>Fall Semester Year 4</b>	
3	Discipline-related Elective
3	Horticulture Elective
3-4	Pest Management Elective
6-7	General Electives
<b>15-17 Semester hours</b>	
<b>Spring Semester Year 4</b>	
3	Social Science University Core Elective
3	Horticulture Elective
8-9	General Electives
<b>14-15 Semester hours</b>	
<b>124</b>	<b>Total Hours</b>

**Minor in Horticulture (HORT-M)**

- The minor will consist of 18 hours to include the following:
- \_\_ HORT 2003 Principles of Horticulture with lab component
  - \_\_ HORT 4403 Plant Propagation with lab component
- Choose 9-11 hours from:
- \_\_ HORT 2303 Introduction to Turfgrass Management
  - \_\_ HORT 3303 Vegetable Crops
  - \_\_ HORT 400V Special Problems (1-3 hours)
  - \_\_ HORT 4103 Fruit Production Science with lab component
  - \_\_ HORT 4503 Sustainable Nursery Production
  - \_\_ HORT 4703/4701L Greenhouse Management and Controlled Environment Horticulture and lab
  - \_\_ HORT 4803/4801L Greenhouse Crops Production and lab
- Choose 3 hours from:
- \_\_ HORT 3103 Woody Landscape Plants with lab component
  - \_\_ HORT 3113 Herbaceous and Indoor Plant Materials with lab component
  - \_\_ HORT 3133 Advanced Woody Landscape Plants with lab component

**Minor in Landscape Horticulture (LHRT-M)**

- The minor will consist of 18 hours to include:
- \_\_ HORT 2003 Principles of Horticulture with lab component
  - \_\_ HORT 4043 Prof Landscape Management
- Choose 3 hours from:
- \_\_ HORT 4603 Practical Landscape Planning
  - \_\_ LARC Studio Course
- Choose 3 hours from:
- \_\_ HORT 3103 Woody Landscape Plants with lab component
  - \_\_ HORT 3113 Herbaceous and Indoor Plant Materials with lab component
- Choose 6-8 additional hours from:
- \_\_ HORT 2303 Introduction to Turfgrass Management
  - \_\_ HORT 3103 Woody Landscape Plants with lab component
  - \_\_ HORT 3113 Herbaceous and Indoor Plant Materials with lab component
  - \_\_ HORT 3403 Turfgrass Management with lab component
  - \_\_ HORT 400V Special Problems (1-3 hours)
  - \_\_ HORT 4033 Professional Landscape Installation and Construction
  - \_\_ HORT 4403 Plant Propagation with lab component
  - \_\_ HORT 4503 Sustainable Nursery Production
  - \_\_ HORT 4703/4701L Greenhouse Management and Controlled Environment Horticulture and lab
  - \_\_ HORT 4803/4801L Greenhouse Crops Production and lab
  - \_\_ LARC 3734 Landscape Architecture Construction III

**Minor in Turf Management (TURF-M)**

- 18 to 20 hours to include the following:
- HORT 2303 Intro to Turfgrass Management
  - HORT 3403/3400L Turf Management Laboratory

- Choose 3 hours from:
- \_\_ HORT 4903/4900L Golf and Sports Turf Management
  - \_\_ HORT 4913/4910L Rootzone Management for Golf and Sports Turf
- Choose 3-4 hours from:
- \_\_ CSES 2003/2000L Introduction to Weed Science
  - \_\_ ENTO 3013/3010L Introduction to Entomology
  - \_\_ PLPA 3004 Principles of Plant Pathology
- Select 6-8 hours from:
- \_\_ AGME 4973 Irrigation
  - \_\_ AGME 3102/3101L Small Power Units/Turf Equipment
  - \_\_ CSES 2003/2000L Introduction to Weed Science
  - \_\_ CSES 2203/2201L Soil Science
  - \_\_ ENTO 3013/3010L Introduction to Entomology
  - \_\_ PLPA 3004/3000L Principles of Plant Pathology
  - \_\_ HORT 4903/4900L Golf and Sports Turf Management
  - \_\_ HORT 4913/4910L Rootzone Management for Golf and Sports Turf
  - \_\_ HORT 3103/3100L Woody Landscape Plants
  - \_\_ HORT 4033 Professional Landscape Installation and Construction
  - \_\_ HORT 4043 Professional Landscape Management

See Page 365 for Horticulture (HORT) courses.

**PLANT PATHOLOGY (PLPA)**

Rick Bennett  
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 479-575-2445  
<http://plantpathology.uark.edu>

**FACULTY**

- University Professors Robbins, TeBeest
- Professors Bennett, Correll, Kirkpatrick, Korth, Milus, Rothrock, Rupe
- Associate Professors Coker, Spradley
- Assistant Professors Bluhm, Faske, Vann, Tzanetakis, Wameshi
- Research Assistant Professor Saylor
- Adjunct Assistant Professor Cartwright (K.)
- Adjunct Associate Professors Brooks, Chen, du Toit, Jia
- Adjunct Emeritus Professor Gergerich

Plant pathology is the study of interrelationships of plants with the abiotic and biotic agents that affect plant health and productivity. The goal of the discipline is to minimize the impact of plant diseases on agricultural production and human health. Scientific training within the department focuses on the nature, cause, and management of plant diseases.

Plant pathology is a graduate degree program. Undergraduate students interested in plant pathology should pursue a minor in pest management or plant pathology. See page 95 for degree requirements.

**Minor in Plant Pathology (PLPA-M)**

A student planning to minor in plant pathology should notify the Department of Plant Pathology and consult an adviser. A minor in Plant Pathology consists of 19 hours to include the following:

- \_\_ PLPA 3004 Principles of Plant Pathology
  - \_\_ PLPA 400V Research (3 hours)
- Choose 3 hours from:
- \_\_ PLPA 4223 Plant Disease Control
  - \_\_ PLPA 4304 Applied Plant Disease Management
- Choose 9 hours from:
- \_\_ BIOL 4233 Genomics and Bioinformatics
  - \_\_ BIOL 4304 Plant Physiology
  - \_\_ BIOL 4353 Ecological Genetics



- \_\_ BIOL 4424 Mycology
- \_\_ BIOL 4753 General Virology
- \_\_ PLPA 4333 Biotechnology in Agriculture

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See Page 396 for Plant Pathology (PLPA) courses.

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## PEST MANAGEMENT (PMGT)

Nilda Burgos  
Program Coordinator  
ALTH 222  
479-575-2445

### FACULTY

- All faculty in the Department of Plant Pathology, Entomology, and the discipline of Weed Science in the Department of Crop, Soil, and Environmental Sciences are faculty in the discipline of Pest Management.

## Minor in Pest Management (PMGT-M)

Students interested in this area of study must declare their intention to the program coordinator. A minor in Pest Management consists of 19 hours to include two courses from each pest discipline: Entomology (ENTO), Plant Pathology (PLPA), and Weed Science (CSES):

- \_\_ ENTO 3013 Introduction to Entomology
  - \_\_ PLPA 3004 Principles of Plant Pathology
- In addition, students may select from the following courses:
- \_\_ CSES 2003 Introduction to Weed Science
  - \_\_ CSES 4133 Weed Identification, Morphology, and Ecology
  - \_\_ CSES 4143 Principles of Weed Control
  - \_\_ ENTO 4123 Insect Pest Management
  - \_\_ ENTO 4133 Advanced Applied Entomology
  - \_\_ PLPA 4223 Plant Disease Control
  - \_\_ PLPA 4304 Applied Plant Disease Management

## POULTRY SCIENCE (POSC)

Michael T. Kidd  
Head of the Department  
0114 Poultry Science Center  
479-575-4952  
<http://www.poultryscience.uark.edu/>

### FACULTY

- University Professors Chapman, Waldroup
- Professors Anthony, Bottje, Clark, Coon, Donoghue (D.), Erf, Goodwin, Hargis, Kidd, Kuenzel, Li, Marcy, Ricke, Slavik, Thaxton, Watkins, Wideman
- Research Professors Donoghue (A.), Huff (G.), Huff (W.), Rath
- Adjunct Professors Bacon, Bristor, Fryar, Hanning, Rhoads, Zelenka
- Associate Professors Bramwell, Kwon, Owens-Hanning
- Assistant Professor Kong
- Adjunct Assistant Professors Linton, Stephens
- Adjunct Research Assistant Professor

A major in poultry science is designed to provide the scientific and technical education to prepare students for positions of leadership and responsibility in the expanding fields of production, processing, marketing, and distribution of meat, eggs, and related poultry products. The curriculum also prepares students for career opportunities in specialized areas of nutrition, breeding, genetics, physiology, management, food science, immunology, and disease.

Elective hours allow students to select a minor and thus personalize their degree. Elective hours can also be used to emphasize areas of business, production, processing or science. Pre-veterinary medicine, pre-medical, or pre-pharmacy requirements may be fulfilled while meeting degree requirements.

Curricula are designed to permit the student to obtain the necessary foundation to pursue graduate study for the master's and doctoral degrees. Advanced degrees are offered but not limited to the areas of nutrition, genetics, physiology, product technology, and poultry health.

## Requirements for a Major in Poultry Science (POSC)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in bold.)

Communications (6-12 hours)

- \_\_ Choose from **English Core** courses (6 hours)
- \_\_ COMM 1313 Public Speaking
- \_\_ Communication Intensive Elective (3 hours) See adviser
- U.S. History and Government (3 hours)

\_\_ Choose from **U.S. History and Government Core** courses

Mathematics and Statistics (6-7 hours)

\_\_ Choose **MATH Core** course

\_\_ AGEC 2403 Quantitative Tools for Agribusiness or STAT 2303 Principles of Statistics or AGST 4023 Principles of Experimentation Sciences (17-24 hours)

\_\_ **BIOL 1543/1541L** Principles of Biology and lab

\_\_ BIOL 2013/2011L General Microbiology and lab

Choose either:

\_\_ **CHEM 1073/1071L** Fundamentals of Chemistry and lab

or

\_\_ **CHEM 1103/1101L** University Chemistry I and lab and **CHEM 1123/1121L** University Chemistry II and lab

Choose either:

\_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab

or

\_\_ CHEM 3603/3601L Organic Chemistry and lab and CHEM 3613/3611L Organic Chemistry II and lab

Fine Arts and Humanities (6 hours)

\_\_ Choose from **Fine Arts, Humanities Core** courses

Social Sciences (9 hours)

\_\_ **AGEC 1103** Principles of Agricultural Microeconomics or

**ECON 2023** Principles of Microeconomics

Choose **Social Sciences Core** courses (6 hours)

**Poultry Science Core** (27 hours)

\_\_ POSC 1002 (Intro to Poultry Careers)

\_\_ POSC 1012 (Avian Biology)

\_\_ POSC 2343 (Poultry Production & Mgmt w/ Lab)

\_\_ POSC 2353 (Breeder Production & Mgmt w/ Lab)

\_\_ POSC 3223 (Poultry Diseases)

\_\_ POSC 3554 (Avian Anatomy w/ lab)

\_\_ POSC 3123 (Principles of Genetics) or POSC 4333 (Poultry Breeding & Genetics) or BIOL 2323 (Genetics)

\_\_ POSC 4314 (Egg and Meat Technology w/ lab)

\_\_ POSC 4343 (Poultry Nutrition)

**Poultry Science Controlled Electives** (15 hours)

(Select 6 hours from the following)

\_\_ AGEC 2303 (Introduction to Agribusiness)

\_\_ PHYS 2013/2011L (College Physics I)

\_\_ PHYS 2033/2031L (College Physics II)

\_\_ POSC 3032 (Physiology I)

\_\_ POSC 3042 (Physiology II)

\_\_ POSC 4213 (Integrated Poultry Management Systems)

(Select 3 hr from the following)

\_\_ POSC 4801 (Seminar: Research Topics)

\_\_ POSC 4811 (Seminar: Professionalism)

\_\_ POSC 4821 (Seminar: Problem Solving)

- \_\_ POSC 4831 (Seminar: Processing Regulations)  
(Select 6 hr from the following)
- \_\_ POSC 3013 Exotic Companion Birds
- \_\_ POSC 3381 Poultry Judging and Selection
- \_\_ POSC 400V Special Problems
- \_\_ POSC 401V Internship in Poultry Science
- \_\_ POSC 4023 Advanced Topics in Food Safety Management
- \_\_ POSC 4034 Statistical Process Control in the Food Industry
- \_\_ POSC 4223 Risk Analysis for Biological Systems
- \_\_ POSC 4434 Fundamentals of Reproductive Physiology
- \_\_ POSC 4923 Brain and Behavior
- \_\_ AFLS 3512 Rotations in Agricultural Laboratory Research
- \_\_ POSC \_\_\_\_\_

**Discipline-Related Electives** (12 hrs)

**General Electives** (9-24 hrs)

**120 Total hours**

**Poultry Science B.S.A.**

**Eight-Semester Degree Program**

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 4 University Core BIOL 1543/1541L Principles of Biology and lab
  - 3 University Core ENGL 1013 Composition I unless exempt
  - 3 COMM 1313 Public Speaking
  - 2 POSC 1002 Introduction to Poultry Careers
  - 3 FNAR/Humanities University Core Elective
  - 1 AFLS 1011 Freshman Orientation
- 16 Semester hours**

**Spring Semester Year 1**

- 2 POSC 1012 Avian Biology
  - 3 University Core ENGL 1023 Composition II unless exempt
  - 3 University Core MATH 1203 College Algebra or higher level math
  - 3 FNAR/Humanities University Core Elective
  - 3 Social Science Core Elective
- 14 Semester hours**

**Fall Semester Year 2**

- 3 POSC 2343 Poultry Production and Mgmt with Lab
  - 4 University Core CHEM 1103/1101L Chemistry I and lab or CHEM 1073/1071L Fundamentals of Chemistry and lab
  - 3 History University Core Elective
  - 3 Social Science Core AGEC 1103 Principles of Agricultural Microeconomics or ECON 2023 Principles of Microeconomics
  - 3 Discipline-Related Elective
- 16 Semester hours**

**Spring Semester Year 2**

- 3 POSC 2353 Breeder Production and Mgmt with lab
  - 4 CHEM 2613/2611L Organic Physiological Chemistry and lab or CHEM 1123/1121L Chemistry II and lab (if CHEM 1103/1101L taken previous fall)
  - 4 POSC 3554 Avian Anatomy with lab component
  - 3 Social Science Core Elective
  - 3 Communication Intensive Elective
- 17 Semester hours**

**Fall Semester Year 3**

- 4 BIOL 2013/2011L General Microbiology and lab
- 3-4 CHEM 3603/3601L Organic Chemistry and lab (if CHEM 1103/ 1101L and CHEM 1123/1121L taken previously) or General Elective
- 3 POSC 4333 Poultry Breeding or POSC/ANSC 3123 Principles of Genetics
- 2-4 POSC Elective (from PHYS 2013/2011L, POSC 3032, AGEC 2303, POSC 4314)
- 1 POSC 4811 or POSC 4831 Undergraduate Seminar

**13-16 Semester hours**

**Spring Semester Year 3**

- 3-4 CHEM 3613/3611L Organic Chemistry II and lab (if CHEM 3603/3601L taken previously) or General Elective

- 2-4 POSC Elective (from PHYS 2033/2031L College Physics II and lab, POSC 3042 Animal Physiology II; AGEC 2303 Introduction to Agribusiness, POSC 4213 Integrated Poultry Management)
- 3 Upper-Division POSC Elective
- 3 Discipline-Related Elective
- 3 General Elective or BIOL 2323 General Genetics

**14-17 Semester hours**

**Fall Semester Year 4**

- 3 POSC 3223 Poultry Diseases
- 4 POSC POSC 4314 Egg and Meat Technology
- 3 Upper-Division POSC Elective
- 3 AGEC 2403 Quantitative Tools for Agribusiness or General Elective
- 3 Discipline-Related Elective
- 1 POSC 4811 or POSC 4831 Undergraduate Seminar

**17 Semester hours**

**Spring Semester Year 4**

- 1 POSC 4801 Undergraduate Seminar
- 3 STAT 2303 Principles of Statistics or AGST 4023 Principles of Experimentation (Pre-MATH 1203 or higher ) or General Elective
- 2-4 POSC Controlled Elective (from PHYS 2033/2031L College Physics II and lab, POSC 3042 Animal Physiology II; AGEC 2303 Introduction to Agribusiness, POSC 4213 Integrated Poultry Management) or General Elective
- 1 POSC 4801 or POSC 4821 Undergraduate Seminar
- 3 Discipline-Related Elective

**10-12 Semester hours**

**120 Total hours**

**Minor in Poultry Science (POSC-M)**

A student planning to minor in poultry science should consult a departmental adviser. The minor consists of 15 hours to include the following:

- \_\_ POSC 1002 Intro to Poultry Careers
  - \_\_ POSC 1012 Avian Biology
  - \_\_ POSC 2343 Poultry Production & Mgmt w/ Lab
  - \_\_ POSC 2353 Breeder Production & Mgmt w/ Lab
- Choose 5 hours from any POSC course listing.

See Page 398 for Poultry Science (POSC) courses.

**REQUIREMENTS FOR FOOD SAFETY CERTIFICATES OF PROFICIENCY**

Steve Seideman  
Program Coordinator  
2560 North Young Street  
479-575-4421

Certificates of Proficiency in Hazard Analysis and Critical Control Point (HACCP) and Food Safety Manager (FMGR) recognize students who take a concentrated core of web-based courses focused on the application of scientifically-based food safety systems through the application of HACCP systems.

Students who earn the HACCP certificate will have a working knowledge of fundamental food microbiology, food sanitation, applicable law, statistical process control, and advanced HACCP applications in food processing industries. Prerequisites for acceptance: applicants to the HACCP Coordinator Certificate of Proficiency Program must have completed a B.S. degree or have at least seven years relevant experience in the food industry.

**HACCP Certificate Requirements:**

- 15 hours of Web-based courses:
  - \_\_ FDSC 2503 Food Safety and Sanitation
  - \_\_ FDSC 3202 Introduction to Food Law
  - \_\_ HLSC 4623 Human Diseases
  - \_\_ POSC 4033 Statistical Process Control in the Food Industry

Students who earn the Food Safety Manager (FMGR) Certificate of Proficiency will have a working knowledge of advanced food microbiology, food process engineer-

ing, human diseases, and quality management as applied in food processing industries. Applicants to the Food Safety Manager Certificate of Proficiency must have completed the HACCP certificate program of study.

#### FMGR Certificate requirements:

- 15 hours of Web-based courses:
- \_\_\_ FDSC 3753 Introduction to Food Engineering Principles
  - \_\_\_ FDSC 4823 Principles of Food Microbiology
  - \_\_\_ HLSC 4613 Principles of Epidemiology
  - \_\_\_ INEG 4323 Quality Engineering and Management
  - \_\_\_ POSC 4023 Advanced Topics in Food Safety Management

## SCHOOL OF HUMAN ENVIRONMENTAL SCIENCES (HESC)

Mary M. Warnock  
Director  
118 Home Economics Building  
479-575-4305  
<http://hesc.uark.edu/>

#### FACULTY

- Professors Farmer, Harrington, Robertson, Turner, Warnock
- Associate Professors Apple, Bailey, Killian, Revelle, Southward
- Assistant Professors Henk, Ogbeide, Smith, Way, Wiersma
- Clinical Assistant Professor Moore
- Instructors Baldwin, Carpenter, Cheramie, Crandall, Harding, Powell

The School of Human Environmental Sciences at the University of Arkansas prepares students for a wide variety of professional careers in education, industry, business, government, and community services. The school is concerned with improving the quality of life for individuals and families as they exist and function in society. Human environmental sciences draw knowledge from research, from the physical, biological, and social sciences, and from arts and humanities. It relates this knowledge to an understanding of individuals' and families' needs and goals for food, clothing, shelter, management of resources, and human development and relationships. The School of Human Environmental Sciences has made a substantial contribution to the development of individuals and families through undergraduate and graduate preparation of human environmental scientists and through research in human nutrition, foods, human development, family sciences, apparel and textiles.

The four majors of the B.S.H.E.S. degree have been accredited by the Council for Professional Development of the American Association of Family and Consumer Sciences.

See page 75 for list of majors, concentrations, minors.

See page 77 for college academic requirements and graduation requirements.

## APPAREL STUDIES (APST)

Laurie M. Apple  
Area Coordinator  
216 Home Economics Building  
479-575-4579

The Apparel Studies program opens the door to careers in the fashion industry. Buyer, product development specialist, fashion coordinator, sales consultant, visual display artist, and quality assurance technician are only a few of the possibilities. Classes in business, retailing, apparel production, science, social science, and the liberal arts give students a basic knowledge about the textile and apparel industries. By selecting from a variety of minors, students can tailor this program to meet their goals. Program strengths include guest speakers who provide insight into today's careers, tours of major fashion centers, and internships, which provide valuable career experience.

## Requirements for a Major in Apparel Studies (APST)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
  - \_\_\_ Choose from **English Core** courses (6 hours)
  - \_\_\_ COMM, ENGL, JOUR or Foreign Language
  - \_\_\_ COMM 1313 Public Speaking
- U.S. History and Government (3 hours)
  - \_\_\_ Choose from **U.S. History and Government Core** courses
- Mathematics and Statistics (6 hours)
  - \_\_\_ Choose **MATH Core** course
  - \_\_\_ MATH 2053 Finite Mathematics or higher level course
- Sciences (8 hours)
  - \_\_\_ Choose **Science Core** courses
- Fine Arts and Humanities (6 hours)
  - \_\_\_ Choose from **Fine Arts, Humanities Core** courses
- Social Sciences (9 hours)
  - \_\_\_ **ECON 2143** Basic Economics
  - \_\_\_ **PSYC 2003** General Psychology
  - \_\_\_ **ANTH 1023** Intro to Cultural Anthropology or **SOCI 2013** General Sociology
- Foreign Language (6 hours)
  - Must be consecutive courses in the same language

#### APST Requirements:

- Human Environmental Sciences (55 hours)
  - \_\_\_ HESC 1501 Orientation
  - \_\_\_ HESC 1013 Introduction to Clothing Concepts
  - \_\_\_ HESC 1023 Introduction to Apparel Production
  - \_\_\_ HESC 1053 Computer-Based Methods for Apparel
  - \_\_\_ HESC 2013 Quality Assessment of Apparel
  - \_\_\_ HESC 2023 Visual Merchandising
  - \_\_\_ HESC 2053 Intro to Textile Science
  - \_\_\_ HESC 3003 Apparel Production
  - \_\_\_ HESC 3013 Introduction to Fashion Merchandising
  - \_\_\_ HESC 3033 Fashion Merchandising Methods
  - \_\_\_ HESC 4023 Advanced Apparel Merchandising
  - \_\_\_ HESC 4033 Advanced Textile Study
  - \_\_\_ HESC 4043 History of Apparel
  - \_\_\_ HESC 4053 Contemporary Apparel
  - \_\_\_ HESC 4063 Advanced Apparel Production
  - \_\_\_ HESC 4071 Apparel Studies Pre-Internship
  - \_\_\_ HESC 4082 Apparel Studies Internship
  - \_\_\_ HESC 4901 Apparel Studies Pre-Study Tour
  - \_\_\_ HESC 4912 Apparel Studies Study Tour
  - \_\_\_ HESC 1213 Fundamentals of Nutrition
  - \_\_\_ HESC 2413 Family Relations
- Marketing (3 hours)
  - \_\_\_ MKTG 3433 Introduction to Marketing Strategy
- Computers (6 hours)
  - \_\_\_ Computer Course (3 hours)
  - \_\_\_ AGED 4243 Graphic Design in AFLS
- General Electives (10-16 hours)

#### 124 Total Hours

#### Apparel Studies B.S.H.E.S.

##### Ten-Semester Degree Program

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. A description of HESC courses is listed on page 359.

##### Fall Semester Year 1

- |   |   |
|---|---|
| 3 | University Core ENGL 1013 Composition I unless exempt |
| 3 | University Core MATH course                           |
| 3 | University Core FINE ARTS Category a                  |

- 3 HESC 1013 Intro to Clothing Concepts
- 1 HESC 1501 Orientation to HESC
- 3 HESC 1053 Computer Based Methods for Apparel
- 16 Semester hours**

**Spring Semester Year 1**

- 3 University Core ENGL 1023 Composition II unless exempt
- 3 MATH 2053 Finite Math or higher level math
- 3 HESC 1023 Introduction to Apparel Production
- 3 HESC 2413 Family Relations
- 3 HESC 2053 Introduction to Textile Science
- 15 Semester hours**

**Fall Semester Year 2**

- 4 University Core Science Elective
- 3 University Core PSYC 2003 General Psychology
- 3 University Core U.S. History Elective
- 3 HESC 2023 Visual Merchandising and Fashion Promotion
- 13 Semester hours**

**Spring Semester Year 2**

- 3 HESC 2013 Quality Assessment of Apparel
- 3 HESC 1213 Fundamentals of Nutrition
- 3 Computer Course AGME 2903 Application of Microcomputers or other
- 3 University Core ECON 2143 Basic Economics
- 3 University Core Elective ANTH 1023 Intro to Cultural Anthropology or SOCI 2013 General Sociology
- 1 HESC 4901 Apparel Studies Pre-Study Tour
- 16 Semester hours**

**Summer Semester Year 2**

- 2 HESC 4912 Apparel Studies Study Tour

**Fall Semester Year 3**

- 3 COMM 1313 Public Speaking
- 3 HESC 3013 Introduction to Fashion Merchandising
- 4 University Core Science Elective
- 3 MKTG 3433 Introduction to Marketing Strategy
- 3 Foreign Language Elective
- 16 Semester hours**

**Spring Semester Year 3**

- 3 COMM, ENGL, JOUR or Foreign Language
- 3 HESC 3033 Fashion Merchandising Methods
- 3 Foreign Language Elective
- 3 University Core Humanities Elective Category b
- 3 HESC 3003 Apparel Production
- 1 HESC 4071 Apparel Studies Pre-Internship
- 16 Semester hours**

**Summer Semester Year 3**

- 2 HESC 4082 Apparel Studies Internship

**Fall Semester Year 4**

- 3 HESC 4023 Advanced Apparel Merchandising
- 3 HESC 4043 History of Apparel
- 3 HESC 4063 Advanced Apparel Production
- 6 General Electives
- 15 Semester hours**

**Spring Semester Year 4**

- 3 HESC 4053 Contemporary Apparel
- 3 AGED 4243 Graphic Design in AFLS
- 3 HESC 4033 Advanced Textile Study
- 4 General Elective
- 13 Semester hours**
- 124 Total hours**

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## FOOD, HUMAN NUTRITION, AND HOSPITALITY (FHNH)

Robert J. Harrington  
Area Coordinator  
17E Home Economics Building  
479-575-4700

The curriculum in Food, Human Nutrition, and Hospitality allows students to prepare for a career in a specialized area of foods and nutrition by completing a common set of basic courses and one of the concentrations:

- A: Dietetics (DIET)
- B: General Foods and Nutrition (GFNU), and
- C: Hospitality and Restaurant Management (HRMN).

Interest and aptitude for the biological and physical sciences that support nutrition science are needed to successfully complete concentrations in Dietetics and General Foods and Nutrition. Hospitality and Restaurant Management is the best choice for those students who have an interest in management and who enjoy working with people.

**Dietetics (DIET)**

Dietetics is for the student who intends to become a Registered Dietitian (RD), a credential that is required for one to counsel individuals related to any type of diet. Courses required are those necessary as prerequisites to application for a post-baccalaureate dietetic internship. Upon successful completion of the post-baccalaureate dietetic internship, the graduate is eligible to take the Registration Exam, the board examination for the RD credential. Graduates of this program who choose not to apply for a post-baccalaureate dietetic internship are eligible upon completion of the Bachelor's degree to take the board examination to become a Dietetic Technician, Registered (DTR).

**Dietetics Concentration Requirements**

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
  - \_\_\_ Choose from **English Core** courses (6 hours)
  - \_\_\_ ENGL 3053 Technical and Report Writing or JOUR 3123 Feature Writing or AGED 3142/3141L Agri Communications and lab
  - \_\_\_ COMM 1313 Public Speaking
  - U.S. History and Government (3 hours)
    - \_\_\_ Choose from **U.S. History and Government Core** courses
  - Mathematics (3 hours)
    - \_\_\_ Choose **MATH Core** course
  - Sciences (23-27 hours)
    - Select 4 or 8 hours:
      - \_\_\_ **CHEM 1073/1071L** Fundamentals of Chemistry and lab or
      - \_\_\_ **CHEM 1103/1101L** University Chemistry I and lab **and**
      - \_\_\_ **CHEM 1123/1121L** University Chemistry II and lab
    - Select 8 hours:
      - \_\_\_ **BIOL 2213/2211L** Human Physiology and lab and
      - \_\_\_ **BIOL 2443/2441L** Human Anatomy and lab or
      - \_\_\_ **BIOL 1543/1541L** Principles of Biology and lab and
      - \_\_\_ ANSC 3032 Animal Physiology I and
      - \_\_\_ ANSC 3042 Animal Physiology II
  - And take:
    - \_\_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab
    - \_\_\_ CHEM 3813 Introduction to Biochemistry
    - \_\_\_ BIOL 2013/2011L General Microbiology and lab
    - Fine Arts and Humanities (6 hours)
      - \_\_\_ Choose from **Fine Arts, Humanities Core** courses
    - Social Sciences (9 hours)

- \_\_ **PSYC 2003** General Psychology
- \_\_ **HESC 2413** Family Relations
- \_\_ Choose **Social Sciences Core** courses (3 hours)
- DIET Requirements:
- Human Environmental Sciences (52 hours)
- \_\_ HESC 1201 Introduction to the Dietetic Profession
- \_\_ HESC 1501 Orientation to HESC
- \_\_ HESC 1213 Fundamentals of Nutrition
- \_\_ HESC 2112/2111L Principles of Foods and lab
- \_\_ HESC 2203 Sports Nutrition
- \_\_ HESC 2503 Food Safety and Sanitation
- \_\_ HESC 2603 Purchasing and Cost Control
- \_\_ HESC 3203 Human Nutrition
- \_\_ HESC 3213 Communication in Nutrition and Dietetics
- \_\_ HESC 3604 Menu, Layout and Food Preparation
- \_\_ HESC 3653 Food Systems Management
- \_\_ HESC 4103 Experimental Foods
- \_\_ HESC 4213 Advanced Nutrition
- \_\_ HESC 4223 Life Cycle Nutrition
- \_\_ HESC 4243 Community Nutrition
- \_\_ HESC 425V Food and Nutrition Seminar (1 hour)
- \_\_ HESC 4263 Medical Nutrition Therapy I
- \_\_ HESC 4273 Medical Nutrition Therapy II
- \_\_ AGST 4023 Principles of Experimentation or Equivalent Elective
- General Electives (12-22 hours)
- Recommend:
- \_\_ KINS 3153 Exercise Physiology
- \_\_ PHIL 2103 Introduction to Ethics

**124 Total Hours**

**Food, Human Nutrition and Hospitality B.S.H.E.S., Dietetics Concentration  
Eight-Semester Degree Program**

Students wishing to follow the degree plan in Food, Human Nutrition and Hospitality should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 4 CHEM 1103/1101L University Chemistry I and lab
- 3 MATH 1203 College Algebra or higher level math
- 1 HESC 1501 Orientation to HESC
- 1 HESC 1201 Introduction the Dietetic Profession
- 3 HESC 1213 Fundamentals of Nutrition
- 3 ENGL 1013 Composition I unless exempt

**15 Semester hours**

**Spring Semester Year 1**

- 4 CHEM 1123/1121L University Chemistry II and lab
- 3 ENGL 1023 Composition II unless exempt
- 4 BIOL 1543/1541L Principles of Biology and lab
- 3 HESC 2203 Sports Nutrition
- 3 Fine Arts & Humanities University Core

**17 Semester hours**

**Fall Semester Year 2**

- 3 HESC 2112/2111L Principles of Foods and lab
- 2 ANSC 3032 Animal Physiology I
- 3 PSYC 2003 General Psychology
- 3 General Elective
- 3 COMM 1313 Public Speaking
- 3 FDSC 2503 Food Safety and Sanitation

**17 Semester hours**

**Spring Semester Year 2**

- 4 CHEM 2613/ 2611L Organic Physiological Chemistry and lab
- 3 HESC 2413 Family Relations
- 2 ANSC 3042 Animal Physiology II
- 3 HESC 3203 Human Nutrition

- 3 Fine Arts & Humanities University Core

**15 Semester hours**

**Fall Semester Year 3**

- 3 CHEM 3813 Introduction to Biochemistry
- 3 HESC 2603 Purchasing and Cost Control
- 3 HESC 3213 Communication in Nutrition and Dietetics
- 3 HESC 3653 Food Systems Management
- 3 General Elective

**15 Semester hours**

**Spring Semester Year 3**

- 4 BIOL 2013/2011L Microbiology and lab
- 3 Communications Intensive Elective: ENGL 3053 Technical and Report Writing, JOUR 3123 Feature Writing or AGED 3142/3141L Agri Communications and lab
- 3 AGST 4023 Principles of Experimentation or Equivalent Elective
- 3 HESC 4103 Experimental Foods with lab component
- 3 U.S. History University Core Elective

**16 Semester hours**

**Fall Semester Year 4**

- 4 HESC 3604 Menu Layout and Food Preparation with lab component
- 3 HESC 4213 Advanced Nutrition
- 3 HESC 4263 Medical Nutrition Therapy I
- 3 HESC 4223 Life Cycle Nutrition
- 3 Social Science Core Elective

**16 Semester hours**

**Spring Semester Year 4**

- 3 HESC 4273 Medical Nutrition Therapy II
- 1 HESC 425V Food and Nutrition Seminar
- 3 HESC 4243 Community Nutrition
- 6 General Elective

**13 Semester hours**

**124 Total Hours**

**General Foods and Nutrition (GFNU)**

Students taking this concentration are encouraged to select an approved minor from the Bumpers, Walton, or Fulbright colleges or plan other combinations of courses to prepare for non-traditional vocations including work in community or government sponsored programs, wellness and health maintenance centers, public relations in the food industry, TV/media outlets for food and nutrition information, and international food or nutritional programs.

**General Foods & Nutrition Concentration Requirements:**

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
  - \_\_ Choose from **English Core** courses (6 hours)
  - \_\_ ENGL 3053 Technical and Report Writing or JOUR 3123 Feature Writing or AGED 3142/3141L Agri Communications and lab
  - \_\_ COMM 1313 Public Speaking
  - U.S. History and Government (3 hours)
    - \_\_ Choose from **U.S. History and Government Core** courses
  - Mathematics (3 hours)
    - \_\_ Choose **MATH Core** course
  - Sciences (23-27 hours)
    - Select 4 or 8 hours:
      - \_\_ **CHEM 1073/1071L** Fundamentals of Chemistry and lab or
      - \_\_ **CHEM 1103/1101L** University Chemistry I and lab **and** **CHEM 1123/1121L** University Chemistry II and lab
    - Select 8 hours:
      - \_\_ **BIOL 2213/2211L** Human Physiology and lab and **BIOL 2443/2441L** Human Anatomy and lab or
      - \_\_ **BIOL 1543/1541L** Principles of Biology and lab and ANSC 3032 Animal Physiology I and ANSC 3042 Animal Physiology II

And take:

- \_\_ CHEM 2613/2611L Organic Physiological Chemistry and lab
- \_\_ CHEM 3813 Introduction to Biochemistry
- \_\_ BIOL 2013/2011L General Microbiology and lab
- Physical Education (2 hours, see course listing under PEAC or DEAC)
- Fine Arts and Humanities (6 hours)
- \_\_ Choose from **Fine Arts, Humanities Core** courses
- Social Sciences (9 hours)
- \_\_ **PSYC 2003** General Psychology
- \_\_ **HESC 2413** Family Relations
- \_\_ Choose **Social Sciences Core** courses (3 hours)
- GFNU Requirements (40-42 hours)
- \_\_ HESC 1201 Introduction to the Dietetic Profession or  
HESC 1603 Introduction to Hospitality Management
- \_\_ HESC 1213 Fundamentals of Nutrition
- \_\_ HESC 1501 Orientation to HESC
- \_\_ HESC 2112/2111L Principles of Foods and lab
- \_\_ HESC 2203 Sport Nutrition
- \_\_ HESC 2603 Purchasing and Cost Control
- \_\_ HESC 3203 Human Nutrition
- \_\_ HESC 3213 Communication in Nutrition and Dietetics
- \_\_ HESC 3604 Menu, Layout, and Food Preparation
- \_\_ HESC 3653 Food Systems Management
- \_\_ HESC 4103 Experimental Foods
- \_\_ HESC 4213 Advanced Nutrition
- \_\_ HESC 4223 Life Cycle Nutrition
- \_\_ HESC 4243 Community Nutrition
- \_\_ HESC 425V Food and Nutrition Seminar (1 hour)
- General Electives (20-32 hours)
- Recommended:
- \_\_ EXED 3023 Introduction to the Cooperative Extension Service

**124 Total Hours**

**Food, Human Nutrition and Hospitality B.S.H.E.S.,**

**General Foods and Nutrition Concentration**

**Eight-Semester Degree Program**

Students wishing to follow the degree plan in Food, Human Nutrition and Hospitality should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 4 Science Core CHEM 1103/1101L Chemistry I and lab
- 3 Math Core MATH 1203 College Algebra OR higher level math
- 1 HESC 1501 Orientation to HESC
- 3 HESC 1213 Fundamentals of Nutrition
- 3 English Core ENGL 1013 Composition I unless exempt
- 1 PEAC OR DEAC
- 15 Semester hours**

**Spring Semester Year 1**

- 4 Science Core CHEM 1123/1121L Chemistry II and lab
- 3 English Core ENGL 1023 Composition II unless exempt
- 4 Science Core BIOL 1543/1541L Principles of Biology and lab
- 3 COMM 1313 Public Speaking
- 1 PEAC OR DEAC
- 15 Semester hours**

**Fall Semester Year 2**

- 2-4 ANSC 3032 Animal Physiology I OR BIOL 2213/2211L Human Physiology and lab OR BIOL 2443/2441L Human Anatomy and lab
- 3 HESC 2112/2111L Principles of Foods and lab
- 3 Social Science Core HESC 2413 Family Relations
- 1-3 HESC 1201 Introduction to the Dietetic Profession OR HESC 1603 Introduction to Hospitality Management

- 3 Fine Arts/Humanities Core Elective
- 3 General Elective

**15-19 Semester hours**

**Spring Semester Year 2**

- 4 CHEM 2613/2611L Organic Physiological Chemistry and lab
- 2-4 ANSC 3042 Animal Physiology II OR BIOL 2213/2211L Human Physiology and lab OR BIOL 2443/2441L Human Anatomy and lab
- 3 HESC 2203 Sports Nutrition
- 3 Social Science Core PSYC 2003 General Psychology
- 3 History Core Elective
- 3 General Elective

**18-20 Semester hours**

**Fall Semester Year 3**

- 3 CHEM 3813 Introduction to Biochemistry
- 3 HESC 3213 Communication in Nutrition and Dietetics
- 3 HESC 3653 Food Systems Management
- 3 Fine Arts/Humanities Core Elective
- 3 HESC 2603 Purchasing and Cost Control

**15 Semester hours**

**Spring Semester Year 3**

- 3 HESC 3203 Human Nutrition
- 3 HESC 4103 Experimental Foods with lab component
- 3 HESC 4243 Community Nutrition
- 3 ENGL 3053 Technical and Report Writing OR JOUR 3123 Feature Writing OR AGED 3142/3141L Ag Communication and lab
- 3 Social Science Core Elective

**15 Semester hours**

**Fall Semester Year 4**

- 3 HESC 4213 Advanced Nutrition
- 3 HESC 4223 Life Cycle Nutrition
- 4 HESC 3604 Menu, Layout, and Food Preparation with lab component
- 4 BIOL 2013/2011L Microbiology and lab
- 3 General Elective
- 17 Semester hours**

**Spring Semester Year 4**

- 1 HESC 425V Food and Nutrition Seminar
- 7-13 General Electives
- 8-14 Semester hours**

**124 Total Hours**

**Hospitality and Restaurant Management (HRMN)**

Students in the hospitality and restaurant management concentration prepare themselves for managerial positions in the restaurant and hospitality industry. This dynamic curriculum provides students with skills in foods and business, as well as hospitality and restaurant management. Students have the opportunity to manage and operate a restaurant on campus. Students obtain hands-on experience by completing 500 hours of satisfactory, verifiable work experience in the hospitality and restaurant industry, usually completed during the summer and on part-time jobs during the school year. This work experience must be completed prior to graduation. A management internship, which allows students to acquire practical management experience and specialized knowledge from supervised work in a hotel, restaurant, or other hospitality-related business, is also part of this degree. Students in this program can complete a minor in business.

**Hospitality and Restaurant Management Concentration Requirements:**

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (6-12 hours)
- \_\_ Choose from **English Core** courses (6 hours)
- \_\_ AGED 3142/3141L Agri Communications and lab
- \_\_ COMM 1313 Public Speaking
- U.S. History and Government (3 hours)
- \_\_ Choose from **U.S. History and Government Core** courses
- Mathematics and Computers (3 hours)

- \_\_ Choose **MATH Core** course  
 \_\_ WCOB 1120 (Computer or Equivalent)  
 Sciences (8 hours)  
 \_\_ **CHEM 1103/1101L** University Chemistry I and lab and  
**CHEM 1123/1121L** University Chemistry II and lab or  
 \_\_ **BIOL 1543/1541L** Principles of Biology and lab and  
**CHEM 1073/1071L** Fundamentals of Chemistry and lab  
 Fine Arts and Humanities (6 hours)  
 \_\_ Choose from **Fine Arts, Humanities Core** courses  
 Social Sciences (9 hours)  
 \_\_ **ECON 2143** Basic Economics - Theory and Practice  
 \_\_ **HESC 2413** Family Relations  
 \_\_ **PSYC 2003** General Psychology or **SOCI 2013** General Sociology  
 HRMN Requirements  
 Human Environmental Sciences Core (14 hours)  
 \_\_ HESC 1501 Orientation to HESC  
 \_\_ HESC 1213 Fundamentals of Nutrition  
 \_\_ HESC 2112/2111L Principles of Foods and lab  
 \_\_ HESC 3604 Menu, Layout, and Food Preparation  
 \_\_ HESC 3653 Food Systems Management  
 Additional Requirements (38 hours):  
 \_\_ HESC 1603 Introduction to Hospitality Management  
 \_\_ HESC 2603 Purchasing and Cost Control  
 \_\_ HESC 2633 Hotel and Resort Operations Management  
 \_\_ HESC 3633 Front Office Revenue Management  
 \_\_ HESC 4633 Advanced Hospitality Operations  
 \_\_ HESC 4643 Meetings, Events and Convention Management  
 \_\_ HESC 4653 Global Travel and Tourism Management  
 \_\_ HESC 4693 Hospitality Management Internship (3-6 hours)  
 \_\_ AGEC 2142/2141L Ag Financial Records or WCOB 1023 Business  
 Foundations  
 \_\_ AGEC 3303 Food and Agricultural Marketing or MKTG 3433 Principles  
 of Marketing  
 \_\_ FDSC 2503 Food Safety and Sanitation  
 \_\_ WCOB 1012 Legal Environment  
 \_\_ AGME 2903 Ag and HES Microcomputers  
 Additional Professional coursework (3 hours)  
 RESM 3873, FINN 3623, HESC 4663, HESC 4673, HESC 4683 or  
 HESC 4693  
 Additional Business coursework (6 hours)  
 from the departmental codes ACCT, AGEC, ECON, FINN, ISYS,  
 MGMT, MKTG, TLOG or WCOB  
 General Electives (22-28 hours)

**124 Total Hours**

**Food, Human Nutrition and Hospitality B.S.H.E.S.,  
 Hospitality and Restaurant Management Concentration  
 Eight-Semester Degree Program**

Students wishing to follow the degree plan in Food, Human Nutrition and Hospitality should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 English Core ENGL 1013 Composition I unless exempt  
 3 Math Core MATH 1203 College Algebra or higher level math  
 3 HESC 1213 Fundamentals of Nutrition  
 4 Science Core \*CHEM 1073/1071L Fundamentals of Chemistry and lab  
 3 HESC 1603 Intro Hospitality Management  
 0 WCOB 1120 Computer Competency Requirement  
**16 Semester hours**

**Spring Semester Year 1**

- 3 English Core ENGL 1023 Composition II unless exempt  
 4 Science Core \*BIOL 1543/1541L Principles of Biology and lab  
 3 Fine Arts/Humanities Core Elective  
 3 COMM 1313 Public Speaking

- 1 HESC 1501 Orientation to HESC  
 3 AGME 2903 Ag and HES Microcomputer  
**17 Semester hours**

**Fall Semester Year 2**

- 3 HESC 2112/2111L Principles of Foods and lab  
 3 Social Sciences Core PSYC 2003 General Psychology or SOCI 2013 General  
 Sociology  
 3 FDSC 2503 Food Safety and Sanitation  
 3 HESC 2633 Hotel and Resort Operations Management  
 3 General and Hospitality Electives  
**15 Semester hours**

**Spring Semester Year 2**

- 3 History or Government Core Course Elective  
 6 General or Hospitality Elective  
 3 HESC 2603 Purchasing and Cost Control  
 3 ECON 2143 Basic Economics - Theory and Practice  
**15 Semester hours**

**Fall Semester Year 3**

- 3 HESC 2413 Family Relations  
 3 AGEC 2142/2141L Ag Financial Records or WCOB 1023  
 3 AGED 3142/3141L Agriculture Communications and lab  
 6 General or Hospitality Electives  
**15 Semester hours**

**Spring Semester Year 3**

- 4 HESC 3604 Menu, Layout, and Food Preparation with lab component  
 3 HESC 3633 Front Office Revenue Management  
 7 General or Hospitality Electives  
**14 Semester hours**

**Fall Semester Year 4**

- 3 HESC 4643 Meeting, Events and Convention Management  
 3 AGEC 3303 Food & Ag Marketing or MKTG 3433 Principles of Marketing  
 3 HESC 4653 Global Travel & Tourism Management  
 3 HESC 3653 Food Systems Management  
 3 General or Hospitality Electives  
**15 Semester hours**

**Spring Semester Year 4**

- 3 HESC 4633 Advanced Hospitality Operations  
 3 General or Hospitality Electives  
 2 WCOB 1012 Legal Environment  
 3 Fine Arts, Humanities Core Electives  
 3 General or Hospitality Elective  
**14 Semester hours**

**Summer Semester Year 4**

- 3 HESC 4693 Hospitality Management Internship  
**3 Semester hours**  
**124 Total Hours**

\* May take CHEM 1103/1101L AND CHEM 1123/1121L

**Minor in General Foods and Nutrition (GFNU-M)**

18 hours to include the following:

- \_\_ HESC 1213 Fundamentals of Nutrition  
 \_\_ HESC 2112/2111L Principles of Foods and lab  
 \_\_ HESC 3203 Human Nutrition  
 \_\_ HESC 4213 Advanced Nutrition  
 Choose 6 hours from:  
 \_\_ HESC 2203 Sports Nutrition  
 \_\_ HESC 4223 Life Cycle Nutrition  
 \_\_ HESC 4243 Community Nutrition  
 \_\_ HESC 425V Food and Nutrition Seminar (may be taken 1 to 2 times for a  
 total of 2 credits)

## GENERAL HUMAN ENVIRONMENTAL SCIENCES (GHES)

Mary M. Warnock  
Director  
118 Home Economics Building  
479-575-4305

The general human environmental sciences curriculum serves students seeking a background in all of the subject-matter areas of human environmental sciences. The general curriculum prepares students for careers in social services, business, and the Cooperative Extension Service. Liberal elective hours allow students to select courses and programs to meet individual needs.

Students may be certified by the Arkansas State Board of Education to teach family and consumer sciences in Arkansas public schools by combining the pre-professional education courses as electives and completing the Master of Arts in teaching (M.A.T.) degree requirements. (See M.A.T., page 237). At the beginning of the sophomore year, students should consult with their advisers to schedule the general education and pre-professional education courses.

### Requirements for a Major in General Human Environmental Sciences (HESC)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (3-9 hours)
  - Choose from **English Core** courses (6 hours)
  - COMM 1313 Public Speaking
- History and Government (3 hours)
  - Choose from **U.S. History and Government Core** courses
- Mathematics and Computers (6 hours)
  - Choose **MATH Core** course
  - CIED 1003 Introduction to Technology in Education Science (8 hours)
- **CHEM 1073/1071L** Fundamentals of Chemistry and lab or **CHEM 1103/1101L** University Chemistry I and lab
  - Choose from **Science Core** courses with lab (4 hours)
- Fine Arts and Humanities (6 hours)
  - Choose from **Fine Arts, Humanities Core** courses
- Social Sciences (9 hours)
  - **PSYC 2003** General Psychology
  - Choose **Social Sciences Core** courses (6 hours)
- Health Science (3 hours)
  - HLSC 1002 Wellness Concepts
  - PEAC 1621 Fitness Concepts
- GHES Requirements (43 hours)
  - HESC 1013 Introduction to Clothing Concepts
  - HESC 1023 Introduction to Apparel Production
  - HESC 1213 Fundamentals of Nutrition
  - HESC 1403 Life Span Development
  - HESC 1501 Orientation to HESC
  - HESC 2053 Introduction to Textile Science
  - HESC 2112/2111L Principles of Foods and lab
  - HESC 2203 Sport Nutrition
  - HESC 2413 Family Relations
  - HESC 2433 Child Development
  - HESC 3402/3401L Child Guidance and lab
  - HESC 3423 Adolescent Development
  - HESC 4453 Parenting and Family Dynamics
  - HESC 4753 Family Financial Management
  - IDES 4813 Human Factors in ID
- General Electives (37-43 hours)

**124 Total Hours**

### General Human Environmental Sciences B.S.H.E.S.

#### Eight-Semester Degree Program

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

- 3 HESC 1403 Lifespan Development
- 1 HESC 1501 Orientation to HESC
- 3 ENGL 1013 Composition I unless exempt
- 3 MATH 1203 College Algebra or higher level math
- 3 Fine Arts Core Elective (Category a of University Core)
- 3 CIED 1003 Introduction to Technology in Education

**16 Semester hours**

#### Spring Semester Year 1

- 3 HESC 1013 Introduction to Clothing Concepts
- 3 HESC 2413 Family Relations
- 3 PSYC 2003 General Psychology
- 3 ENGL 1023 Composition II unless exempt
- 3 General Elective
- 1 PEAC 1621 Fitness Concepts

**16 Semester hours**

#### Fall Semester Year 2

- 3 HESC 1023 Introduction to Apparel Production
- 3 HESC 2433 Child Development
- 3 COMM 1313 Public Speaking
- 2 CHLP 1002 Wellness Concept
- 4 CHEM 1073/1071L Fundamentals of Chemistry and lab or CHEM 1103/1101L University Chemistry I and lab

**15 Semester hours**

#### Spring Semester Year 2

- 3 HESC 3402/3401L Child Guidance and lab
- 3 HESC 2053 Introduction to Textile Science
- 3 Social Science Core Elective
- 3 Humanities Core Elective (category b – See page 41)
- 3 HESC 3423 Adolescent Development

**15 Semester hours**

#### Fall Semester Year 3

- 3 General Elective
- 3 HESC 2112/2111L Principles of Foods and lab
- 3 HESC 1213 Fundamentals of Nutrition
- 4 Science Core Elective
- 3 Social Science Core Elective (ANTH 1023 or SOCI 2013)

**16 Semester hours**

#### Spring Semester Year 3

- 3 HESC 2203 Sports Nutrition
- 6 General Elective
- 6 General Electives – upper division

**15 Semester hours**

#### Fall Semester Year 4

- 3 HESC 4453 Parenting/Family Dynamics
- 3 HESC 4753 Family Financial Management
- 3 U.S. History Core Elective
- 6 General Electives – upper division

**15 Semester hours**

#### Spring Semester Year 4

- 3 HESC 4813 Human Factors in Interior Design
- 7 General Electives
- 6 General Electives – upper division

**16 Semester hours**

**124 Total Hours**



## HUMAN DEVELOPMENT AND FAMILY SCIENCES (HDFS)

Frank L. Farmer  
Area Coordinator  
104 Home Management House  
479-575-2358

Students majoring in human development and family sciences prepare for one of the fastest growing employment opportunities in the country. The human services area includes jobs that serve people from conception through the last stages of life. Students develop skills for working with individuals and families in governmental, private, and nonprofit organizations. Three concentrations are offered:

### Child Development (CDEV)

This concentration is for students who desire in-depth knowledge of children and programs for children from birth to age 12. The focus on children covers issues from prenatal to early adolescence. Graduates may work as preschool teachers, day-care directors, specialists in the field of child life, and as child advocates.

### Birth through Kindergarten (BRKD)

The knowledge and skills developed in this program will prepare students to work with children from birth through five years of age in various settings.

### Lifespan (LSPN)

This area of study covers the care issues faced by families and individuals in contemporary society. The knowledge and skills developed in this program will prepare the student to work in areas such as aging, parent education, financial and consumer counseling, youth services, and other human service type careers.

### Requirements for a Major in Human Development and Family Sciences (HDFS)

State minimum core and discipline specific general education requirements: (Course work that meets state minimum core requirements is in **bold**.)

- Communications (3-9 hours)
  - \_\_ Choose from **English Core** courses (6 hours)
  - \_\_ COMM 1313 Public Speaking
- History and Government (3 hours)
  - \_\_ Choose from **U.S. History and Government Core** courses
- Mathematics (3 hours)
  - \_\_ Choose from **Mathematics Core** courses
- Sciences (8 hours)
  - \_\_ Choose from **Science Core** courses
- Fine Arts and Humanities (6 hours)
  - \_\_ Choose from **Fine Arts, Humanities Core** courses
- Social Sciences (9 hours)
  - \_\_ **PSYC 2003** General Psychology
  - \_\_ **RSOC 2603** Rural Sociology or **SOCI 2013** General Sociology
  - \_\_ **HESC 2413** Family Relations

Additional Course Requirements for Child Development Concentration:

- CDEV Courses (57 hours)
  - \_\_ HESC 1213 Fundamentals of Nutrition
  - \_\_ HESC 1501 Orientation to HESC
  - \_\_ HESC 2403 Infant and Toddler Development
  - \_\_ HESC 2433 Child Development
  - \_\_ HESC 2453 Analytical Approach to Research in HDFS I
  - \_\_ HESC 2463 Analytical Approach to Research in HDFS II
  - \_\_ HESC 3402/3401L Child Guidance and lab
  - \_\_ HESC 3423 Adolescent Development
  - \_\_ HESC 4332/4332L Curriculum and Assessment Birth to Three Years/Lab
  - \_\_ HESC 4342/4342L Curriculum and Assessment Three Years to Kindergarten/Lab
  - \_\_ HESC 4423 Adult Development
  - \_\_ HESC 4453 Parenting and Family Dynamics

- \_\_ HESC 4463 Administration and Leadership in the Helping Professions
- \_\_ HESC 4493 Public Policy Advocacy for Children and Families
- \_\_ HESC 4753 Family Financial Management
- \_\_ CIED 3023 Survey of Exceptionalities
- \_\_ CIED 3103 Children's Literature
- \_\_ CIED 3113 Emergent and Developmental Literacy
- \_\_ SCWK 3633 Problems of Child Welfare

Child Development Electives (Choose 6 hours)

- \_\_ HESC 1403 Lifespan Development
- \_\_ HESC 2443 The Hospitalized Child
- \_\_ HESC 3443 Families in Crisis
- \_\_ HESC 4433 Dynamic Family Interaction
- \_\_ HESC 4443 Gerontology
- \_\_ HESC 4483 Internship in HDFS
- \_\_ RSOC 2603 Rural Sociology
- \_\_ RSOC 4603 Environmental Sociology
- General Electives (20-26 hours)

**124 Total Hours**

Additional Course Requirements for Birth through Kindergarten Concentration:

- BKRD Courses (64 hours)
  - \_\_ HESC 1213 Fundamentals of Nutrition
  - \_\_ HESC 1411L Observation of Children in Early Childhood Programs
  - \_\_ HESC 1501 Orientation to HESC
  - \_\_ HESC 2403 Infant and Toddler Development
  - \_\_ HESC 2433 Child Development
  - \_\_ HESC 2453 Analytical Approach to Research in HDFS I
  - \_\_ HESC 2463 Analytical Approach to Research in HDFS II
  - \_\_ HESC 3402/3401L Child Guidance and lab
  - \_\_ HESC 3423 Adolescent Development
  - \_\_ HESC 4313 Building Family and Community Relationships
  - \_\_ HESC 4332/4332L Curriculum and Assessment Birth to Three Years and lab
  - \_\_ HESC 4342/4342L Curriculum and Assessment Three Years-Kindergarten and lab
  - \_\_ HESC 4373 Field Experience in Birth-Kindergarten Programs
  - \_\_ HESC 4423 Adult Development
  - \_\_ HESC 4453 Parenting and Family Dynamics
  - \_\_ HESC 4463 Administration and Leadership in the Helping Professions
  - \_\_ HESC 4753 Family Financial Management
  - \_\_ CIED 3023 Survey of Exceptionalities
  - \_\_ CIED 3103 Children's Literature
  - \_\_ CIED 3113 Emergent and Developmental Literacy
  - \_\_ HIST 3383 Arkansas and the Southwest
  - \_\_ SCWK 3633 Problems of Child Welfare
  - General Electives (22-28 hours)

**124 Total Hours**

Additional course requirements for Lifespan Concentration

- Lifespan Concentration Courses (49 hours)
  - \_\_ HESC 1213 Fundamentals of Nutrition
  - \_\_ HESC 1403 Lifespan Development
  - \_\_ HESC 1501 Orientation to HESC
  - \_\_ HESC 2433 Child Development
  - \_\_ HESC 2453 Analytical Approach to Research in HDFS I
  - \_\_ HESC 2463 Analytical Approach to Research in HDFS II
  - \_\_ HESC 3423 Adolescent Development
  - \_\_ HESC 3443 Families in Crisis
  - \_\_ HESC 4423 Adult Development
  - \_\_ HESC 4433 Dynamic Family Interaction

- \_\_ HESC 4443 Gerontology
  - \_\_ HESC 4453 Parenting and Family Dynamics
  - \_\_ HESC 4463 Administration and Leadership in the Helping Professions
  - \_\_ HESC 4493 Public Policy Advocacy
  - \_\_ HESC 4753 Family Financial Management
  - \_\_ CNED 3053 The Helping Relationship
  - \_\_ SCWK 3163 On Death and Dying
- Lifespan Concentration Electives (Choose 6 hours):
- \_\_ HESC 2403 Infant and Toddler Development
  - \_\_ HESC 2443 The Hospitalized Child
  - \_\_ HESC 3402/3401L Child Guidance and lab
  - \_\_ HESC 4483 Internship in Human Development and Family Studies
  - \_\_ RSOC 2603 Rural Sociology
  - \_\_ RSOC 4603 Environmental Sociology
- General Electives (31-37 hours)

**124 Total Hours**

**Human Development and Family Sciences B.S.H.E.S.  
with Child Development Concentration  
Eight-Semester Degree Program**

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I unless exempt
- 1 HESC 1501 Orientation to HESC
- 3 COMM 1313 Public Speaking
- 3 MATH Core elective
- 3 History Core Elective
- 3 Fine Arts Core Elective

**16 Semester hours**

**Spring Semester Year 1**

- 3 PSYC 2003 General Psychology
- 4 Science Core Elective
- 3 HESC 2413 Family Relations
- 3 ENGL 1023 Composition II unless exempt
- 3 General Elective

**16 Semester hours**

**Fall Semester Year 2**

- 3 HESC 1213 Fundamentals of Nutrition
- 3 HESC 2403 Infant & Toddler Development
- 3 Humanities Core Elective
- 3 HESC 2453 Analytical Approach to Research in HDFS I
- 4 Science University Core Elective

**16 Semester hours**

**Spring Semester Year 2**

- 3 HESC 2433 Child Development
- 3 SOCI 2013 General Sociology or RSOC 2603 Rural Sociology
- 6 General Electives
- 3 HESC 2463 Analytical Approach to Research in HDFS II

**15 Semester hours**

**Fall Semester Year 3**

- 3 CIED 3103 Children's Literature
- 3 CIED 3113 Emergent & Developmental Literacy
- 3 SCWK 3633 Problems of Child Welfare
- 3 HESC 3402/3401L Child Guidance and lab
- 3 CDEV Elective

**15 Semester hours**

**Spring Semester Year 3**

- 3 HESC 3423 Adolescent Development
- 3 CIED 3023 Survey of Exceptionalities
- 3 CDEV Elective
- 7 General Electives

**16 Semester hours**

**Fall Semester Year 4**

- 3 HESC 4753 Family Financial Management
- 3 HESC 4423 Adult Development

- 3 HESC 4463 Administration and Leadership in the Helping Professions
- 3 HESC 4493 Public Policy Advocacy
- 3 General Electives

**15 Semester hours**

**Spring Semester Year 4**

- 3 HESC 4453 Parenting and Family Dynamics
- 11 General Electives

**14 Semester hours**

**124 Total Hours**

**Human Development and Family Sciences B.S.H.E.S.  
with Birth through Kindergarten Concentration**

**Eight-Semester Degree Program**

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I unless exempt
- 1 HESC 1501 Orientation to HESC
- 3 COMM 1313 Public Speaking
- 3 MATH Core Elective
- 3 Fine Arts Core Elective
- 3 General Elective

**16 Semester hours**

**Spring Semester Year 1**

- 3 HESC 2413 Family Relations
- 3 PSYC 2003 General Psychology
- 3 ENGL 1023 Composition II unless exempt
- 4 Science Core Elective
- 3 General Elective

**16 Semester hours**

**Fall Semester Year 2**

- 3 HESC 1213 Fundamentals of Nutrition
- 3 HESC 2403 Infant & Toddler Development
- 4 Science Core Elective
- 3 SOCI 2013 General Sociology or RSOC 2603 Rural Sociology
- 3 HESC 2453 Analytical Approach to Research in HDFS I

**16 Semester hours**

**Spring Semester Year 2**

- 3 HESC 2433 Child Development
- 1 HESC 1411L Observation of Children
- 3 COMM, ENGL, JOUR or Foreign Language
- 3 History Core Elective
- 6 General Electives

**16 Semester hours**

**Fall Semester Year 3**

- 3 HESC 3402/3401L Child Guidance and lab
- 3 CIED 3103 Children's Literature
- 3 CIED 3113 Emergent & Developmental Literacy
- 3 SCWK 3633 Problems of Child Welfare
- 3 General Elective

**15 Semester hours**

**Spring Semester Year 3**

- 3 HESC 3423 Adolescent Development
- 4 HESC 4332/4332L Curriculum & Assessment Birth to Three Year and lab
- 3 HESC 4453 Parenting and Family Dynamics
- 3 CIED 3023 Survey of Exceptionalities
- 3 General Elective

**16 Semester hours**

**Fall Semester Year 4**

- 3 HESC 4753 Family Financial Management
- 3 HESC 4423 Adult Development
- 3 HESC 4463 Administration and Leadership in the Helping Professions
- 4 HESC 4342/4342L Curriculum and Assessment Three to Kindergarten and Lab
- 1 General Elective

**14 Semester hours**

**Spring Semester Year 4**

- 3 HESC 4313 Building Family & Community Relationships
- 3 HESC 4373 Field Experience in Birth to Kindergarten Programs

3	HIST 3383 Arkansas and the Southwest
3	Humanities Core Elective
3	General Electives
<b>15</b>	<b>Semester hours</b>
<b>124</b>	<b>Total Hours</b>

### Human Development and Family Sciences B.S.H.E.S. with Life Span Concentration

#### Eight-Semester Degree Program

Students wishing to follow the degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program

#### Fall Semester Year 1

3	ENGL 1013 Composition I unless exempt
1	HESC 1501 Orientation to HESC
3	MATH Core Elective
3	HESC 1403 Lifespan Development
3	Fine Arts Core Elective
3	General Elective
<b>16</b>	<b>Semester hours</b>

#### Spring Semester Year 1

3	PSYC 2003 General Psychology
4	Science Core Elective
3	HESC 2413 Family Relations
3	ENGL 1023 Composition II unless exempt
3	General Elective
<b>16</b>	<b>Semester hours</b>

#### Fall Semester Year 2

3	HESC 1213 Fundamentals of Nutrition
3	History Core Elective
4	Science Core Elective
3	COMM 1313 Public Speaking
3	HESC 2453 Analytical Approach to Research in HDFS I
<b>16</b>	<b>Semester hours</b>

#### Spring Semester Year 2

3	HESC 2433 Child Development
3	HESC 3423 Adolescent Development
3	SOCI 2013 General Sociology or RSOC 2603 Rural Sociology
3	Humanities Core Elective
3	HESC 2463 Analytical Approach to Research in HDFS II
<b>15</b>	<b>Semester hours</b>

#### Fall Semester Year 3

3	HESC 3443 Families in Crisis
3-4	General Elective
3	LSPN Elective
6-7	General Elective
<b>15-16</b>	<b>Semester hours</b>

#### Spring Semester Year 3

3	SCWK 3163 On Death and Dying
3	General Elective
3	LSPN Elective
6	General Electives
<b>15</b>	<b>Semester hours</b>

#### Fall Semester Year 4

3	HESC 4493 Public Policy Advocacy
3	HESC 4753 Family Financial Management
3	HESC 4453 Parenting and Family Dynamics
3	HESC 4423 Adult Development
3	HESC 4463 Administration and Leadership in the Helping Professions
<b>15</b>	<b>Semester hours</b>

#### Spring Semester Year 4

3	HESC 4433 Dynamic Family Interaction
3	HESC 4443 Gerontology
3	CNED 3053 The Helping Relationship
6-7	General Electives
<b>15-16</b>	<b>Semester hours</b>
<b>124</b>	<b>Total Hours</b>

### Minor in Human Development and Family Sciences (HDFS-M)

18 hours to include the following:

- \_\_\_ HESC 1403 Life Span Development
- \_\_\_ HESC 2413 Family Relations

Choose 12 hours from:

- \_\_\_ HESC 2403 Infant and Toddler Development
- \_\_\_ HESC 2433 Child Development
- \_\_\_ HESC 2443 The Hospitalized Child
- \_\_\_ HESC 3402/3401L Child Guidance and lab
- \_\_\_ HESC 3423 Adolescent Development
- \_\_\_ HESC 3443 Family in Crisis
- \_\_\_ HESC 4423 Adult Development
- \_\_\_ HESC 4443 Gerontology
- \_\_\_ HESC 4453 Parent/Family Dynamics
- \_\_\_ HESC 4463 Administration and Leadership in the Helping Professions
- \_\_\_ HESC 4493 Public Policy Advocacy for Children and Families
- \_\_\_ HESC 4753 Family Financial Management
- \_\_\_ RSOC 2603 Rural Sociology
- \_\_\_ RSOC 4603 Environmental Sociology

# Fay Jones School of Architecture

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## Office of the Dean of the School

112 W. Center Street, Suite 700, 479-575-4945

### Dean

Jeff Shannon

### Associate Dean

Ethel Goodstein-Murphree

### Advising Center

479-575-2399

### World Wide Web

<http://architecture.uark.edu>

### E-mail

[fjsoa@uark.edu](mailto:fjsoa@uark.edu)

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## MISSION AND OBJECTIVES

The Fay Jones School of Architecture at the University of Arkansas houses professional design programs of architecture, landscape architecture and interior design together with liberal studies programs. The school's programs in architecture and landscape architecture include traditional five-year professional degree programs and four-year pre-professional degrees, combining studio design education with innovative teaching in history, theory, technology and urban design. The four-year interior design program combines a foundation of professional courses with studies in art, architecture and business. A broad range of course offerings equips graduates with the knowledge required for the challenges of a changing world. Design instruction occurs in a carefully planned studio sequence, providing educational experiences appropriate for students who wish to pursue both traditional and non-traditional forms of professional practice. Fundamental principles and techniques of critical analysis are stressed, and the curricula strives to empower students by developing skill, knowledge, and a deep sense of responsibility to the environment and to the cultures they will serve. Design studio projects survey issues and opportunities in built and natural settings, as well as addressing complex social, physical, and cultural relations that constitute the human-made environment. In summary, the school prepares its students with critical frameworks for design thinking that equip them to assume leadership roles in the profession and in their communities.

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## FACILITIES AND RESOURCES

The Fay Jones School of Architecture administrative offices and the department of architecture are located on the seventh floor of the E.J. Ball Building on 112 W. Center Street near the Fayetteville square while Vol Walker Hall undergoes an extensive remodel and state-of-the-art addition. The architecture design studios are located temporarily in the former museum space. The landscape architecture department remains in Memorial Hall, and the interior design program remains in the Agricultural

Annex until all three disciplines join together in the newly remodeled Vol Walker Hall. The university's location in Northwest Arkansas, an area experiencing rapid growth and change, affords unusual opportunity to study the impact of urbanization in a traditionally agricultural setting. The school includes as part of its programs field trips, guest lectures, research assignments, and other learning opportunities oriented toward broadening the educational perspective of its students. Classes also are offered in a variety of settings away from the campus. Options include a semester in the Rome Study Center for Architecture and the Humanities near the Piazza Navona in Rome, Italy; the Summer Study Abroad Program Studio in a designated Latin or Central American country; and European Field Studies in Italy, France, England and Scotland.

### Design Studio

The design studio sequence is the core of each discipline within the school. Studio projects are complemented by topical lectures that inform the design process. Knowledge from those lectures is expected to inform work produced in design studios. This method is intended to develop and nurture the intellectual and creative skills of students and to allow them to approach problem solving in a disciplined, logical, and analytical manner. Design professionals must be able to conceptualize responses to project programs, to communicate with clients, to present ideas verbally, and to demonstrate ideas graphically. They also need to maintain technical knowledge of building or ecology and construction technology, must be able to negotiate with contractors and owners to administrate construction, and should be prepared to market their services. In other words, each designer fulfills a multitude of roles, whether practicing alone or as a team member in a large multidisciplinary organization. The design studio consists of a series of projects of increasing complexity, all requiring three-dimensional problem solving, conceptualization, and final presentation to the studio critic, other faculty members, and fellow students. The amount of material to be covered, the fast pace of assignments, and the presentation of work for faculty and other students combine to produce a highly charged studio atmosphere.

### Library Resources

The C. Murray Smart Multimedia Center, temporarily located in the E.J. Ball building and the Fieldhouse, is staffed by two full-time employees: a computer support specialist and a visual resources curator. It contains an online, fully searchable digital image database with more than 50,000 images relating to architecture, architectural history, interior design, landscape and urban design. This resource, along with a collection of approximately 700 video programs, is available to faculty and students of the school. Special events and visiting lectures are routinely video recorded and made available online to the campus community. The center provides personal media training for faculty using Blackboard, other online teaching aids and distance learning; assistance is also available for students using digital imaging technology, the use of scanners, digital cameras and other digital media.

### Digital Drawing and Fabrication Resources

The school maintains two fabrication labs, the DesignSHOP for use by all students and the DFAB Lab, a research facility located off campus. The DesignSHOP houses traditional and digital fabrication equipment including a three-axis computer

numerically controlled (CNC) router, three laser cutters, vacuum-form, and a three-dimensional printer that allow students and faculty to transform digital models into physical 3D components and models. Students work with wood, fiber board, metals, plastics, cardboard and paper products. They are encouraged to work with both conventional and CNC machines to develop prototypes, casting molds, furniture, models, and other products. The DFAB Lab houses a 5-axis CNC router and plasma cutter, a three-dimensional printer, digital paper cutter, metal press, and vacuum-form table. The labs are staffed during the day and evening hours by students and faculty assistants; hours vary by semester. The school also supports three computer labs for 2D digital scanning and printing. The labs house flatbed and roll scanners, large-format plotters, color and B&W laser printers. There is a computer technology specialist and a part-time assistant who run and maintain these 24-7 labs open to all students in the school. Students are charged a minimal fee for printing. All ink, toner and several types of paper are provided to give students opportunity to craft hybrid representations by merging hand and digital drawing techniques. Finally, the school offers lectures, workshops and access to design software (most free of charge) that supports individual work as well as collaborative projects between architects, landscape architects, interior designers, artists, engineers, mathematicians and fabricators.

### The Materials Shop

The Materials Shop supports construction projects ranging from light fixtures and furniture to three-dimensional models. The facility is staffed by one full-time technician and is available to students and faculty for design, coursework, and research projects. The workshop houses multiple table saws, band-saws, chop saw, scroll saw, drill presses, jointer, planer, lathe, belt sanders, metal break and many hand tools.

### Garvan Woodland Gardens

Located on Lake Hamilton in Hot Springs, Arkansas, Garvan Woodland Gardens is an integral unit of the school. The land and endowment were the result of a bequest to the department of landscape architecture in 1985. This 210-acre woodland habitat features a variety of garden settings and unique architectural structures designed and developed by world-renowned specialists in botanical gardens, landscape architecture and architecture. An internship program offers opportunities for summer study and employment.

### University of Arkansas Community Design Center

Since 1995 the University of Arkansas Community Design Center (UACDC) has provided award-winning, innovative planning to communities and organizations throughout Arkansas. A nationally recognized leader in urban design, sustainable development, and education UACDC design solutions advance triple-bottom line thinking: simultaneously solving for economic, ecological, and social criteria. The center's work is multi-disciplinary as it addresses new challenges in affordable housing, context sensitive highway design, low impact development, transit-oriented development, big box urbanism, watershed urbanism, and agricultural urbanism. In the tradition of a teaching office, students collaborate with the center's professional design staff and allied consultants while authoring their own proposals. The goal is to prepare designers for leadership in "wicked problem solving" that leads to intelligent development of the built environment.

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## DEGREES OFFERED

The Fay Jones School of Architecture offers five-year professional programs in architecture and landscape architecture and a four-year professional program in interior design. Each program culminates in a professional degree, the Bachelor of Architecture (B.Arch.), Bachelor of Landscape Architecture (B.L.A.) or Bachelor of Interior Design (B.I.D.).

The Bachelor of Architecture prepares students who aspire to registration and licensure to practice architecture. Architects do more than design and plan buildings. The architect's unique talents create environments that serve the psychological, economic, and spiritual needs of their clients and communities. Architects help cities and small communities to become safe, healthy, and wholesome places to live. Perhaps most important, architects create, preserve, and inspire beauty in the built environment.

The Bachelor of Landscape Architecture is an accredited five-year first professional degree that prepares students to practice landscape architecture as a licensed professional. The discipline of landscape architecture balances human requirements with landscape concerns. Landscape architects design, plan, and manage the land through understanding the interrelationships among the spirit of place, local ecology, individuals, and communities. They create outdoor spaces and rebuild ecological systems that meet societal needs, protect or enhance the natural environment, and respond to cultural conditions. Design and planning projects span the breadth of the profession to include urban design and town planning, public parks, land conservation, stormwater management systems, ecological rehabilitation, historic landscape preservation, private gardens, housing developments, institutional and business campuses, and golf courses.

The Bachelor of Interior Design curriculum combines a foundation of professional courses enhanced by classes in business, art, and architecture. The mission of the Interior Design program is to offer a strong professional design education grounded in critical thinking, multi-disciplinary collaborations and civic engagement. The program strives to provide graduates with the professional tools, hands-on training, service opportunities, and practical experience leading to academic, personal, and professional success. Graduates may focus on contract, residential, and institutional interior design and a variety specializations such as historic preservation, lighting design, exhibition design, and contract and residential sales.

The School also offers two four-year programs, culminating in non-accredited degrees: the Bachelor of Science in Architectural Studies and the Bachelor of Science in Landscape Architectural Studies. These degrees serve students who, although interested in the design disciplines, do not aspire to professional practice. The four-year programs are particularly well suited for students who seek careers in allied disciplines, including historic preservation, environmental law, and history of architecture, as well as for students looking forward to graduate education in architecture, landscape architecture and the allied disciplines.

### Minors

Students in architecture, landscape architecture and interior design may pursue an academic minor in approved degree programs of other colleges on campus, providing they meet the specific requirements for that minor. The School also offers a minor in Interior Design appropriate for other majors in the Fay Jones School of Architecture and a minor in Planting Design appropriate for other majors within the school and outside of the Fay Jones School of Architecture.

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## SCHOOL ADMISSION REQUIREMENTS

### Department of Architecture Admissions

The department of architecture maintains three distinct tracks of study for entering freshmen to accommodate all students interested in pursuing a degree in architecture. The three tracks of study are designed to foster learning and to build strong foundations for students entering the program with different skill levels and high school backgrounds. Students accepted to the University of Arkansas with the intention to participate in the B.Arch. or B.S. programs in the department of architecture will be classified as "Regular Admissions" (fall/spring studio students or spring/summer studio students) or "Pre-Architecture Admissions." Please contact the school's advising center for a complete description of admission requirements.

### Fall/Spring Studio

Students must meet all of the following requirements:

- 25 ACT or better
- 3.5 GPA in high school
- College preparatory curriculum to include physics and an upper level math (Pre-Calculus or higher)

Space in the studio is limited to 50 students with priority given to first year students who are admitted to the University of Arkansas and indicate architecture or architectural studies as their intended degree program by November 15.

Students are reviewed at the end of the fall semester and may continue the program if they meet the following criteria:

- "C" or better in ARCH 1015, Architectural Design I

- “C” or better in PHYS 1044 Physics for Architects I or an approved equivalent
- “C” or better in ARCH 1212, Design Thinking I: Foundations in Technology
- Maintain a 2.0 GPA

Students who do not meet those criteria will receive a letter and be advised accordingly.

### Spring/Summer Studio

These students meet the University of Arkansas minimum requirements for admission but do not meet the above criteria for fall/spring studio. These students may continue into ARCH 1015, Architectural Design I in the spring if they meet the following criteria:

- “C” or better in PHYS 1044 Physics for Architects I or an approved equivalent
- Maintain a 2.0 GPA

Students who do not meet these criteria will be delayed until they satisfy the admissions criteria for the Department of Architecture. Students will be reviewed at the end of the spring semester and will not be allowed to continue in the program if they do not meet the following criteria:

- “C” or better in ARCH 1015, Architectural Design I
- “C” or better in ARCH 1222, DesignThinking II: Foundations in History
- Maintain a 2.0 GPA

**Pre-Architecture Admissions:** Students who are accepted to the University of Arkansas on a provisional basis cannot begin the fall/spring or spring/summer sequence until the provisions of their admission are met. These are students who have GPAs or ACT scores below the University of Arkansas minimum or have deficiencies in one or more areas (typically math or English). The Pre-Architecture track of study will, in most cases, add one year to their education. Students follow a specified curriculum based on individual needs and are allowed to enter the design sequence only when their provisions are met and a cumulative GPA of 2.00 is achieved. Please see the school’s advising center for additional information regarding the review process, grade criteria, and continuance in the program.

### Architecture Department Transfer Students

Students who wish to be admitted to the Fay Jones School of Architecture must meet the following requirements:

- Completion of first semester university core courses to include an approved general physics course, an approved mathematics course and general education core requirements with a minimum of 12 hours credit and a GPA of 2.00. For information about the state minimum core, see University Core Requirements on page 41.
- To enter Design I in the fall, transfer students and international students must meet all freshmen admission requirements.
- To enter Design I in the spring, students must successfully pass Physics for Architects I (or another approved upper level physics course) with a minimum of C or better, complete an approved math course and maintain a 2.00 GPA overall.
- Students admitted to the university with a completed two-year associate of arts or associate of science degree from an Arkansas state-supported two-year or four-year college or university, as stated in ACT 182, will have general education (core) requirements waived. All students must complete any lower division discipline specific courses required for the major, as well as all courses required to comply with the conditions of accreditation.

In addition, international transfer students must present a TOEFL minimum score of 550 to become eligible for acceptance into the department of architecture.

Lack of knowledge or misinterpretation of policies and/or regulations on the part of individual students will not be considered a valid reason for failure to fulfill requirements.

**Transferring from Accredited Schools of Architecture:** Students transferring from an accredited professional program in architecture must have their architecture courses reviewed for acceptance and for determination of studio year placement by submitting materials for review. Please contact the school’s advising center for a specific list of required materials.

NOTE: All students must complete or receive transfer credit for either PHYS 1044 Physics for Architects I or PHYS 2013/2011L College Physics I, MATH 1213 Plane Trigonometry, MATH 2033 Mathematical Thought, MATH 2043 Survey of Calculus or MATH 2053 Finite Mathematics and all other first year university core curriculum courses prior to entry into ARCH 2016 Architectural Design III and ARCH 2113 Architectural Structures I.

Ultimate responsibility for completion of entrance requirements rests with each student.

### Admission to the Professional Program in the Department of Architecture

The department of architecture offers prospective students the opportunity to prepare for architectural practice or related endeavors. With this opportunity comes a responsibility for demonstrating a commitment to personal growth and success in the professional program.

Students are admitted to the first year of the architectural curriculum based on criteria established by the university and by the school. They are evaluated by grades in course work and by grades each semester for performance and progress in the design studio sequence.

At the completion of the third year of the department of architecture curriculum, including completion of the 35 semester-credit hours of the university’s general education core requirement, students will be evaluated for admission to the professional program on the basis of academic performance in the university core and the architecture curriculum comprising the sub-disciplines of History/Theory, Technology, and Design. Admission requires a majority vote of a departmental admissions committee. Students are encouraged to take maximum advantage of the opportunities that professional and free electives provide for pre-professional development, cultivation of specialization in and related to the profession, and/or preparation for graduate education. Students admitted to the professional program will continue in the established studio curriculum sequence and are to complete the final two years of design studio at the school. At the time of admission, however, the faculty may recommend or approve an alternative course of study that will allow students to pursue an area of concentration other than design in accordance with the letter and spirit of the curricula. Multidisciplinary alternatives may be developed using electives and coursework from business, engineering and other areas applicable to the practice of architecture.

### Interior Design Program Admissions

All students (including freshmen, international, and transfer students) admitted to the University of Arkansas are eligible for participation in the interior design program. Space in the studio is limited to 50 students, with priority given to first year students who are admitted and indicate interior design on their admissions application by February 15th. All candidates for the program will be reviewed at that time, with priority given to those with the highest grade-point averages and/or ACT/SAT combination. Students who require developmental work because of low ACT or SAT scores or University-administered math placement examinations or who require courses to remove deficiencies may not register for more than 12 credit hours. Upon completion of required developmental work, students may enroll in additional credit hours. Contact the school’s advising center for more information.

Students who wish to transfer from another CIDA accredited Interior Design program must submit a creative portfolio and other supporting documents for faculty review prior to admission to the program. Review of the portfolio will determine admission to the program and appropriate placement based on demonstrated skills and earned college credit. Students may be required to wait for the appropriate studio sequence. Students admitted to the university with a completed two-year associate of arts or associate of science degree from an Arkansas state-supported two-year or four-year college or university will receive credit for general education (core) requirements in accordance with Legislative ACT 182. All students also must complete any lower division discipline specific courses required for the major as well as all courses required to comply with the conditions of accreditation.

## Admission to the Professional Program for Interior Design

The interior design program offers prospective students the opportunity to prepare for professional practice or related endeavors. With this opportunity comes a responsibility for demonstrating a commitment to personal growth and success in the professional program.

Students are admitted to the first year of the interior design curriculum based on criteria established by the university and by the program. They are evaluated each semester by grades in lecture courses and by grades for performance and progress in the design studio sequence.

At the completion of the first year of the interior design curriculum, students will be evaluated for admission into the professional program on the basis of academic performance in the university core and the interior design curriculum. The review process will include evaluation of performance in Textiles, Studio 1, and Studio 2. Admission is based on available desks and requires a majority vote of a departmental admissions committee. Students admitted to the professional program will continue in the established studio curriculum sequence and are to complete the final three years of design studio at the school. Students with less than a 2.5 GPA in IDES courses will not be admitted to the professional program. Students who are not admitted are encouraged to consider alternative programs in the school and the university.

Students are encouraged to maximize opportunities that professional and free electives provide for pre-professional development, specialization in areas related to the profession, and/or preparation for graduate education.

## Department of Landscape Architecture Admissions

All students (including freshmen, international, and transfer students) admitted to the University of Arkansas are eligible for participation in the landscape architecture program in the school. Space in the studio is limited with priority given to first year students who are admitted and indicate landscape architecture or landscape architectural studies on their admissions application by November 15th. Students who require developmental work because of low ACT or SAT scores or university-administered math placement examinations or who require courses to remove deficiencies may not register for courses carrying LARC departmental designations. Upon completion of required developmental work and maintaining a grade-point average of 2.00 or more on at least 12 credit hours, students may enroll in landscape architecture (LARC) courses. Please refer to "Admission to the Professional Program in Landscape Architecture" for required academic levels for entering the program.

## Admission to the Professional Program in Landscape Architecture

The department of landscape architecture offers a professional education grounded in liberal arts studies, which prepares students for landscape architecture practice in the private, public, and not-for-profit sectors. Successful completion of the program requires commitment to personal growth and excellence. Students are admitted to the first year of the landscape architecture program based upon the established criteria by the University of Arkansas. Academic and professional performance is evaluated by grades in the course work, design studios, and construction labs. After completing all program requirements in the first two years in the program, students submit a portfolio of work at the end of the spring semester for application to continue in the professional program. Applicants who have a grade-point average below a 2.5 will not be allowed to continue in the program. Contact the department head for specific portfolio submission requirements and schedule of deadlines. All candidates will be notified of their acceptance or rejection in writing, normally by the first of August.

Students will be evaluated on general academic performance and in the landscape architecture curriculum as well as professional conduct. All department faculty serve on the admissions committee. Any appeal to the committee's decision may be made by submitting a letter to the department head one week before the first week

of the subsequent fall semester. The appeal will be presented to the entire faculty for consideration and will require the candidate to present their case in person.

Students who fail to gain admission to the Bachelor of Landscape Architecture degree program will be referred to the department head and the school's academic adviser for appeal procedures and alternative degree programs in the school and the university.

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## SCHOOL SCHOLARSHIPS

More than 70 awards and scholarships, including both merit and need-based scholarships, are available to students in the Fay Jones School of Architecture. Most are awarded annually on the basis of recommendations made by the scholarship committee of the school. Only work accomplished since entering the school will be considered in determining merit awards based on grade-point averages.

Applications for scholarships are available for prospective and currently enrolled students at <http://architecture.uark.edu/126.php>

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## STUDENT ORGANIZATIONS

### American Institute of Architecture Students

The American Institute of Architecture Students (AIAS) is a national organization whose purpose is "to organize architecture students and combine their efforts to advance the science and art of architecture, to promote excellence in architectural education, training and practice, and to foster an appreciation of architecture and related disciplines among all persons." All students in the school's architecture program are eligible for membership.

### American Society of Landscape Architects, Student Chapter

The purpose of the student chapter of the American Society of Landscape Architects is to bring together the landscape architecture students to combine their interests and efforts, to extend their knowledge of the profession of landscape architecture, and to help advance the profession while preparing for a professional career. All students in the school's landscape architecture program are eligible for membership.

### Interior Design Organization

The Interior Design Organization (IDO) is dedicated to representing the entire profession and encouraging the highest possible standards for the practice of interior design. Its purpose is to encourage interaction with professionals in interior design and allied professions and to develop leadership qualities.

### Tau Sigma Delta Honor Society

The Alpha Eta Chapter of Tau Sigma Delta is the only national collegiate honor society recognized in the fields of architecture, landscape architecture, interior design and allied arts. All students in the school are eligible for membership.

Elections to membership are made by the existing membership, subject to approval by the faculty, from the top 20 percent of each class of fourth-year and fifth-year students maintaining a minimum 3.00 cumulative grade-point average. In addition, leadership, character, and promise of professional merit are considered in making selections.

### Sigma Lambda Alpha

Sigma Lambda Alpha, founded and chartered by the Council of Educators in Landscape Architecture (CELA), is an international honor society that encourages, recognizes and rewards academic excellence in preparation for the profession of landscape architecture. Any landscape architecture junior or senior with an average of 3.2 or higher is eligible for membership.

## SCHOOL ACADEMIC REGULATIONS

### Plus/Minus Grading System

The Fay Jones School of Architecture utilizes a plus/minus grading system that assigns numerical values to 12 different grades. These values are used for architecture or landscape architecture courses when grade-point averages are calculated. The 12-step grading system with assigned values is as follows:

A	4.00	B	3.00	C	2.00	D	1.00
A-	3.67	B-	2.67	C-	1.67	D-	0.67
B+	3.33	C+	2.33	D+	1.33	F	0.00

### Academic Policies – Department of Architecture

The following academic policies, beyond the requirements of the university, are applicable to all students in the Department of Architecture.

1. Any student receiving a grade of “D (+/-)” in a pre-professional program studio course is subject to a comprehensive review of their semester’s work by the Design Review Committee. The committee may require that the student retake the studio, prior to advancing to the next studio in sequence, in order to demonstrate competence for the required materials as evidenced by achieving a grade of “C” (2.00) or better. A student receiving an “F” in design studio must repeat that studio before progressing.
2. Each student’s progress through the Design Studio sequence is monitored and governed by the faculty and subject to a design review process.
3. Admission to the Professional Degree Program in the Department of Architecture requires a minimum 2.00 grade-point average in the University Core and each of the sub-disciplines of Architecture: History/Theory, Technology and Design.
4. Enrollment in Architectural Design VII (ARCH 4016) is contingent upon admission to the professional program in architecture as described above.
5. Successful completion of the upper level studios of the professional degree program (ARCH 4016, ARCH 4026, ARCH 5016, ARCH 5026) requires demonstration of competence as evidenced by achieving a grade of “C” (2.00) or better in those courses. Failure to achieve this minimum standard will require retaking the studio.
6. Any student receiving an “I” in a design studio must complete all work necessary to receive a grade prior to the first day of the next studio in the student’s prescribed sequence to be eligible to enroll in that studio.
7. Prior to graduation, a student must present a 2.00 cumulative grade-point average at this institution in all work attempted including the University Core, electives, and in each of the sub-disciplines of Architecture: History/Theory, Technology and Design.

### Design Review (Grade Appeal) Procedure – Department of Architecture

#### The Design Review Process

Design Review is a process initiated by a faculty member, the Department Head, or a student in order that (1) a faculty member may review a student’s design work within a studio course, or (2) a student may appeal grades and/or seek resolution of conflicts with studio faculty in which it is believed that questions of fairness and equity have been raised by the application of the published grading policy of the faculty member. Faculty reviews are predicated upon, but are not limited to, the review of student work that has received a “D” grade or lower.

The Department Head will appoint a Design Review (Appeals) Committee at the beginning of each academic year. The Committee shall be composed of three (3) members of the permanent faculty. Additional or alternate members of the Committee may be appointed at the discretion of the Department Head or the Associate Dean.

Grade appeals initiated by students will occur during the week prior to the start of classes in the subsequent semester. Grade appeals may be filed, through petition to the Office of the Associate Dean, as soon as the student receives his or her final grade, but no later than the first day of the subsequent semester, (Monday of the week prior to the start of classes). In instances when the appeal concerns a change of an incomplete

grade, petition for review should be made as soon as possible after the award of the final grade, and the review will be scheduled at the discretion of the Associate Dean.

#### Protocol for the Design Review (Appeal) Process

1. Students are encouraged to meet with the faculty member(s) who has awarded the contested grade prior to filing a grade appeal. The student may request that his/her faculty advisor, a member of the professional advising staff, or the Associate Dean facilitate this meeting.
2. When a Design Review (Appeal) has been scheduled, the student shall exhibit, at the place and time specified by the Associate Dean’s office, ALL work assigned and attempted for the studio in the semester under review. Faculty are required to provide the Design Committee with the course syllabus, grading policy, semester assignments, mid-term course assessment, and a written evaluation (a one-page rationale) of the full semester’s work at least 48-hours in advance of the Design Review.
3. The Design Review (Appeal) will consist of separate and independent meetings of the Design Review (Appeal) Committee with the student and the faculty member(s). Following these meetings, the Committee will convene to evaluate the merits of the review (appeal). The Committee is expected to serve as both objective reviewers of the work and as advisers to the student.
4. The Design Review (Appeal) committee will keep minutes of its deliberations. All recommendations from the Committee shall have written explanations and/or justifications, which will be provided to the student, the faculty member, and the Associate Dean, and made part of the student’s academic file. The Associate Dean will be responsible for communicating the results of a Review (Appeal) to the student.

#### The outcome of the Design Review

1. A recommendation to the faculty member regarding the grade appeal of the student. Action upon that recommendation is undertaken solely at the discretion of the faculty member. No faculty member is compelled to change a grade in response to the recommendation of the Design Review Committee.
  2. A requirement for the student to repeat the design studio course and any co-requisite.
  3. A recommendation for enrollment in the subsequent studio course, while advising the student of the need to achieve and maintain a cumulative 2.00 (in the studio sequence) for admission to the professional program.
  4. An academic advising plan to guide the student toward successful completion of his/her degree requirements or the pursuit of an alternate career path.
- All efforts shall be made to achieve clarity and reconciliation, so that the student is able to move forward positively in his/her academic career.

### Grade Appeals – Department of Landscape Architecture

Students in the Department of Landscape Architecture may appeal grades in the design studios as well as other professional courses in which it is believed that there are questions of fairness or equity in the application of the published grading policy of the faculty member. Appeals must be made in writing to the department head one week before the first week of the subsequent semester. The appeal will be presented to the entire landscape architecture faculty for consideration and may require the students to present their case in person. Students are encouraged to meet with the faculty member who has awarded the contested grade prior to filing a grade appeal. The student may request that a member of the professional advising staff, department head or associate dean facilitate this motion.

1. A recommendation to the faculty member regarding the grade appeal of the student.
2. A requirement for the student to repeat the design studio course and any co-requisite.
3. A recommendation for enrollment in the subsequent studio course, while advising the student of the need to achieve and maintain a cumulative 2.5 grade-point average for admission to the professional program.

### Academic Policies – Interior Design Program

The following academic policies, beyond the requirements of the university, are



applicable to all students in the Interior Design Program.

1. Successful completion of all IDES coursework requires demonstration of competence as evidenced by achieving a grade of "C" (+/-) or better in those courses. Failure to achieve this minimum standard will require retaking the studio or lecture course.
2. Each student's progress through the design studio sequence is monitored and governed by the faculty and subject to a Design Review process.
3. Any student receiving an "F" in a design studio must complete all work necessary to receive a grade prior to the first day of the next studio in the student's prescribed sequence to be eligible to enroll in that studio.
4. Prior to graduation, a student must present a 2.00 cumulative grade-point average at this institution in all work attempted including the university state minimum core.

### Design Review Procedure – Interior Design Program

Design Review is a process initiated by a faculty member, the Program Head, or a student in order that (1) a faculty member may review a student's design work within a studio course or (2) a student may appeal grades and/or seek resolution of conflicts with studio faculty in which it is believed that questions of fairness and equity have been raised by the application of the published grading policy of the faculty

The Program Head will appoint a Design Review (Appeals) Committee, composed of three (3) members of the permanent or adjunct faculty. Additional or alternate members of the Committee may be appointed at the discretion of the Program Head or the Associate Dean. Faculty reviews are predicated upon, but are not limited to, the review of student work that has received a "D" grade or lower.

Grade appeals initiated by students will occur during the week prior to the start of class in the subsequent semester. Petitions for this review must be made through the Office of the Associate Dean prior to the scheduled meeting of the Design Review Committee. Grade appeals may be filed as soon as the student receives his or her final grade, but no later than the first day of the subsequent semester, (Monday of the week prior to the start of classes). In instances when the appeal concerns a change of an incomplete grade, petition for review should be made as soon as possible after the award of the final grade, and the review will be scheduled at the discretion of the Associate Dean.

### Protocol for the Design Review (Appeal) Process

1. Students are encouraged to meet with the faculty member(s) who has awarded the contested grade prior to filing a grade appeal. The student may request that his/her faculty adviser, a member of the professional advising staff, or the Associate Dean facilitate this meeting.
2. When a Design Review (Appeal) has been scheduled, the student shall exhibit, at the place and time specified by the Associate Dean's office, ALL work assigned and attempted for the studio in the semester under review. Faculty are required to provide the Design Review Committee with the course syllabus, grading policy, semester assignments, mid-term course assessment, and a written evaluation (a one-page rationale) of the full semester's work at least 48-hours in advance of the Design Review.
3. The Design Review (Appeal) will consist of separate and independent meetings of the Design Review (Appeal) Committee with the student and the faculty member(s). Following these meetings, the Committee will convene to evaluate the merits of the review (appeal). The Committee is expected to serve as both objective reviewers of the work and as advisers to the student.
4. The Design Review (Appeal) committee will keep minutes of its deliberations. All recommendations from the Committee shall have written explanations and/or justifications, which will be provided to the student, the faculty member, and the Associate Dean, and made part of the student's academic file. The Associate Dean will be responsible for communicating the results of a Review (Appeal) to the student.

The outcome of the Design Review process may include:

1. A recommendation to the faculty member regarding the grade appeal of the student. Action upon that recommendation is undertaken solely at

the discretion of the faculty member. No faculty member is compelled to change a grade in response to the recommendation of the Design Review Committee.

2. A requirement for the student to repeat the design studio course or lecture course.
3. A recommendation for enrollment in the subsequent studio course, while advising the student of the need to achieve and maintain a cumulative 2.00 (in the studio sequence) to progress in the program.
4. An academic advising plan to guide the student toward successful completion of his/her degree requirements or the pursuit of an alternate career path. All efforts shall be made to achieve clarity and reconciliation, so that the student is able to move forward positively in his/her academic career.

### Off-Campus Study Requirement

Each student in the professional program in architecture is required to complete an approved off-campus study experience focusing upon complex urban relationships and fostering cultural diversity. Approved programs in the Department of Architecture include a semester in Rome and a summer design studio in Latin or Central America.

Each student in the professional program in landscape architecture is required to participate in a summer study in Europe. This program exposes students to urban design and planning approaches. The program takes place after the student's third year of design studios.

A special international programs fee supports the school's international programs. These fees are assessed to all students participating in the professional degrees in architecture and landscape architecture designated in the "Fees and Cost Estimates" section of this catalog. The international program fees offset costs of maintaining off-campus programs that are not a part of the school's university-funded budget, as well as enhancing student-centered activities. Students are assessed the international fee each semester (not to exceed eight semesters) up until the semester they study abroad. At that time, they will be assessed for any remaining semesters plus any additional programs costs not covered by the international study fees. The fee is assessed for each study abroad program and is not regulated by the catalog year of the students' first enrollment in the Fay Jones School of Architecture. The fees are subject to change and are non-refundable under any circumstances including withdrawal from the respective professional programs. For further information, see notes on related program fees under "Fees and Cost Estimates" for the university.

To promote a broader perspective of design, students enrolled in the Interior Design program are required to participate in both overnight and day field trips for studio courses. Students are also encouraged to participate in faculty-approved study abroad opportunities offered by the Fay Jones School of Architecture or other approved institutions.

A special program fee supports the Interior Design program's required field trips. These fees are assessed to all students participating in the interior design program. They are designated in the "Fees and Cost Estimates" section of this catalog. The fees offset costs of travel to off-campus sites that are not a part of the school's university-funded budget, as well as enhancing student-centered activities. Students are assessed the fee each semester. The fees are non-refundable under any circumstances including withdrawal from the respective professional program. For further information, see notes on related program fees under "Fees and Cost Estimates" for the university.

### Ownership of Work

All original work submitted for credit, including design studio projects, becomes the property of the Fay Jones School of Architecture. Students are required to maintain portfolios documenting all academic and design studio work. Digital copies (compact discs) of all work completed in a studio must be submitted to the studio year coordinator in order to receive a grade for the studio.

### School Computer Policy

All students enrolled in the school are required to supply, in the second year, a

personal computer matching or exceeding specifications issued by their departmental faculty. The Interior Design program requires laptop computers. The specifications, which are updated annually, are available through the advising center or at <http://architecture.uark.edu/103.php>.

Design and graphics software will be required according to course requirements. Most software is provided free to students in the school and is available for download at the website previously listed. Other software is available at educational rates for School of Architecture students through the University Computer Store at <http://www.uarkcomstore.com/>. The school has two computer labs, one in the architecture department and one in the landscape architecture department, equipped for output and scanning for digital production. The Interior Design program provides a resource/materials room equipped for output and small scale scanning for digital production. Internet access is available in all studios.

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## HONORS PROGRAM

### Admission to the Fay Jones

#### School of Architecture Honors Program

The Honors College will automatically enroll freshmen who are accepted as honors students before summer orientation in the Distinguished Scholars track of the School of Architecture Honors Program. At summer orientation, these honors students will fill out the School of Architecture Honors Program Enrollment form in which they indicate their desire to remain in the Distinguished Program or to enroll in the Departmental program (the Interior Design Honors Program does not have this distinction). Each student is encouraged to consult the Architecture Honors Committee and the Architecture Advising Center before deciding the level of honors distinction (Distinguished Scholar or Departmental Scholar) they wish to pursue and to maintain this advisory relationship throughout the student's matriculation in the program.

Freshmen who were not admitted by the Honors College before orientation but who come to orientation with the qualifying 28 composite ACT score and 3.5 high school gpa will also fill out the School of Architecture Honors Program Enrollment form at orientation. Students who do not present both 28 composite ACT and 3.5 high school gpa, but who subsequently earn and maintain a 3.5 gpa in their coursework at the U. of A., will be invited to enroll in School of Architecture Honors program as soon as they attain a 3.5 gpa, provided it is still possible for them to complete all of the Honors program requirements at the time of their enrollment.

From the second semester of the third year onward, Architecture Honors Scholars are required to maintain a minimum cumulative GPA of 3.33 to remain in the program.

Transfer students may be invited to join the Architecture Honors Program as Distinguished Scholars or as Departmental Scholars if they maintain a cumulative GPA of 3.5 or higher in courses completed at the University of Arkansas by the end of the first semester of their third year of study, and a 3.33 GPA thereafter.

Every semester, the school's advising center will apprise the Architecture Honors Program Committee of students who have achieved this level of excellence and are eligible to join the Architecture Honors Program. Invitations are extended to students by the end of the semester in which the candidacy is advanced.

### Confirmation of Intent to Complete the Architecture Honors Program

At the end of the first semester of the third year, students will sign a form, confirming their intention to complete the remaining requirements for their honors degree. Students found not to have successfully completed the honors core course(s) needed to satisfy their Honors degree requirements (i.e., sufficient credits in University Core and/or Professional Core Honors courses) will be dismissed from the honors program at this time.

### Dismissal from the Architecture Honors Program

Architecture Honors Program students who fail to maintain a 3.5 or 3.33 cumulative gpa, depending on their year level, will receive a one-semester probation period prior to dismissal from the program.

## The Department of Architecture Honors Program

The mission of the Department of Architecture at the University of Arkansas is rooted in the best traditions of architectural education: responsibility and service to the societies and cultures to which we are inextricably connected, and the nurturing of the individual curiosity and capabilities of our students. To achieve the highest potential of these goals, the department faculty has developed the Department of Architecture Honors Program and participates in the programs of the University of Arkansas Honors College. The Architecture Honors Program provides opportunities for students of superior academic and creative ability to enhance and enrich their professional and liberal education. Students in the Architecture Honors Program are eligible to graduate cum laude, magna cum laude, and summa cum laude. All other students who attain a cumulative GPA of 3.5 or higher will be eligible to graduate with distinction, a classification separate from the cum laude awards.

The Architecture Honors Program offers two components: The Distinguished Scholars Program, which requires 44 credit hours of honors designated courses, and the Departmental Scholars Program, requiring 24 credit hours of honors designated courses for the Bachelor of Architecture degree. Specific requirements for each program are detailed below. Eligible students in both the five-year Bachelor of Architecture curriculum and the four-year Bachelor of Science in Architectural Studies program are welcome to join the honors program.

### Honors Independent Study Policy

Honors students may take as many regular or honors independent study credits as they deem desirable, but only one three-credit honors independent study course (ARCH 303VH, Honors Special Projects) may be substituted for an Honors Professional Elective. Furthermore, the substitution will be permitted only if all of the following conditions are satisfied:

1. That the Honors independent study not be taken concurrently with thesis credit (ARCH 5016H or ARCH 5026H).
2. That the honors independent study not be taught by the student's thesis director.
3. That honors independent study be substituted for no more than three credits of a student's required professional electives credits.

It is recommended that students considering this option seek special advising from their faculty mentor. Honors Research Methods (ARCH 4723H) is one venue for advising on independent study questions. As it is helpful for students to know what is expected of them, the work products of the honors independent study (research paper, models, prototypes, etc.) should be determined, and agreed upon, by the professor and student before the student registers for the credits. The School of Architecture Director of Student Affairs will register a student for Honors Special Projects (ARCH303VH) only upon receipt of a syllabus or prospectus for the independent study from the student. The course requirements should be distinguishable in the professor's estimation from non-honors independent study and consonant with expectations for honors credit in other departmental courses.

### Architecture Honors Thesis /Research Project

All honors students will pursue a research project during the final year of their undergraduate program. Honors students in the Bachelor of Architecture curriculum will invest six credit hours in the development of theses that articulate research topics identified in the Honors Architectural Research Methods (ARCH 4723H) or the Methods of Research in Architectural History Colloquium. Honors students in the Bachelor of Science in Architectural Studies program invest six credit hours in the honors thesis. Students pursuing the History of Architecture and Urbanism major concentration will develop traditional written honors theses. Additionally, honors students are required to enroll in three credit hours of upper-level elective course-work related to the topic of the honors thesis. Guidelines for topic selection and preparation of the honors thesis/research project are available from the Architecture Honors Committee.

The honors thesis is a student-directed project supervised by a thesis director with expertise in the thesis topic. The thesis director, who must be a faculty member in the Department of Architecture chairs a thesis committee to be comprised of two other members, typically, a departmental faculty member and a non-departmental

faculty member who brings additional fields of knowledge to the project. In rare cases when the thesis director, in consultation with the Department Honors Committee and the student, determines that a non-departmental faculty member with expertise appropriate to the thesis in question cannot be identified on campus, an extra-disciplinary member from within the Department of Architecture (e.g., faculty in architectural history, technology, or other allied field) may fill the position of the non-departmental member. Any such exceptions to the standard membership of a thesis committee should be infrequent, as the point of including non-departmental participation is to help ensure that a student's research is understandable and valid to an informed community outside of the disciplines of architecture. The determination should be based on the extent to which a student's thesis would have to be altered unproductively to meet the requirement for non-departmental participation on the thesis committee. Additional faculty, both departmental or non-departmental, as well as non-academic experts, may participate in any honors thesis as non-committee members, if thesis director welcomes their involvement.

Students will complete and present a written prospectus for the Research Thesis no later than the Friday before spring break before the fall semester of the final year of study, (e.g. the semester prior to the thesis).

Students shall meet a schedule of interim requirements established by the thesis committee in consultation with the Architecture Honors Committee.

### Requirements for Architecture Honors Program Scholars The Distinguished Scholars Program For Distinguished Scholars in the Bachelor of Architecture Program

	Hours
Completion of 38 credit hours of honors designated courses, to include a minimum of:	
University Core Honors Courses	12
Professional Core Honors Courses in Architecture (Architectural Technology and/or History of Architecture)	11
Honors Professional Electives or upper-level (3000+) university honors courses	6
Honors Research Methods (ARCH 4723H) or approved Methods course	3
Honors Thesis/Thesis Project (ARCH 5016H)	6

### For Distinguished Scholars in the Bachelor of Science in Architectural Studies

Completion of 38 credit hours of honors designated courses, to include a minimum of:	
University Core Honors Courses	12
Professional Core Honors Courses in Architecture (Architectural Technology and/or History of Architecture)	8
Honors Professional Electives or upper level (3000+) university honors courses	9
Honors Research Methods (ARCH 4723H) or approved Methods course; or architectural research colloquium	3
Honors Thesis (ARCH 5016H)	6

### The Departmental Scholars Program For Departmental Scholars in the Bachelor of Architecture Program

	Hours
Completion of 18 credit hours of honors designated courses, to include a minimum of:	
Professional Core Honors Courses in Architecture (Architectural Technology and/or History of Architecture)	3
Honors Professional Electives or upper-level (3000+) university honors courses	6
Honors Research Methods (ARCH 4723H) or approved methods course	3
Honors Thesis/Thesis Project (ARCH 5016H)	6

### For Departmental Scholars in the Bachelor of Science in Architectural Studies

Completion of 18 credit hours of honors designated courses, to include a minimum of:	
Professional Core Honors Courses in Architecture (Architectural Technology and/or History of Architecture)	3
Honors Professional Electives or upper-level (3000+) university honors courses	6
Honors Research Methods (ARCH 4723H); approved methods course; or architectural research colloquium	3
Honors Thesis (ARCH 5016H)	6

### Architecture Honors Program Committee

The chair of the School of Architecture Honors Program faculty members representing the allied fields of studio design, history/theory and building technologies comprise the Architecture Honors Program Committee. The committee serves to:

- Review courses for honors designation.
- Review nominations of eligible students to join the Architecture Honors Program.
- Serve as ambassadors for the Department and its Honors Program.

The committee shall meet at least once each semester, and at the discretion of the department head and the chair of the School Honors Program.

### Interior Design Honors Program

The Fay Jones School of Architecture Interior Design Honors Program provides upper-division undergraduate students with an opportunity to formally participate in creative and scholarly activities in interior design. Honors candidates engage in independent study and research and participate in special honors seminars and colloquia. These learning opportunities are led by the interior design faculty and are tailored to meet student's unique interests and professional trends.

Students may apply for honors studies beginning in the second semester of their sophomore year and normally will not be accepted into the program after completion of the second semester of their junior year. The program requires each applicant to have:

- minimum cumulative grade-point average of 3.5 in all college course work,
- minimum grade-point average of 3.5 in all course work taken in interior design,
- take 12 hours in honors studies // enroll in honors colloquia when available,
- enroll in six hours of honors research // 6 hours of thesis
- student must complete and defend an honors thesis

Each honors student will be required to select an honors committee. The committee will comprise the honors thesis adviser (a faculty member in the Interior Design program and major teacher in the area of the honors project), a second faculty member from interior design, architecture, or landscape architecture program chosen by the student, and a member from outside the department chosen by the thesis advisor and student. This committee is responsible for hearing and seeing the work of the student in the area of the honors project and will administer the oral examination to the candidate at the end of the last semester of the student's work. The committee then recommends the student receive honors in interior design. Outstanding student achievement will be recognized by awarding the distinction "Cum Laude" at graduation. The award of higher degree distinctions is recommended only in truly exceptional cases and is based upon the whole of the candidate's program of honors studies.

### Department of Landscape Architecture Honors Program Landscape Architecture Honors Mentors

Each Honors student shall have a department faculty adviser who will consult with the student throughout the university experience. The adviser will meet with the student a minimum of two times every fall and spring semester and correspond at least once during the summer. These sessions are venues for students to discuss their honors emphasis or concentration, academic progress, course work, community service activities, and leadership development opportunities.

**Landscape Architecture Honors Thesis**

An Honors student will be required to fulfill 6 credit hours of a written academic thesis. For the written thesis, the student shall take a 3-credit-hour professional elective directly related to the thesis topic, and 3 credit hours of Special Projects with student's thesis adviser or other faculty designee. Landscape Architecture Study students will be required to take a 2 credit hour Research Thesis Prep in advance of two 3 credit hour Special Topics in Design Research courses as partial fulfillment of the 6-credit thesis requirement. The last requirement will be a presentation and defense of the work to a jury from the department and other relevant academic advisers. All Honors students are highly encouraged to take a research methods course within the subject or topic area prior to thesis work

**Landscape Architecture Honors Courses**

Honors courses within the Professional Core may be fulfilled through independent study or additional honors level work within the History of Landscape Architecture, Contemporary Landscape Architecture, Planting Design, Historic Preservation, Seminar, Construction II, III, and Construction IV courses. and Senior Demonstration Project Prep course. The student may also select honors work within Design Studio IV, V, VI, VII, or VIII. Additional work may include in-depth precedent research and design applications with a focus on research and writing as the product of additional work in the declared area of emphasis or concentration. Specific honors output expectations will be determined by the course instructor. In addition, a student may choose an independent studio with mutual faculty agreement. This studio option is in addition to the required studios in the professional program and would only be available during the spring or summer semester of the fourth or fifth year.

**Department of Landscape Architecture Honors Program Requirements**

**The Distinguished Scholars Program**

	<b>Hours</b>
Completion of 38 credit hours of honors designated courses.	
University Core or Electives at the Honors level	12
Landscape Architecture Professional Core at the Honors level, which may include design studio, construction laboratory, or history class	11
Professional Electives, as identified with the Professional Core, at the Honors level, which may include coursework within the Landscape Architecture Department or from other University department programs.	9
Honors Thesis or project as described below	6

**For Distinguished Scholars in the Bachelor of Science in Landscape Architectural Studies**

	<b>Hours</b>
Completion of 40 credit hours of honors designated courses, to include a minimum of:	
University Core Honor	12
Professional Core Honors Courses in Landscape Architecture (History of Landscape Architecture, Contemporary Landscape Architecture) or Honors Professional Electives	20
Research Thesis Preparation	2
Honors Thesis Research Project	6

**Department of Landscape Architecture Honors Program Requirements For Departmental Scholars in the Bachelor of Landscape Architecture Program**

Completion of 18 credit hours of honors designated courses.

Landscape Architecture Professional Core at the Honors level, which may include design studio, construction laboratory, planting design, historic preservation, seminar or history class; Professional Electives, as identified with the Professional Core, at the Honors level, which may include coursework within the Landscape Architecture Department or from other University department programs.	12
Honors Thesis Project	6

**For Distinguished Scholars in the Bachelor of Science in Landscape Architectural Studies**

**For Departmental Scholars in the Bachelor of Science in Landscape Architectural Studies**

Completion of 20 credit hours of honors designated courses.	
Honors Landscape Architectural Professional Electives and/or University Honors Core Courses	12
Research Thesis Preparation	2
Honors Research Thesis	6

**ACCREDITATIONS**

The architecture program was founded in 1946 and has been accredited by the National Architectural Accrediting Board (NAAB) since 1958. The landscape architecture program was established in 1975 and has been accredited by the Landscape Architecture Accreditation Board (LAAB) of the American Society of Landscape Architects (ASLA) since 1983. The school holds memberships in the Association of Collegiate Schools of Architecture (ACSA) and the Council of Educators in Landscape Architecture (CELA), organizations that comprise North American schools of architecture and landscape architecture.

In the United States, most state registration boards require a degree from an accredited professional degree program as prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture and the Doctor of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The University of Arkansas Fay Jones School of Architecture department of architecture offers the following NAAB-accredited degree program:

- B.Arch. (157 undergraduate credits)

The next accreditation visit for the B.Arch. program is 2014.

The Landscape Architecture Accreditation Board (LAAB) is the sole agency authorized to accredit U.S. professional degree programs in Landscape Architecture. LAAB recognizes the Bachelor of Landscape Architecture, Bachelor of Science in Landscape Architecture, and Masters of Landscape Architecture. It accredits each program every five years, evaluating degree of conformance with established education standards. Masters degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The Bachelor of Interior Design (B.I.D.) degree is accredited by the Council for Interior Design Accreditation (CIDA). CIDA is an independent, non-profit accrediting organization for interior design education programs at colleges and universities in the United States and Canada. To ensure conformance with educational standards, programs must seek re-accreditation every six years. The program, accredited since 1992, is the oldest accredited interior design program in the state of Arkansas.

## DEPARTMENTAL MAJORS

### ARCHITECTURE (ARCH)

Departmental Office  
112 W. Center Street, Suite 700  
479-575-4705

#### FACULTY

- University Professor Emeriti Smart
- Distinguished Professors Blackwell, Luoni
- Professors Goodstein-Murphree, Shannon, Vitali, Wall
- Associate Professors Herman, Messadi, Sexton, Terry
- Assistant Professor Perez
- Clinical Associate Professor Sarpaneva
- Clinical Assistant Professors Fitzpatrick, Rotolo, Rudzinski
- Adjunct Assistant Professors Bedeschi, Del Gesso

### Bachelor of Architecture Degree

	Hours
1. Completion of the following 94-hour professional program:	94
Architectural Design	58
ARCH 1015, ARCH 1025, ARCH 2016, ARCH 2026, ARCH 3016, ARCH 3026, ARCH 4016, ARCH 4026, ARCH 5016, ARCH 5026	
Architectural Technology	18
ARCH 1212, ARCH 2113, ARCH, 2123, ARCH 2132, ARCH 3134, ARCH 4154	
History and Theory of Architecture	14
ARCH 1222, ARCH 2233, ARCH 2243, ARCH 4433, ARCH 4523	
Professional Practice	4
ARCH 5314	
2. Completion of the 35-hour general University Core as listed on page 41. In addition, specific requirements are listed below:	
Mathematics	3
MATH 1213, MATH 2033, MATH 2043 or MATH 2053	
Laboratory Science	8
PHYS 1044 or PHYS 2013/2011L, required.	
PHYS 1054 or PHYS 2033/2031L, strongly recommended.	
3. Completion of 30 hours of electives, as follows:	
Professional Electives	15
Chosen from upper-level courses (courses numbered 3000 or above) taught on the Fayetteville campus in the Fay Jones School of Architecture and allied disciplines.	
Students participating in the Rome program may present only three hours of elective course work for professional elective credit. All other elective courses will be used to fulfill free elective requirements.	
Free Electives	15
4. A minimum of 157 hours with a 2.00 cumulative grade-point average at this institution both in all work attempted and in all professional course work attempted is required. See Academic Policies.	
5. Participation for at least one semester in an approved international educational experience. (See Off-Campus Study Requirement, page 111.)	
NOTE: No more than three hours of physical education and/or R.O.T.C. may be counted toward a degree. Courses not acceptable toward degree credit include	

those of a remedial or orientation nature and whose content are considered to be measurably duplicated elsewhere in the curriculum. ARCH 1003 is not counted toward degree credit for architecture majors.

By following the preceding curriculum, students will meet the state-mandated University Core Requirements. They must also meet all other University requirements for graduation (page 41).

Sample curriculum for the Bachelor of Architecture degree can be obtained from the school's advising center.

### Professional Licensure Degree Requirement

The National Architectural Accrediting Board (NAAB) only accredits professional programs offering the Bachelor of Architecture, which requires a minimum of five years of study, and the Master of Architecture degrees. These professional degrees are structured to educate those who aspire to registration and licensure to practice as architects. The curricular requirements for awarding these degrees must include three components — general studies, professional studies, and electives. Together these three components comprise a liberal education in architecture and ensure that graduates will be technically competent, critical thinkers who are capable of defining multiple career paths within a changing societal context.

While no four-year degrees are accredited by NAAB, the Bachelor of Science in Architectural Studies degree is excellent for those who want a foundation in the field of architecture as preparation for either continued education in a professional degree program or for employment in fields related to architecture.

### Major Concentration in the History of Architecture and Urbanism

The major concentration (not considered an official minor) in the History of Architecture and Urbanism requires at least 33 semester hours and must include the following:

1. Completion of requirements for admission to the professional program in architecture, including ARCH 2233, ARCH 2243, ARCH 4433 and ARCH 4523, and presentation of a 3.25 grade-point average.
2. At least nine hours of professional electives in the history and theory of architecture and urbanism. Sample courses in this specialization include the following:

#### American Architecture and Urbanism – select from

- ARCH 4483 Architecture of the Americas
- ARCH 5933 Preservation & Restoration
- ARCH 4023 City in American Art and Culture
- ARCH 4023 House Culture
- LARC 3413 History of Landscape Architecture
- LARC 4413 Contemporary Landscape Architecture

Students declaring a specialization in American Architecture may develop an emphasis in Historic Preservation; ARCH 5933 is required for the emphasis.

#### Early Modern (Renaissance and Baroque) Italy – select from

- ARCH 4023 Italian Arch. from the Renaissance to the Present
- ARCH 5493 History of Urban Form
- ARCH 4023 St. Peter's Basilica
- ARCH 4023 Art and Culture in Italy
- ARCH 2993 Architecture of the City, Rome
- LARC 3413 History of Landscape Architecture

#### Modern Architecture and Urbanism – select from

- ARCH 4483 Architecture of the Americas
- ARCH 4523 Architectural Theory
- ARCH 4023 City in American Art and Culture
- ARCH 4023 House Culture
- ARCH 4023 Italian Architecture from the Renaissance to the Present
- ARCH 4653 Architecture of the City, Rome
- LARC 4413 Contemporary Landscape Architecture

3. Three hours, Methods of Architectural Research Colloquium

4. At least twelve hours of free electives to be selected from the following areas, to include:
  - a. At least three hours in upper-level (3000+) art history courses related to the area of specialization.
  - b. At least three hours in upper-level (3000+) humanities or social science courses related to the area of specialization; students pursuing the historic preservation emphasis must select ANTH 5023 or ANTH 5443.
  - c. Foreign Language requirements to be determined in consultation with adviser. Students who intend to pursue graduate study in architectural history should have competency in at least one foreign language; French and/or German are recommended.
5. At least six to 12 hours of research thesis.
6. Students considering pursuing the major concentration in History of Architecture and Urbanism are encouraged to fulfill the humanities and social science requirements of the 35-hour University Core with selections from the following courses.
  - ARHS 1003 Art Lecture
  - WLIT 1113 World Literature I
  - WLIT 1123 World Literature II
  - CLST 1003 Intro. to Classical Studies, Greece
  - CLST 1013 Intro. to Classical Studies, Rome
  - HIST 1113 Institutions and Ideas of World Civilizations I
  - HIST 1123 Institutions and Ideas of World Civilizations II
  - HIST 2003 History of the American People to 1877
  - HIST 2013 History of the American People 1877 to the Present
  - ANTH 1023 Intro. to Cultural Anthropology
  - Any foreign language, 2003 or 2013.

### Minor Concentration in the History of Architecture and Urbanism

The minor concentration in the History of Architecture and Urbanism (not considered an official minor) requires at least 18 semester hours and must include the following:

1. Completion of requirements for admission to the professional program in architecture, including ARCH 2233, ARCH 2243 and ARCH 4433.
2. At least nine hours of professional electives in any area of architectural and urban history.
3. Three hours, Methods of Architectural Research Colloquium
4. At least six hours in humanities and/or social science courses related to the minor concentration.
5. The research thesis is optional for students in the minor.
6. See Major Concentration list above.

#### Architecture B.Arch.

##### Ten-Semester Degree Program

The professional program for a Bachelor of Architecture Degree requires 10 semesters of coursework and so is not eligible for the Eight-Semester Degree Completion Program. It also requires admission to the professional program after the third year of classes. However, the following 10-semester sample plan shows how a first-year student could obtain a Bachelor of Architecture Degree in five years if the student is admitted to the Fall-Spring Architectural Design Studio and subsequently is admitted to the professional program. Students not accepted into the fall studio will begin ARCH 1015 in the spring (granted all fall requirements are met) followed by ARCH 1025 in the first six weeks of the summer.

Students should be aware that PHYS 1044, PHYS 1054 (or an approved alternate laboratory science in the University Core) and one of the listed MATH courses must be completed before students can begin second-year courses in Architecture. Transfer students and students who change majors and seek exceptions to the sample curriculum will be reviewed on an individual basis.

Students in the professional program are required to participate in an approved study abroad experience. Students can choose from either a fall or spring semester of 4th year in Rome, Italy or a summer program (summer prior to 4th or 5th year) in a designated Latin or Central American country. Students can elect to participate in both but only one program can serve as a substitution for ONE fourth year studio semester. The additional program would go to professional elective hours.

##### Fall Semester Year 1

- 5 ARCH 1015 Architectural Design I

- 2 ARCH 1212 Design Thinking I: Foundations in Technology
- 3 3 ENGL1013 Composition I
- 3 HIST 2003 or 2013 American History or PLSC 2003 American Government
- 4 PHYS 1044 Physics for Architects I and lab
- 0 1 ARCH 1110 Leadership by Design I
- 17 Semester hours**

Students are reviewed at the end of the fall semester and may continue the program if they meet the following criteria: "C" or better in ARCH 1015, Architectural Design I; "C" or better in PHYS1044, Physics for Architects I or an approved equivalent; "C" or better in ARCH 1212, Design Thinking I: Foundations in Technology; Maintain a 2.0 GPA. Students who do not meet these criteria will receive a letter and be advised accordingly.

##### Spring Semester Year 1

- 5 ARCH 1025 Architectural Design II
- 2 ARCH 1222 Design Thinking II: Foundations in History
- 3 ENGL 1023 Composition II
- 3 MATH 1213 Plane Trigonometry, MATH 2033 Mathematical Thought, MATH 2043 Survey of Calculus, or MATH 2053 Finite Mathematics
- 4 Science Core Requirement. Recommended: PHYS 1054 Physics for Architects II and lab
- 0 ARCH 1120 Leadership by Design II
- 17 Semester hours**

##### Fall Semester Year 2

- 6 ARCH 2016 Architectural Design III
- 3 ARCH 2233 History of Architecture I
- 3 ARCH 2113 Architectural Structures I
- 2 ARCH 2132 Environmental Technology I
- 3 Social Science core requirement
- 17 Semester hours**

##### Spring Semester Year 2

- 6 ARCH 2026 Architectural Design IV
- 3 ARCH 2243 History of Architecture II
- 3 ARCH 2123 Architectural Technology II
- 3 Social Science core requirement
- 15 Semester hours**

##### Fall Semester Year 3

- 6 ARCH 3016 Architectural Design V
- 3 ARCH 4433 History of Architecture III
- 4 ARCH 3134 Building Materials and Assemblies
- 3 Fine Arts or Humanities core requirement
- 16 Semester hours**

##### Spring Semester Year 3

- 6 ARCH 3026 Architectural Design VI-Technology Studio
- 3 ARCH 4523 Architectural Theory
- 3 Social Science core requirement
- 3 Fine Arts or Humanities core (students who elected summer studio will have completed this requirement)
- 15 Semester hours**

All university core courses must be completed by the end of the third year. Admission to ARCH 4016 is contingent upon admission to the professional program.

##### Fall Semester Year 4

###### Fall Rome Program in the Fall

- 6 ARCH 4116 Architectural Design Studio-Rome
- 6 ARCH 4023 Advanced Architectural Studies, Rome
- 3 ARCH 4653 Architecture of the City
- 15 Semester hours**

###### Spring Rome Program in the Fall

- 6 ARCH 4026 Comprehensive Studio
- 4 ARCH 4154 Environmental Technology II and Building Systems
- 3 Professional Elective
- 3 Free elective
- 16 Semester hours**

###### Summer Studio Abroad Program in the Fall

- 6 ARCH 4016 Architectural Design VII
- 4 ARCH 4154 Environmental Technology II and Building Systems
- 3 Professional Elective
- 3 Free elective
- 16 Semester hours**

<b>Spring Semester Year 4</b>	
<b>Fall Rome Program in the Spring</b>	
6	ARCH 4016 Architectural Design VIII
4	ARCH 4154 Environmental Technology II and Building Systems
3	Professional Elective
3	Free elective
<b>16</b>	<b>Semester hours</b>
<b>Spring Rome Program in the Spring</b>	
6	ARCH 4116 Architectural Design VIII
6	ARCH 4023 Advanced Architectural Studies - Rome
3	ARCH 4653 Architecture of the City
<b>15</b>	<b>Semester hours</b>
<b>Summer Studio Abroad Program in the Spring</b>	
6	ARCH 4026 Architectural Design VIII
3	Professional Elective
6	Free elective
<b>15</b>	<b>Semester hours</b>
<b>Summer Semester Year 4</b>	
<b>Summer Studio Abroad Program</b>	
<b>which may be taken either the third or fourth summer</b>	
6	ARCH 4126 Architectural Design
<b>6</b>	<b>Semester hours</b>
<b>Fall Semester Year 5</b>	
6	ARCH 5016 Option Studio I
3	Free elective
4	ARCH 5314 Professional Practice
3	Professional elective
<b>16</b>	<b>Semester hours</b>
<b>Spring Semester Year 5</b>	
6	ARCH 5026 Option Studio II
6	Professional electives
3	Free Elective
<b>15</b>	<b>Semester hours</b>
<b>157</b>	<b>Total hours</b>

See Page 316 for Architecture (ARCH) courses.

### Bachelor of Science in Architectural Studies

The Bachelor of Science in Architectural Studies incorporates course work from the school with liberal studies for students with interests that fall outside the parameters of the accredited professional degree program. The architectural studies program provides opportunities for students who wish to prepare for graduate study in an accredited architecture program or in an allied discipline, such as architectural history, historic preservation, urban planning, or construction management, as well as serving students who seek opportunities in related fields that may not require the five-year accredited degree.

#### Requirements for a Bachelor of Science Degree in Architectural Studies:

	<b>Hours</b>
1. Completion of the following 37-hour architectural studies program:	
Architectural Design	16
ARCH 1015, ARCH 1025, ARCH 2016	
Architectural Technology	10
ARCH 1212, ARCH 2113, ARCH 2123, ARCH 2132 or LARC 2714, LARC 3724	
History and Theory of Architecture	11
ARCH 1222, ARCH 2233, ARCH 2243, ARCH 4433 (Students interested in Landscape Architecture may substitute LARC 3413 for ARCH 2233 or ARCH 2243.)	
2. Completion of the following 35-hour general education program:	
English Composition	6
ENGL 1013, ENGL 1023	
American History or Government.	3
HIST 2003 or HIST 2013 or PLSC 2003	

Mathematics	3
MATH 1213, MATH 2033, MATH 2043 or MATH 2053	
Laboratory Science	8
PHYS 1044 and PHYS 1054 are recommended.	
Fine Arts/Humanities	6
One course must be elected from the fine arts core; one course from the humanities must be selected from PHIL 2003, PHIL 2103, PHIL 2203, or PHIL 3103. (See University Core Requirements on page 41)	
Social Science	9
At least three hours should be taken in anthropology, economics, psychology, or sociology; and with not more than two courses taken from any one department to fulfill this requirement. (See University Core Requirements)	
3. Completion of the following 21-hour basic program in the arts:	
Communications	3
COMM 1313	
Humanities and Social Sciences	12
HIST 1113 and HIST 1123	
WLIT 1113 and 3 hours from	
WLIT 1123; a foreign language literature course; CLST 1003; or CLST 1013. (CLST 1003 or CLST 1013 are recommended for architectural studies students.)	
Arts and Sciences	6
A minimum of six hours in courses numbered above 3000 (not including any courses cross-listed with architecture).	
4. Completion of the following foreign language requirement.	
Foreign Language (depending upon placement)	0-12
Students must demonstrate proficiency in a single modern or classic language other than English, usually by completing a sequence of four courses (1003, 1013, 2003, 2013). Students meeting the normal admission standard (two years of one foreign language in high school) may expect to satisfy this requirement with fewer courses, depending upon placement.	
5. Completion of 21 hours of electives:	
Professional electives	12
At least 6 hours in upper-level (3000 or above) courses taught in the School of Architecture. The remaining professional elective credits may be additional upper-level courses in the School of Architecture, approved courses in an allied discipline, or courses in another department of the University that contribute to the fulfillment of a recognized minor.	
Free electives	9
6. A minimum of 124 hours with a 2.00 cumulative grade-point average at this institution both in all work attempted and in course work completed in the School of Architecture.	
7. Presentation of at least 40 semester hours in courses numbered 3000 or above or courses in the School of Architecture numbered 2000 with specific course prerequisites.	
8. Each student graduating in Architectural Studies must write a research/analytical paper in at least one upper-division course in her or his major or minor area.	
9. Course work taken to remove course deficiencies assigned during admission or transfer will not be counted toward the degree. Similarly, courses considered to be remedial or developmental will not count toward the degree	
10. Unless exceptions are granted at the time of admission to the University of Arkansas, transfer work in which grades of "D" or "F" were earned will not be allowed toward credit for graduation. See the Academic Regulations chapter in this catalog for more information.	

**Architectural Studies B.S.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. During the first year, students who have been admitted to the fall-spring design studio and students who have been to the spring-summer design studio follow different schedules, both of which are listed below, with the fall-spring studio first and then the spring-summer studio. The second, third and fourth years are identical for both scenarios.

**Fall-Spring Design Studio**

**Fall Semester Year 1**

- 5 ARCH 1015 Design I
- 2 ARCH 1212 Design Methods I
- 3 ENGL 1013 Composition I
- 3 HIST 2003 or 2013 American History or PLSC 2003 American Government
- 4 PHYS 1044 Physics for Architects I
- 0 ARCH 1110 Leadership by Design

**17 Semester hours**

Students are reviewed at the end of the fall semester and may continue the program if they meet the following criteria: "C" or better in ARCH 1015, Architectural Design I; "C" or better in PHYS 1044, Physics for Architects I or an approved equivalent; "C" or better in ARCH 1212, Design Thinking I: Foundations in Technology; Maintain a 2.0 GPA. Students who do not meet these criteria will receive a letter and be advised accordingly.

**Spring Semester Year 1**

- 5 ARCH 1025 Design II
- 2 ARCH 1222 Design Thinking II: Foundations in History
- 3 ENGL 1023 Composition II
- 3 MATH 1213 Plane Trigonometry, MATH 2033 Mathematical Thought, MATH 2043 Survey of Calculus or MATH 2053 Finite Mathematics
- 4 Science Core; Recommended: PHYS 1054 Physics for Architects II
- 0 ARCH 1020 Leadership by Design

**17 Semester hours**

**Spring-Summer Design Studio**

**Fall Semester Year 1**

- 3 MATH 1213 Plane Trigonometry, MATH 2033 Mathematical Thought, MATH 2043 Survey of Calculus or MATH 2053, Finite Mathematics
- 3 ENGL 1013 Composition I
- 3 HIST 2003 or 2013 American History or PLSC 2003 American Government
- 4 PHYS 1044 Physics for Architects I Social Science Core
- 3 Fine Arts or Humanities Core Requirement
- 0 ARCH 1110 Leadership by Design

**16 Semester hours**

These students may continue into ARCH 1015 Architectural Design I in the spring if they meet the following criteria: "C" or better in PHYS 1044 Physics for Architects I or an approved equivalent; Maintain a 2.0 GPA. Students who do not meet these criteria will be delayed until they satisfy the admissions criteria for the Department of Architecture. Students will be reviewed at the end of the spring semester and will not be allowed to continue in the program if they do not meet the following criteria: "C" or better in ARCH 1015 Architectural Design I; "C" or better in ARCH 1212 Design Thinking I: Foundations in Technology; Maintain a 2.0 GPA.

**Spring Semester Year 1**

- 2 ARCH 1222 Design Thinking I: Foundations in History
- 5 ARCH 1015 Architectural Design I
- 3 ENGL 1023 Composition II
- 4 Science Core ; Recommended: PHYS 1054 Physics for Architects II
- 3 Fine Arts or Humanities Core Requirement
- 0 ARCH 1120 Leadership by Design

**17 Semester hours**

**Summer Session Year 1**

- 5 ARCH 1025 Architectural Design II
- 2 ARCH 1212 Design Thinking I: Foundations in Technology

**7 Semester hours**

Prior to Second Year

PHYS 1044, PHYS 1054 (or an approved alternate laboratory science in the University Core) and MATH 1213, MATH 2033, MATH 2043 or MATH 2053

must be completed before students can begin second-year courses in Architecture. Transfers students and change-of-majors seeking exceptions to the eight-semester degree plan will be reviewed on an individual basis.

**Fall Semester Year 2**

- 6 ARCH 2016 Architectural Design III
- 3 ARCH 2233 History of Architecture I
- 3 ARCH 2113 Architectural Structures I
- 2 ARCH 2132 Environmental Technology I
- 3 Social Science Core

**17 Semester hours**

**Spring Semester Year 2**

- 3 ARCH 2243 History of Architecture II
- 3 ARCH 2123 Architecture Structures II
- 3 COMM 1313 Public Speaking
- 3 Fine Arts/Humanities Core
- 3 Social Science Core

**15 Semester hours**

**Fall Semester Year 3**

- 3 ARCH 4433 History of Architecture III
- 3 HIST 1003 Institutions and Ideas of Western Civilization I or HIST 1113 World Civilization I
- 3 WLIT 1113 World Literature I
- 3 Foreign Language

**12 Semester hours**

**Spring Semester Year 3**

- 3 Fine Arts/Humanities Core
- 3 HIST 1013 Institutions and Ideas of Western Civilization II or HIST 1123 World Civilization II

- 3 WLIT 1123 World Literature II; CLST 1003 Intro to Classical Studies: Greece; or CLST 1013 Intro to Classical Studies: Rome

- 3 Foreign Language
- 3 Free Elective

**15 Semester hours**

**Fall Semester Year 4**

- 3 Foreign Language
- 3 Upper-level Arts/Science Elective
- 3 Free Elective
- 3 Professional Elective
- 3 Professional Elective

**15 Semester hours**

**Spring Semester Year 4**

- 3 Upper-level Arts/Science Elective
- 3 Foreign Language
- 3 Free Elective
- 3 Professional Elective
- 3 Professional Elective

**15 Semester hours**

**124 Total hours**

Architectural Studies degree candidates may pursue an academic minor. The minor must be in a field other than the major area, and students must notify the department of their intention to minor. An academic minor ordinarily consists of 15-18 hours. Although students in architectural studies may choose from any recognized minor offered by the university, they are encouraged to consider the following fields:

- |                          |                        |
|--------------------------|------------------------|
| African-American Studies | European Studies       |
| Anthropology             | Gender Studies         |
| Art History              | Geography              |
| Business Administration  | History                |
| Classical Studies        | Historic Preservation  |
| Communication            | Latin-American Studies |
| Computer Sciences        | Philosophy             |
| Drama                    | Psychology             |
| Economics                | Political Science      |
| English                  | Sociology              |
| Environmental Studies    | Sustainability         |

Although foreign study is not required of candidates for the four-year degree,



students in the architectural studies curriculum are encouraged to participate in the school's off-campus study programs in Rome and Latin/Central America. Architectural studies majors also may take advantage of the community service opportunities offered through the University of Arkansas Community Design Center (UACDC).

To take maximum advantage of the opportunities the four-year degree offers for pre-professional development (cultivation of specialization in and related to the field, and/or preparation for graduate study) each candidate for the Architectural Studies degree will work with a faculty adviser to develop a program of study emphasizing a student's special interests.

A sample curriculum for the Bachelor of Science in Architectural Studies degree can also be obtained from the school's advising center.

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See Page 316 for Architecture (ARCH) courses.

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## INTERIOR DESIGN (IDES)

Interim Department Office  
Agricultural Annex  
479-575-7599

### FACULTY

- Associate Professors Gentry, Miller, Webb

Interior design, a CIDA-accredited program, combines a solid foundation of professional courses that are enhanced by classes in business, art, and architecture.

To promote a broader perspective of design, students are encouraged to participate in study abroad opportunities offered by the Fay Jones School of Architecture. In addition, both overnight and day field trips are required for studio courses. Participation in the supervised 200 hour internship experience is also required for graduation.

Participation in the supervised 200 hour internship experience is required for graduation. The one-credit hour summer internship occurs in the summer before fourth year. Students have been placed in interior design firms, architectural offices, Main Street programs, governmental agencies, hospitality and casino design firms, and a wide range of other allied industries. Geographically, students have completed internships in Los Angeles, San Francisco, Seattle, New York, Las Vegas, Washington, D.C., Denver, Dallas, Chicago, Kansas City, and other major cities in the United States, as well as international locations such as London and Edinburgh.

The studio sequence increases in complexity throughout the curriculum. The rigor of the program requires a significant commitment of time and energy. Students can expect to spend significant time independent of studio classes to complete projects.

The faculty is composed of well-qualified educators and practitioners who foster an attitude of inquiry and learning based on their individual skills and interests. A professional advisory board supports the program and serves as external critics/jurors. Intellectual development of students is stimulated and leadership qualities enhanced throughout the four-year curriculum. The Interior Design Organization (IDO) allows for interaction of students with professionals in interior design and allied professions. Both faculty and students participate in professional design association activities.

### Ownership of Work

All original work submitted for credit, including design studio projects, becomes the property of the Interior Design program. Students are required to maintain portfolios documenting all academic and design studio work. Digital copies (compact discs) of all work completed in a studio must be submitted to the studio year coordinator in order to receive a grade for the studio.

### Interior Design Computer Policy

In response to industry demands, the program requires laptop computers. All students enrolled in the Interior Design Program are required to supply, by the beginning of the fourth semester, a personal laptop computer matching or exceeding specifications issued by faculty. The specifications, which are updated annually, are available through the school's Web site or the interior design student handbook. A substantial amount of software may be required depending on specific course requirements.

### Interior Design B.I.D.

#### Nine-Semester Degree Plan

The Bachelor of Interior Design can be completed in nine semesters that includes a summer internship. The one-credit hour summer internship occurs in the summer before fourth year. Please see the Fay Jones School of Architecture Advising Center for specific core course requirements and elective options.

#### Fall Semester Year 1

- 1 IDES 1011 Leadership by Design I
- 4 IDES 1034 Studio 1: Design Exploration I
- 3 Fine Arts or Humanities
- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra

**14 Semester hours**

#### Spring Semester Year 1

- 3 IDES 2853 Textiles for Interior Designers
- 4 IDES 1044 Studio 2: Exploration II
- 3 IDES 2853 Textiles for Interior Designers
- 3 ENGL 1023 Composition II
- 4 Science core

**15 Semester hours**

WCOB 1120 Computer Competency is completed during freshman year.

#### Fall Semester Year 2

- 5 IDES 2805 Studio 3: Basic Planning and Communication
- 3 IDES 2883 History of Interiors
- 3 ART/ARCH elective
- 3 ECON 2013, 2023 or 2143
- 3 Social Science

**17 Semester hours**

#### Spring Semester Year 2

- 5 IDES 2815 Studio 4: Intermediate Space Planning and Design
- 3 IDES 2823 Materials and Resources
- 3 HIST 2003, HIST 2013 or PLSC 2003
- 4 Social Science
- 3 Fine Arts or Humanities

**17 Semester hours**

#### Fall Semester Year 3

- 5 IDES 3805 Studio 5: Design and Construction
- 3 IDES 3833 Building Systems
- 1 IDES 3841 Professional Development
- 3 ARCH 4433 Architectural History III
- 3 ARCH 4433 Architectural History III

**15 Semester hours**

#### Spring Semester Year 3

- 5 IDES 3815 Studio 6: Large Scale Commercial Interiors
- 3 IDES 3843 Lighting Systems
- 3 IDES 4813 Human Factors in Interior Design
- 6 Professional Electives

**17 Semester hours**

#### Summer Semester Year 3

- 1 IDES 4811 Internship for Interior Design

**1 Semester hour**

#### Fall Semester Year 4

- 5 IDES 4805 Studio 7: Comprehensive Design Process I
- 3 IDES 4823 Professional Practice for Interior Design
- 6 Professional Electives

**14 Semester hours**

#### Spring Semester Year 4

- 5 IDES 4815 Studio 8: Comprehensive Design Process II
- 3 Business Elective
- 3 Professional Elective
- 4 Science core

**15 Semester hours**

**124 Total hours**

### Minor in Interior Design

All students seeking an Interior Design minor are required to complete 28 hours in the following courses or their equivalencies:

- \_\_\_ IDES 1034 Studio 1: Design Exploration I
- \_\_\_ IDES 1044 Studio 2: Design Exploration II
- \_\_\_ IDES 2805 Studio 3: Basic Space Planning and Communication

Choose 15 hours from:

- \_\_\_ IDES 2823 Interior Design Materials and Resources
- \_\_\_ IDES 2853 Introduction to Textiles for Interior Designers
- \_\_\_ IDES 2883 History of Interiors
- \_\_\_ IDES 3843 Lighting and Related Building Systems
- \_\_\_ IDES 4813 Human Factors in Interior Design
- \_\_\_ HESC 465V Special Topics

See Page 367 for Interior Design (IDES) courses.

## LANDSCAPE ARCHITECTURE (LARC)

Mark Boyer, Department Head  
 Departmental Office  
 230 Memorial Hall  
 479-575-4907

### FACULTY

- Professor Boyer, Crone
- Associate Professors Brittenum
- Assistant Professors Erdman, Lickwar, Smith
- Garvan Chair Billig

## Bachelor of Landscape Architecture Degree

### Bachelor of Landscape Architecture Degree

	Hours
1. Completion of the following Professional core:	
Design and Graphics	65
LARC 1315, LARC 1325, LARC 2113, LARC 2123, LARC 2336, LARC 2346, LARC 3356, LARC 3914, LARC 3366 LARC 4376, LARC 4383, LARC 5386, LARC 5396	
Landscape Architecture/ History/Theory	11
LARC 1211, LARC 1221, LARC 3413, LARC 4033, LARC 4413	
Summer Study Abroad	6
LARC 3933, LARC 4123	
Landscape Architecture Technical Courses	19
LARC 2714, LARC 3724, LARC 3734, LARC 4714, HORT 3103	
Professional Practice	3
LARC 5613	
2. Completion of the 35-hour University Core as listed on page 41. As part of the University Core, the department recommends the following:	
Laboratory Science	8
BIOL 1543/1541L or BIOL 1613/1611L and GEOL 1113/1111L are recommended.	
3. Completion of the following additional general education requirements:	
Professional Electives	12
Students may select courses from the Departments of Landscape Architecture and Architecture as well as courses in history, geography, horticulture, art, sociology, environmental studies, and business. These courses can be thematically selected to emphasize urban studies, ecological planning, construction management, and land development.	
Free Electives	9
Students are encouraged to take courses outside the Department to broaden their education.	
4. Candidates seeking graduation shall achieve a minimum of 157 hours and a minimum of a "C-" in each course within the professional curriculum. The remaining balance of hours shall have a minimum of 2.00 cumulative grade point average.	

Students must maintain a minimum 2.0 cumulative grade-point average to continue in the studio sequence. Any student receiving a "D+/-" or below in the professional core shall repeat the course. Any student with a second "D+/-" or below shall be considered for non-continuance in the program as determined by the department head and faculty.

To continue in the professional program, the student must submit a portfolio after their second year for faculty review. Please see section "Admission to the Professional Program in Landscape Architecture."

5. Students in landscape architecture are required to complete the department's summer study abroad program, after their third year.

NOTE: No more than four hours of physical education and/or R.O.T.C. may be counted toward a degree. Courses not acceptable toward degree credit include those of a remedial or orientation nature and whose content are considered to be measurably duplicated elsewhere in the school's curriculum.

By following the preceding curriculum, students will meet the state-mandated University Core Requirements. They must also meet all other University Requirements for graduation (page 39). The department strongly recommends that transfer students present eight hours of laboratory science courses selected from botany, biology, geology, and physical science as part of the State Minimum Core.

Students admitted to the university with a completed two-year associate of arts or associate of science degree from an Arkansas state-supported two-year or four-year college or university will receive credit for general education (core) requirements in accordance with ACT 182. All students also must complete any lower division discipline specific courses required for the major as well as all courses required to comply with the conditions of accreditation.

### Professional Licensure Degree Requirement

The School's Bachelor of Landscape Architecture program is accredited by LAAB, which requires that specific criteria be met in a professional program. This five-year professional program gives its graduates the required prerequisite degree to qualify to take the licensing exam and prepares them for practice.

All fifty states require licensure for landscape architects. The primary purpose of this licensure is to "protect the health, safety, and welfare of the public." Most states require that candidates possess an accredited degree in landscape architecture and complete a period of professional experience, working with a licensed landscape architect. Once these requirements are complete, candidates must pass a national, uniform exam, sometimes with additional sections unique to that state. Sample curriculum for the Bachelor of Landscape Architecture degree can be obtained from the school's advising center.

#### Landscape Architecture B.L.A. Ten-Semester Degree Program

The professional program for a Bachelor of Landscape Architecture Degree must be completed in 10 semesters of coursework and so is not eligible for the Eight-Semester Degree Completion Program. However, the following 10-semester sample plan shows how a first-year student could obtain a Bachelor of Landscape Architecture degree in five years if the student is admitted to the Landscape Architecture Design Studio and subsequently is admitted to the professional program.

#### Fall Semester Year 1

- 5 LARC 1315 Landscape Architecture Design I
- 1 LARC 1211 Intro to Landscape Architecture I
- 4 BIOL 1613/1611L Plant Biology or BIOL 1543/1541L General Biology
- 3 MATH 1203 College Algebra
- 3 ENGL 1013 Composition I
- 1 LARC 1011 Leadership by Design I

#### 17 Semester hours

#### Spring Semester Year 1

- 5 LARC 1325 Landscape Architecture Design II
- 1 LARC 1221 Introduction to Landscape Architecture II
- 4 GEOL 1113/1111L General Geology and lab
- 3 SOCI 2013 General Sociology
- 3 ENGL 1023 Composition II
- 1 LARC 1021 Leadership by Design II

#### 17 Semester hours

**Fall Semester Year 2**

6	LARC 2336 Landscape Architecture Design III
3	LARC 3413 History of Landscape Architecture
3	HORT 3103 Woody Landscape Plants
3	LARC 2113 Design Communications I
<b>15</b>	<b>Semester hours</b>

**Spring Semester Year 2**

6	LARC 2346 Landscape Architecture Design IV
3	Social Science Core Requirement
3	LARC 2123 Design Communications II
4	LARC 2714 Landscape Architecture Construction I
<b>16</b>	<b>Semester hours</b>

Students must be admitted to the Professional Program to continue with this degree completion plan.

**Fall Semester Year 3**

6	LARC 3356 Landscape Architecture Design V
4	LARC 3724 Landscape Construction II
4	LARC 3914 Planting Design I
3	Social Science Core Requirement
<b>16</b>	<b>Semester hours</b>

**Spring Semester Year 3**

6	LARC 3366 Landscape Architecture Design VI
3	LARC 4413 Contemporary Landscape Architecture
4	LARC 3734 Landscape Architecture Construction III
3	HIST 2003 or 2013 Core Requirement
<b>16</b>	<b>Semester hours</b>

**Summer Semester Year 3**

	Study Abroad
3	LARC 3933 Cultural Landscape Studies
3	LARC 4123 Urban Form Studies
<b>6</b>	<b>Semester hours</b>

**Fall Semester Year 4**

6	LARC 4376 Landscape Architecture Design VII
4	LARC 4714 Landscape Architecture Construction IV
3	Professional Elective
3	LARC 4033 Theory
<b>16</b>	<b>Semester hours</b>

**Spring Semester Year 4**

6	LARC 5386 Landscape Architecture Design VIII
1	LARC 4381 Senior Project Prep
3	Fine Arts Core Requirement
3	LARC 5613 Professional Practice
<b>13</b>	<b>Semester hours</b>

**Fall Semester Year 5**

6	LARC 5396 Landscape Architecture Design IX
6	Free electives
<b>12</b>	<b>Semester hours</b>

**Spring Semester Year 5**

6	Professional electives
3	Humanities core requirement
<b>9</b>	<b>Semester hours</b>
<b>160</b>	<b>Total hours</b>

**Bachelor of Science in Landscape Architectural Studies**

The Bachelor of Science in Landscape Architectural Studies program focuses either on landscape architecture studies or on environmental design issues, which serve students who wish to pursue a career in the profession of landscape architecture but do not seek licensure. The program utilizes existing professional courses within the Departments of Landscape Architecture, Architecture and the University to fulfill the required course work. The minimum number of hours of credit required for graduation is 124.

This degree program opens the opportunity to more individuals who have interests that can further the body of knowledge within the profession. For example, specialist areas are growing in the sub-fields of cultural landscape preservation and documentation, critical analysis of built works, contemporary case-study development, and urban planning and design. This program prepares students for work in private-sector landscape architecture and planning offices, public policy and administration departments, and the not-for-profit sector. Students will be prepared for graduate school and can pursue professional degrees in landscape architecture, urban

planning and design, business, and law, and graduate degrees in historic landscape preservation, history, public policy, public administration, and journalism.

**Requirements for a Bachelor of Science in Landscape Architectural Studies**

1. Completion of the following 35-hour landscape architecture studies program:	
Landscape Architecture Design	18
LARC 1315, LARC 1325, LARC 3914, LARC 2113, LARC 2123	
Landscape Architecture Technology LARC 2714 or LARC 4743 or LARC 3724	4
History and Theory of Landscape Architecture	6
Research thesis preparation	2
LARC 302V	
2. Completion of the following 27-hour basic program in the arts:	
Communications	3
COMM 1313	
Humanities and Social Sciences	12
HIST 1113 and HIST 1123, WLIT 1113 and 3 hours from WLIT 1123 or a foreign language literature course, CLST 1003 or CLST 1013	
Arts and Sciences	12
A minimum of twelve (12) hours in courses numbered above 3000 (not including any courses cross-listed in the School of Architecture.)	
3. Completion of the following foreign language requirement	
Foreign Language	0-6
Depending on placement, students must be introduced to a single modern or classic language other than English by completing two courses (1003 and 1013 or 2003 and 2013). Students with two years or more in one foreign language in high school may satisfy this requirement with higher-level course work	
4. Completion of 21 hours of electives	
Professional Electives	15
Credits may be from upper-level (3000 or above) courses from the departments of landscape architecture and architecture, sociology, geography, horticulture or other approved courses in an allied discipline or other courses that contribute to the fulfillment of a recognized minor.	
Free Electives	9
5. University Core	35

A minimum of 124 hours with a 2.00 cumulative grade-point average at this institution both in all work attempted and in course work completed in the Department of Landscape Architecture and the School of Architecture.

Presentation of at least 40 semesters in courses numbered 3000 or above or courses in the School of Architecture numbered 2000 with specific course prerequisites.

Each student graduating in Landscape Architectural Studies must write a research/analytical paper in at least one upper division course in his or her major or minor areas.

Course work taken to remove course deficiencies assigned during admission or transfer will not be counted toward the degree. Similarly, courses considered to be remedial or developmental will not count toward the degree.

Students admitted to the university with a completed two-year associate of arts or associate of science degree from an Arkansas state-supported two-year or four-year college or university will receive credit for general education (core) requirements in accordance with ACT 182. All students also must complete any lower division discipline specific courses required for the major as well as all courses required to comply with the conditions of accreditation.

Although not a requirement in the four-year degree, students are encouraged to participate in the department's summer study abroad program. The course work will count towards professional elective requirements.

**Landscape Architecture Studies B.S.****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan while pursuing a Bachelor of Science in Landscape Architectural Studies should see page 41 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 5 LARC 1315 Landscape Architecture Design I
- 1 LARC 1211 Intro to Landscape Architecture I
- 4 BIOL 1613/1611L Plant Biology or BIOL 1543/1541L General Biology
- 3 MATH 1203 College Algebra
- 3 ENGL 1013 Composition I
- 1 LARC 1011 Leadership by Design I

**17 Semester hours**

**Spring Semester Year 1**

- 5 LARC 1325 Landscape Architecture Design II
- 1 LARC 1221 Intro to Landscape Architecture II
- 4 GEOL 1113/1111L General Geology and lab
- 3 SOCI 2013 General Sociology
- 3 ENGL 1023 Composition II
- 1 LARC 1021 Leadership by Design

**17 Semester hours**

**Fall Semester Year 2**

- 3 WLIT 1113 World Literature I
- 3 LARC 3413 History of Landscape Architecture
- 3 LARC 1003 The American Landscape (Fine Arts Core Requirement)
- 3 LARC 2113 Design Communications I
- 3 Free Elective Hours

**15 Semester hours**

**Spring Semester Year 2**

- 3 COMM 1313 Public Speaking
- 4 HIST 2003 or 2013 American History or  
PLSC 2003 American National Government
- 3 LARC 2123 Design Communications II
- 3 LARC 4413 Contemporary Landscape Architecture
- 3 Arts and Sciences 3000+ level course

**16 Semester hours**

**Fall Semester Year 3**

- 3 Social Sciences Core Requirement
- 3 HIST 1003 or HIST 1113
- 4 LARC 3914 Construction Requirement
- 3 Foreign Language 1003 Requirement
- 3 Arts and Sciences 3000+ level course

**16 Semester hours**

**Spring Semester Year 3**

- 3 Humanities Core Requirement
- 3 HIST 1013 or HIST 1123
- 3 Foreign Language 1013 Requirement
- 3 Arts and Sciences 3000+ level course
- 3 Social Science Core Requirement

**15 Semester hours**

**Fall Semester Year 4**

- 3 WLIT 1123 or CLST 1003, CLST 1013
- 3 Free Elective
- 3 Professional Elective
- 3 Professional Elective
- 3 Arts and Sciences 3000+ level course

**15 Semester hours**

**Spring Semester Year 4**

- 12 Professional Electives
- 3 Free Elective

**15 Semester hours**

**124 Total hours**

Landscape Architectural Studies candidates may pursue an academic minor. The minor must be in a field other than the major area, and the students must notify the department of their intention to minor. An academic minor ordinarily consists of 15-18 hours, which are dictated by the department of the minor. Students in Landscape Architectural Studies may choose from any recognized minor offered by the University; however, they are encouraged to consider the following fields:

Public Policy, History, Geography, and Horticulture, and further encouraged to consider cross-disciplinary study in African-American Studies, Anthropology, Art

History, Business Administration, Classical Studies, Communication, Computer Sciences, Economics, English, European Studies, Gender Studies, Latin-American Studies, Philosophy, Political Science, Psychology, Sociology and Sustainability.

Although foreign study is not required for candidates in Landscape Architectural Studies, students in the curriculum are encouraged to participate in the School of Architecture's off-campus study abroad programs in Europe, Rome and Latin or Central America. Community planning projects are offered through the University of Arkansas Community Design Center (UACDC).

To take maximum advantage of the opportunities of the four-year degree program, each student in the Landscape Architectural Studies program shall work with the department head to develop a program of study emphasizing special interests, to cultivate a specialization related to the field, and to guide preparation for graduate study, if desired.

**Minor in Planting Design**

(for Horticulture majors)

18 Hours Total Required

**Required Courses:**

- LARC 2113 Design Communications I
- LARC 2714 Landscape Architecture Construction I
- LARC 3914 Planting Design I

**Electives:**

- LARC 1003 Basic Course in the Arts: The American Landscape
- LARC 2123 Design Communications II
- LARC 303V Special Studies
- LARC 3413 History of Landscape Architecture
- LARC 3724 Landscape Construction II
- LARC 4413 Contemporary Landscape Architecture
- LARC 5063 Alternative Stormwater
- HORT 4043 Professional Landscape Management
- HORT 4603 Practical Landscape Planning

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See Page 373 for Landscape Architecture (LARC) courses.

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# J. William Fulbright College of Arts and Sciences

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## Office of the Dean of the College

525 Old Main, 479-575-4804

### Dean

Robin A. Roberts

### Associate Deans

Charles H. Adams, Jeannine M. Durdik, Adam K. Motherwell

### Assistant Dean

Lisa J. Summerford

### Office of Student Affairs

525 Old Main, 479-575-4801

### Advising Center

Trevor A. Francis, Director

518 Old Main, 479-575-3307

### Honors Studies

Sidney J. Burris, Director

517 Old Main, 479-575-2509

### World Wide Web:

<http://fulbright.uark.edu/>

E-mail: [fulbright@uark.edu](mailto:fulbright@uark.edu)

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## MISSION AND OBJECTIVES

Few in 20th century America did more to advance the study of international relations or promote human understanding than J. William Fulbright. Committed to the idea that a free society and a peaceful world require, above all, an educated citizenry, he urged with unflagging energy the use of historical perspective, cultural relativity, and scientific objectivity in the study of human affairs. Senator Fulbright, like Thomas Jefferson, Andrew Jackson, and Abraham Lincoln before him, was committed to the belief that an educated, enlightened electorate will act not only in its own self-interest but also in the interest of all the people of the world.

In recognition of J. William Fulbright's contribution to the cause of liberal education and of his many services to his native state, the Board of Trustees of the University of Arkansas on November 20, 1981, resolved...

*The College of Arts and Sciences at the University of Arkansas, Fayetteville, shall be named, henceforth, the J. WILLIAM FULBRIGHT COLLEGE OF ARTS AND SCIENCES. His name will imbue that college, and the University, with his reputation and image for a devoted interest in higher education and its accomplishments through its scholars as reflected in its students.*

The college has adopted as its mission the following statement from Fulbright's writings:

*... the highest function of higher education is the teaching of things in perspective, toward the purposes of enriching the life of the individual, cultivating the free and inquiring mind, and advancing the effort to bring reason, justice, and humanity into the relations of men and nations.*

Consisting of 19 departments and numerous centers and research units, Fulbright College has a twofold mission: to provide a broad, liberal education to all students within the University community and to furnish specialized knowledge at the upper division and graduate levels leading to a professional career. The general education curriculum within the college is designed to assure students' mastery of the English language, provide knowledge of the historical, social, intellectual, and linguistic bases of human culture, provide habits of thought useful in later life, encourage the development of aesthetic, political, and ethical values, and offer the necessary foundation for professional competence or further training in professional or graduate schools. The general education curriculum of the college is based on the Platonic assumption that the pursuit of knowledge is an intrinsically good activity and that it is incumbent upon all members of an enlightened society to engage in that pursuit.

Recognizing that its students must become productive members of contemporary American society, Fulbright College offers undergraduate majors in fields ranging from chemistry and art to journalism, physics, social work and psychology. In addition, the college, in cooperation with the Graduate School, offers course work leading to master's degrees and doctoral degrees. As a natural corollary of their instructional role, faculty members of the college pursue active research programs that enable them simultaneously to provide state-of-the-art education to their students and bring national and international recognition to the University.

In sum, Fulbright College lies at the very heart of the University. The seat of liberal learning within the institution and the state, it is committed to providing excellent general education to all members of the student body and specialized instruction of the highest quality to its own majors.

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## FACILITIES AND RESOURCES

### Academic Advising Services

The Fulbright College of Arts and Sciences provides an adviser for each student enrolled in the college. Freshman- and sophomore-level students, including departmental honors students, are advised in the Fulbright College Advising Center in Old Main 518. All four-year honors undeclared major students and all freshman-level four-year honors declared major students receive advising from the Fulbright Honors Program office in Old Main 517. The faculty of each department within Fulbright College assumes responsibility for advising sophomore-level four-year honors students, all junior- and senior-level students who have declared majors in the department, and juniors and seniors who have a declared current interest in the department as a possible major area. Other advisory ser-

vices exist to provide aid and direction to students who are non-degree candidates as well as those who are beginning work in the college without having yet decided on a major and those who are planning to attend professional schools such as those for medicine or pharmacy. Advisers in the Fulbright College Advising Center will assist students in program planning and will help them to become aware of and familiar with the academic offerings of the university. Students should consult their advisers on a regular basis, not limited to registration matters but including all areas of their academic careers. Personnel in the Fulbright College Advising Center or the Dean's office will direct students to the appropriate advising office.

Students should discuss with their advisers opportunities for individual variations as well as regular course requirements. Programs and facilities of particular interest to individuals may include the Honors Program, programs for advanced placement and credit by examination, study abroad and the services of the University Career Development Center.

The Career Development Center administers and interprets tests that measure individual ability, interest, and achievement, and thus may aid also in counseling students about the field of study in which they are most likely to be effective and successful.

For questions regarding advising, contact the Fulbright College Advising Center at 575-3307 or visit online at <http://fcac.uark.edu>.

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## DEGREES OFFERED

*For a complete list of departmental majors, minors, concentrations, options and coursework, see the chart on pages 126 and 127.*

The J. William Fulbright College of Arts and Sciences offers four-year curricula leading to the degrees of Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), and Bachelor of Social Work (B.S.W.). Each candidate for the B.A. and B.S. degrees selects a major field for specialized study. In addition to usual departmental majors there are interdepartmental majors and special programs for students preparing for professional degrees in law, medicine, dentistry, and teaching.

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## MAJORS AND MINORS

### Majors

American Studies	Geology
Anthropology	German
Art	History
Biology	International Relations
Chemistry	Journalism
Classical Studies	Mathematics
Communication	Music
Criminal Justice	Philosophy
Drama	Physics
Earth Science	Political Science
Economics	Psychology
English	Social Work
French	Sociology
Geography	Spanish

### Second (or dependent) Majors\*

- African and African American Studies
- Asian Studies
- European Studies
- Latin American and Latino Studies
- Middle East Studies

\*A second (or dependent) major must be earned alongside a degree program in which the first major is one authorized to be given independently.

### Minors

Academic minors in approved degree programs are options available to students in the Fulbright College of Arts and Sciences. The minor must be in a field other

than the major, and students must notify the department of their intention to minor. An academic minor ordinarily consists of 15-18 hours. Specific requirements for the minor are given in the section entitled Departments, Majors, and Minors. Minors may be chosen from the following fields:

African and African American Studies	German
Anthropology	Historic Preservation
Arabic	History
Art History	Japanese
Asian Studies	Latin American and Latino Studies
Biology	Legal Studies
Business	Mathematics
Chemistry	Medieval and Renaissance Studies
Chinese	Middle East Studies
Classical Studies	Music
Communication	Philosophy
Drama	Physics
Economics	Political Science
English	Psychology
European Studies	Religious Studies
French	Social Work
Gender Studies	Sociology
Geography	Spanish
Geology	Statistics

Fulbright College also recognizes all official minors offered by sister colleges at the University of Arkansas. Students wishing to have such minors made a part of their transcript must notify the Fulbright College dean's office (MAIN 525) no later than when degree application is made.

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## OTHER PROGRAMS

### Undergraduate Preparation for Professional Programs

The Fulbright College of Arts and Sciences offers courses that are required for the study of law, medicine, dentistry, teaching, pharmacy, social work, and other professions. It provides supporting programs in the humanities, fine arts, social sciences, and natural sciences for students who are enrolled for professional programs in other undergraduate colleges on the campus and for those students who may plan to enter postgraduate professional programs in other colleges.

In some instances it may be possible for a student to plan the use of undergraduate courses so that the time required for completion of a postgraduate professional program may be shortened by as much as one full year. Currently, this may be done for the Master of Social Work program. For information and advice concerning this program, see the Graduate Program Director of the School of Social Work.

In other pre-professional programs, the distribution of credits applied toward a degree in Fulbright College may require the consignment of a considerable portion of the available electives to prerequisite courses and to courses that are in direct support of the undergraduate major area.

Interested students should contact the appropriate advisers early in the planning of such programs.

Teacher Education Programs: Acceptance in a teacher education program is governed by regulations approved by the University Teacher Education Board for Initial Licensure and administered by the College of Education and Health Professions and the Fulbright College of Arts and Sciences. Students in Fulbright College can pursue teacher licensure in the following areas: Art, Drama/Speech, English, Foreign Languages, Mathematics, Music, Life/Earth Science, Physical/Earth Science, or Social Studies. Students in all subject areas, except Art and Music, must meet the entrance requirements for the Master of Arts in Teaching (M.A.T.) degree, which include completion of a baccalaureate degree in the subject area, completion of additional licensure requirements (if any) in subject area, completion of M.A.T. course requirements and a minimum 2.70 grade point average. See below for specific requirements in each subject area. Students intending to obtain teacher licensure in Art or Music will follow the education requirements set forth in the Bachelor of Fine Arts and Bachelor of Music degrees, respectively. For more information, please contact the Coordinator of Teacher Education in the College of Education

and Health Professions, Peabody Hall, Room 8, and the Fulbright College Advising Center, Old Main, Room 518.

### Secondary Education Requirements for Fulbright College Students (except in Art and Music)

- All students must complete course requirements for entrance into the M.A.T. degree program. (All course requirements are subject to change. Students must meet current requirements at time of application for graduation.)  
Licensure for teaching requires completion of the bachelor's degree in Fulbright College and completion of the Master of Arts in Teaching (M.A.T.) degree through the College of Education and Health Professions. Admission to the M.A.T. degree program requires a minimum cumulative undergraduate grade-point average of 2.70 and completion of the following requirements. Refer to the teacher licensure checklist at [coehp.uark.edu/4882.htm](http://coehp.uark.edu/4882.htm) for licensing requirements and additional information. Complete the following with a grade of "C" or higher:
  - CIED 4131, Practicum in Secondary Education
  - Demonstration of computer competencies in a portfolio or:  
ETEC 2001, Educational Technology and  
ETEC 2002L, Educational Technology Lab or another appropriately approved course
  - CIED 4023, Teaching in Inclusive Secondary Settings
- Complete subject area requirements. (See below for specific subject area requirements.)

#### Drama/Speech

Complete a BA degree with a major in Communications or Drama. Communication majors must take the following Drama courses:

- DRAM 1223 Introduction to Dramatic Art
- DRAM 1683 Acting I
- DRAM 2683 Acting II
- DRAM 1313 and 1311L, Stage Technology I and lab
- DRAM 1323 and 1321L, Stage Technology II and lab
- DRAM 3653 Directing I

Drama majors must take the following Communication courses:

- COMM 2373 Introduction to Debate
  - COMM 4793 Directing Forensics
  - COMM 2303 Advanced Public Speaking
  - COMM 2343 Introduction to Small-Group Communication
- Students are advised to obtain an additional licensure area.

#### English

Complete a B.A. degree with a major in English.  
Students are advised to obtain an additional licensure area.

#### Foreign Languages

Complete a BA degree in French, German or Spanish.  
Pass Oral Proficiency Examination in French, German, Russian, and Spanish equivalent to Mid-Intermediate Rating on the ACTFL/ETS test (taken at end of senior year).

#### Life/Earth Science

Complete a BA or BS degree with a major in biology.  
The following Earth Science courses are recommended for preparation of  
Praxis II content area:  
GEOL 1113/1111L  
GEOL 1133/1131L  
ASTR 2003/2001L

#### Mathematics

Complete a B.A. or B.S. in mathematics.

#### Physical/Earth Science

Complete a BA or BS degree with a major in chemistry or physics.  
The following Earth Science courses are recommended for preparation of  
Praxis II content area:  
GEOL 1113/1111L  
GEOL 1133/1131L  
ASTR 2003/2001L

#### Social Studies

Complete a BA degree in anthropology, economics, history, geography, political science, psychology, or sociology.

Complete these additional course requirements:

- ECON 2143 Basic Economics or any other 3 hour credit ECON course
- HIST 4583 Arkansas in the Nation or HIST 3383 Arkansas and the Southwest

Note: HIST 3383 can also be taken by correspondence through the Department of Independent Study, Division of Continuing Education, or it can be taken web-based through the same office. Call them at (479) 575-3647 for further information if you are interested in the web-based class.

- HIST 1113 Institutions and Ideas of World Civilizations I
  - HIST 1123 Institutions and Ideas of World Civilizations II
  - HIST 2003 History of the American People to 1877
  - HIST 2013 History of the American People, 1877 to Present
  - PLSC 2003 American National Government
  - SOCI 2013 General Sociology
  - GEOG 1123 Human Geography
  - Two additional courses in U.S. history
  - Two additional courses in world and/or regional history
  - One additional course in political science
  - Two courses in economics (ECON 2143 counts as one)
  - One additional course in geography
- Students are advised to obtain an additional licensure area.

**Pre-Law Program:** While there is no prescribed pre-law curriculum, Fulbright College offers a minor in legal studies administered through the department of political science. Students considering a career in law may consult the *School of Law Catalog* or the Fulbright College Advising Center for information concerning certain categories of courses that may be helpful to the study and practice of law. Students uncertain about a major degree program should contact the Fulbright College Advising Center.

A baccalaureate degree is required for admission to the University of Arkansas School of Law, except for those students in the Fulbright College of Arts and Sciences who are admitted to the special six-year program referred to in the paragraph immediately following. All applicants for admission are required to take the Law School Admission Test. (See page 281.)

The University of Arkansas School of Law at Fayetteville and the Fulbright College of Arts and Sciences jointly administer a six-year program whereby highly qualified students may earn both the bachelor's degree and the Juris Doctor degree. Any student enrolled in the J. William Fulbright College of Arts and Sciences during a spring semester shall be permitted to matriculate in the School of Law in the following fall semester if the admission complies with Section 1 of Part A of the law school's admission policies and if the student meets the following conditions:

- At least 30 consecutive hours of course work in Fulbright College,
- At least 94 hours credited toward a bachelor's degree by Fulbright College,
- Completion of Fulbright College's requirements for a major in connection with the bachelor's degree,
- A cumulative grade-point average in all college or University course work of at least 3.50, without grade renewal,
- An LSAT score of at least 159.

A student may substitute law school course work for the remaining total hours required for the bachelor's degree from Fulbright College. Formal application for the degree should be made to the Registrar. Information about the program may be obtained in the dean's office or the Fulbright Advising Center.

MAJORS, MINORS, CONCENTRATIONS AND COURSEWORK IN FULBRIGHT COLLEGE							
Field of Study	Degrees Offered	Major	Minor	Concentration or Option	Coursework	Department/Program	Page
Advertising and Public Relations				X		Journalism	166
African and African American Studies	BA	X*	X			African and African American Studies	131
American Studies	BA	X				American Studies	131
Anthropology	BA or BS	X	X			Anthropology	133
Arabic			X			World Languages, Literatures & Cultures	195
Archeology				X		Anthropology	133
Art	BA or BFA	X				Art	135
Art Education				X		Art	135
Art History				X		Art	135
Asian Studies		X*	X			Asian Studies	139
Astronomy				X		Physics	183
Biochemistry				X		Chemistry & Biochemistry	143
Biological Anthropology				X		Anthropology	133
Biology	BA or BS	X	X			Biological Sciences	139
Biophysical Chemistry				X		Chemistry & Biochemistry	143
Biophysics				X		Physics	183
Broadcast				X		Journalism	166
Cartography/Remote Sensing/GIS specialization				X		Geosciences	158
Chemistry	BA or BS	X	X			Chemistry & Biochemistry	143
Chinese			X			World Languages, Literatures & Cultures	195
Classical Studies	BA	X	X			Classical Studies	147
Communication	BA	X	X			Communication	148
Computational Physics				X		Physics	183
Creative Writing				X		English	154
Criminal Justice	BA	X				Sociology and Criminal Justice	197
Cultural Anthropology				X		Anthropology	133
Dance					X	Drama	151
Drama	BA	X	X			Drama	151
Earth Science	BS	X				Geosciences	158
Economics	BA	X	X			Economics	152
Electronics-Physics				X		Physics	183
English	BA	X	X			English	154
English/Journalism	BA	X*				Interdisciplinary	166
European Studies	BA	X*	X			European Studies	157
French	BA	X	X			World Languages, Literatures & Cultures	195
Gender Studies			X			Gender Studies	158
Geography	BA	X	X			Geosciences	158
Geology	BS	X	X			Geosciences	158
German	BA	X	X			World Languages, Literatures & Cultures	195



**MAJORS, MINORS, CONCENTRATIONS AND COURSEWORK IN FULBRIGHT COLLEGE (cont.)**

<b>Field of Study</b>	<b>Degrees Offered</b>	<b>Major</b>	<b>Minor</b>	<b>Concentration or Option</b>	<b>Coursework</b>	<b>Department/Program</b>	<b>Page</b>
Historic Preservation			X			Geosciences	158
History	BA	X	X			History	162
International Economics and Business				X		Economics	152
International Relations	BA	X				International Relations	164
Japanese			X			World Languages, Literatures & Cultures	195
Journalism	BA	X				Journalism	166
Journalism/Political Science	BA	X*				Interdisciplinary	166
Journalism/English	BA	X*				Interdisciplinary	166
Latin American and Latino Studies	BA	X*	X			Latin American and Latino Studies	171
Legal Studies			X			Political Science	187
Mathematical Sciences	BA or BS	X	X			Mathematical Sciences	172
Medieval and Renaissance Studies			X			Medieval Studies	176
Middle East Studies	BA	X*	X			Middle East Studies	176
Music	BA or BM	X	X			Music	177
Music Education				X		Music	177
Music Performance				X		Music	177
Music Theory or Composition				X		Music	177
News/Editorial				X		Journalism	166
Optics-Physics				X		Physics	183
Philosophy	BA	X	X			Philosophy	182
Physics	BA or BS	X	X			Physics	183
Political Science	BA	X	X			Political Science	187
Political Science/Journalism	BA	X*				Interdisciplinary	166
Professional Physics				X		Physics	183
Psychology	BA	X	X			Psychology	188
Regional Studies				X		American Studies	131
Religious Studies			X			Religious Studies	190
Social Work	BSW	X	X			Social Work	190
Sociology	BA	X	X			Sociology and Criminal Justice	193
Spanish	BA	X	X			World Languages, Literatures & Cultures	195
Statistics			X	X		Mathematical Sciences	172
Studio Art				X		Art	135

\* Indicates majors that are "second," "dependent," or "combined." See each program for more details.

## Health Related Professions

### Pre-Professional Programs:

Chiropractic	Ophthalmic Medical Technology
Cytotechnology	Optometry
Dental	Pharmacy
Dental Hygiene	Physical Therapy
Diagnostic Medical Sonography	Physician Assistant
Medical	Podiatry
Medical Technology	Radiation Therapy
Nuclear Medicine Technology	Radiologic Technology
Occupational Therapy	Respiratory Care

For additional information about these and other allied health professions, contact the Fulbright College Advising Center, 518 Old Main, 479-575-3307, or e-mail [fcac@cavern.uark.edu](mailto:fcac@cavern.uark.edu), Web site: [fcac.uark.edu](http://fcac.uark.edu). All preprofessional and allied health students are advised to research the school(s) where they intend to complete their professional or allied health program.

**General:** Each of the above areas involves the completion of a minimum number of semester hours and certain required courses. Many of the specific course requirements are common to all programs, and it is in the student's best interest to complete these requirements as early as possible. Careful scheduling is essential to ensure that courses are taken in proper sequence.

**Pre-Chiropractic Program:** Students entering this program should determine the specific admission requirements from the school(s) of their choice at an early date. Most chiropractic colleges require a minimum of 90 hours of college credit to include the following: 6 hours of English, 12 hours chemistry (with a minimum of 3 hours inorganic chemistry and at least 6 hours organic chemistry and/or biochemistry), 8 hours of biology, 3 hours of psychology, 15 hours of social science or humanities, and 8 hours of physics. All students planning careers in chiropractic should contact the Fulbright College Advising Center, 518 Old Main, 479-575-3307.

**Pre-Dental Program:** All dental schools require a minimum of three years of college work, and most schools give preference to applicants who have completed a baccalaureate degree. The minimum requirements for admission to most dental schools can be met at the University of Arkansas by completing the following courses:

ENGL 1013, ENGL 1023 or equivalent composition course.  
 BIOL 1543/1541L and at least 8 additional hours of biology (BIOL 1603/1601L is recommended)  
 PHYS 2013/2011L, PHYS 2033/2031L,  
 and CHEM 1103/1101L, CHEM 1123/1121L, CHEM 3603/3601L,  
 CHEM 3613/3611L (CHEM 3813 Biochemistry is recommended or required by some schools).

CLEP and AP credit is not accepted. Dental schools have a variety of additional course requirements and pre-dental students should check each school's website.

Mathematics is not a general requirement, but students are expected to have a background equivalent to college algebra and trigonometry.

Students who complete a minimum of 90 hours of work may qualify for the combined degree program provided that they complete the requirements for graduation in Fulbright College of Arts and Sciences.

All dental schools require the Dental Admissions Test. It is suggested that applicants take the DAT one year prior to the time they plan to enter dental school. A student planning a career in dentistry should contact Dr. J.C. Rose, Department of Anthropology, 479-575-2508.

**Pre-Medical Program:** Medical schools in general require a minimum of 90 semester hours of college credit exclusive of military science and physical education, and most recommend that the student complete a baccalaureate degree. All medical schools have specific course requirements, and the student should determine those requirements for the school or schools of his or her choice. The minimum requirements for most medical schools can be met by completion of the following courses:

ENGL 1013, ENGL 1023, or equivalent  
 BIOL 1543/1541L, plus one other course in biological sciences, or equivalent

CHEM 1103/1101L, CHEM 1123/1121L, CHEM 3603/3601L, CHEM 3613/3611L

MATH 1203 and MATH 1213, or MATH 2554

PHYS 2013/ 2011L and PHYS 2033/2031L, or PHYS 2054 and PHYS 2074.

CLEP credit is not accepted, and in some cases, AP credit for the required courses above is not accepted.

Additional courses are recommended. Special opportunities and experiences are available to pre-medical students through the Liebolt Premedical Program (<http://pre-med.uark.edu>).

Pre-medical students are encouraged to complete the requirements for the B.A. or B.S. degree. As part of these requirements the student must choose a major, but the choice of a major has no direct bearing upon admission to medical school and should reflect the particular interests of the student. If a student is admitted to a medical school prior to completion of the baccalaureate degree requirements, he/she may wish to take advantage of the combined degree program in medical science. If that program is elected, the student should complete all of the basic University and college requirements for graduation during residence on the UA campus.

Most medical schools require the Medical College Admissions Test (MCAT), which is administered at several testing sites in Arkansas on specific dates from January to September each year. The MCAT normally should be taken in the spring preceding application to medical school. Admission to medical school is highly competitive, and a good grade-point average is demanded. A grade-point average of 3.30 is the minimum likely to receive favorable consideration. A grade of "D" in any course required by the medical school is not considered satisfactory. Advising is available through Dr. Neil Allison, Department of Chemistry and Biochemistry, 479-575-5179, and Dr. Jeanne McLachlin, Department of Biological Sciences, 479-575-5348. Dr. Allison serves as chair of the University of Arkansas Pre-medical Advisory Committee. For information, visit the University of Arkansas pre-medical website at <http://premed.uark.edu>.

**Pre-Optometry Program:** Admission requirements to schools and colleges of optometry are not uniform. Typically they include courses in English, mathematics, physics, chemistry, and biology. Some colleges and schools have specific requirements in psychology, social sciences, literature, philosophy, and foreign languages. Students in this program should determine the specific requirements from the college(s) they wish to attend at an early date and plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Pharmacy Program:** Entrance requirements for pharmacy schools vary; therefore, students should research the schools of their choice to determine specific prerequisite course work. The University of Arkansas for Medical Sciences College of Pharmacy requires 69 hours of pre-professional courses to include: 4 hours of calculus, 9 hours of English/Communication, 16 hours of chemistry, 12 hours of biology, 4 hours of physics, 3 hours of economics, 6 hours of critical thinking/problem solving, and 15 hours of humanities.

Students are advised to begin taking humanities electives during the second semester of their freshman year. Since pharmacy schools have many more applicants than they can accept, the student is urged to earn a grade point average much higher than the minimum of 2.00.

Grades are a major consideration when admission committees evaluate a student's qualifications for acceptance. The University of Arkansas College of Pharmacy and other pharmacy schools also require applicants to take the Pharmacy College Admission Test (PCAT). This may be taken in November or February. The pre-pharmacy adviser for the University of Arkansas is Lorraine Brewer, Department of Chemistry and Biochemistry, 479-575-3103.

**Pre-Podiatry Program:** To meet entrance requirements for colleges of podiatry, an applicant must have completed a minimum of three years at an accredited undergraduate institution; however, most entering students have completed a baccalaureate degree. Courses required for admission vary with the college, and a student should inquire early in the academic program about the courses required for a particular institution. In general, a student is advised to include at least 8 hours of general chemistry, 8 hours of organic chemistry, 8 hours of physics, 8 hours of biology, and 6 hours of English. Additional information concerning requirements for specific colleges of podiatry may be obtained from the Fulbright College Advising Center, MAIN 518, 479-575-3307.

**Pre-Cytotechnology Program:** Admission requirements for cytotechnology

programs are not uniform. Typically they are bachelor-level programs requiring prerequisite coursework in English, mathematics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Dental Hygiene Program:** Admission requirements for dental hygiene programs are not uniform. Typically they are associate- or bachelor-level programs requiring prerequisite coursework in English, mathematics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Diagnostic Medical Sonography Program:** Admission requirements for sonography programs are not uniform. Typically they are associate- or bachelor-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Medical Technology Program:** Admission requirements for medical technology programs are not uniform. Typically they are bachelor-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Nuclear Medicine Imaging Sciences Program:** Admission requirements for nuclear medicine imaging programs are not uniform. Typically they are bachelor-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Occupational Therapy Program:** Admission requirements for occupational therapy programs are not uniform. Typically they are master-level programs requiring a bachelor's degree that includes prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Some programs allow admit students who do not yet have a bachelor's degree but have completed all required prerequisite coursework. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Ophthalmic Medical Technology Program:** Admission requirements for ophthalmic medical technology programs are not uniform. Typically they are bachelor-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Physical Therapy Program:** Admission requirements for physical therapy programs are not uniform. Typically they are doctoral-level programs requiring a bachelor's degree that includes prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are

available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Physician Assistant Program:** Admission requirements for physician assistant programs are not uniform. Typically they are master-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Radiation Therapy Program:** Admission requirements for radiation therapy programs are not uniform. Typically they are bachelor-level programs requiring a previously earned radiologic technologist certification and prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Radiologic Imaging Sciences:** Admission requirements for radiologic imaging programs (also known as radiologic technology or radiography) are not uniform. Typically they are associate- or bachelor-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

**Pre-Respiratory Care Program:** Admission requirements for respiratory care programs are not uniform. Typically they are bachelor-level programs requiring prerequisite coursework in English, mathematics, physics, chemistry, biology, psychology and/or sociology along other general education areas. Students in this program should determine the specific requirements from the program(s) they wish to attend at an early date and work with a preprofessional adviser to plan their program of study accordingly. Details concerning the program are available from the Fulbright College Advising Center, 479-575-3307, 518 Old Main.

### Cooperative Education

The Cooperative Education program is designed to offer students an opportunity to participate in a work experience directly related to their academic major. The program also insists that at least minimal academic credit be awarded, thus ensuring that the work experience will be directly related to the student's academic program. Cooperative Education offers advantages to students needing assistance in financing their education, and it offers the college a tangible way to demonstrate our conviction that although we do not stress vocational or professional training per se, there is nothing inimical between a liberal arts education and the world of work. Prerequisites include 45 credit hours, a cumulative GPA of 2.50, and consent of the academic coordinator. A maximum of 4 credit hours of ARSC 310V (Cooperative Education) may be applied toward the student's degree.

Detailed information about Cooperative Education may be obtained from the Office of the Dean, Fulbright College, 525 Old Main.

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## COLLEGE ADMISSION REQUIREMENTS

Students seeking admission to the J. William Fulbright College of Arts and Sciences must meet the general requirements for admission to the University. In addition, students are expected to present two units (years) of a single modern foreign or classical language. Those unable to meet this standard will be expected to begin their collegiate foreign language study as soon as possible after matriculation. For these students, the first semester of language study will be considered to satisfy the admission deficiency and will not count toward the 124 hours required for graduation (although the course will appear as University credit, and the grade received will be computed in the grade-point average). For the students who meet the Fulbright College of Arts and Sciences admission requirements and continue with the same foreign language taken in high school, the first semester of language study will be considered remedial and will not count toward the 124

hours required for graduation (although the course will appear as University credit and the grade received will be computed in the grade-point average). Students transferring from other colleges at the University of Arkansas or from other institutions are expected to meet the same entrance standard.

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## COLLEGE SCHOLARSHIPS

Foremost among scholarships available in the J. William Fulbright College of Arts and Sciences is the Sturgis Fellowship. This scholarship enables Fulbright College to offer outstanding graduates of secondary and preparatory schools undergraduate fellowships valued at \$50,000 for four collegiate years.

Students studying in the humanities or classics may qualify for the J. William and Elizabeth W. Fulbright Scholarship for study abroad. This award is for students who are at least juniors and is intended to support a year of study abroad.

The King Fahd Center for Middle East Studies offers two-year undergraduate scholarships for superior students interested in pursuing the study of the Middle East or Islam.

In addition, students may compete for a number of privately endowed scholarships, which are awarded on a competitive basis to those who qualify. Application for these general Fulbright College scholarships and awards is made through the Office of the Dean, 525 Old Main. Students may obtain more detailed information about the above-named scholarships and other Fulbright College scholarships at <http://fulbright.uark.edu/scholarships/index.php>.

Other scholarships are available from the departments of Fulbright College. Information may be sought from the departmental chair of the student's major.

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## STUDENT ORGANIZATIONS

There are many general-interest societies and organizations to which students may belong, and nearly every department of the University maintains an honor society through which high scholarship is rewarded. Students in Fulbright College may aspire to membership in the following organizations:

- Alpha Chi Sigma (chemistry)
- Alpha Epsilon Delta (pre-medical, medical technology, pre-dental)
- Alpha Kappa Delta (sociology)
- Alpha Phi Sigma (criminal justice)
- Alpha Psi Omega (drama)
- American Chemical Society (chemistry)
- Delta Phi Alpha (German)
- Eta Sigma Phi (Greek and Latin)
- Gamma Theta Upsilon (geography)
- Kappa Kappa Psi (band, men)
- Kappa Tau Alpha (journalism)
- Lambda Alpha (anthropology)
- Lambda Pi Eta (communication)
- Lambda Tau (writers)
- Omicron Delta Epsilon (economics)
- Phi Alpha (social work)
- Phi Alpha Theta (history)
- Phi Beta Delta (international scholarship)
- Phi Beta Kappa (arts and sciences)
- Phi Kappa Phi
- Phi Mu Alpha (music, men)
- Pi Kappa Delta (forensics)
- Pi Mu Epsilon (mathematics)
- Pi Sigma Alpha (political science)
- Psi Chi (psychology)
- Sigma Alpha Iota (music, women)
- Sigma Delta Pi (Spanish)
- Sigma Gamma Epsilon (geology)
- Sigma Pi Sigma (physics)
- Tau Beta Sigma (band, women)

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## COLLEGE ACADEMIC REGULATIONS

Courses of study in the Fulbright College of Arts and Sciences are designed to give students the comprehensive view of society that the modern world requires. Students who enroll in Fulbright College, or who elect some of its courses, have an opportunity to gain a broad cultural education, which is a part of intelligent living and, at the same time, to prepare for professions or to acquire technical training in the sciences. The college has two major teaching functions: to provide basic general education in the arts and sciences necessary to all persons for effective participation in the complex world in which we live; and, second, to furnish the student an opportunity to specialize in the field of the student's choice.

To implement the first of these aims and to furnish a broad base for the accomplishment of the second, the faculty of Fulbright College has adopted the requirements listed below for each degree.

Specific course requirements may be fulfilled in one of four ways:

1. Establishing credit in approved courses:
  - a. by enrolling in and completing the required work in the course,
  - b. by examination (credit will be entered as CR on a student's record as explained in Advanced-Standing Programs, page 43),
  - c. by advanced achievement, i.e., by satisfactory completion of a more advanced course of a sequence. For example, students who earn a grade of "C" or better in a third-semester foreign language course may be granted credit for the second semester course upon recommendation of the Foreign Language Department and approval by the Dean of the college. (This does not apply to work taken by correspondence or in transfer.)
2. Gaining exemption by examination. Announced exemption examinations are routinely offered in several courses. Students may consult any department or the dean's office concerning exemption examinations.
3. Advanced placement by examination. A student who is granted advanced placement may elect to substitute a more advanced course for the listed required course.
4. Transfer credit. Students presenting transfer credit in lieu of stated requirements may be asked to present official course descriptions, etc. Transfer work with grades of "D" or "F" will not be accepted.

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## DEGREE COMPLETION PROGRAM POLICY

### Fulbright College of Arts and Sciences Graduation Requirements

In addition to the specific course requirements for the degree plan and major, be aware that there are general graduation requirements that every student in Fulbright College must complete.

1. *Minimum* Total Semester Hour Requirement  
B.A., B.M., B.S. and B.S.W. Degrees: 124 hours  
B.F.A.: 128 hours
2. Residency Requirement
  - a) University Residency (Enrollment) Requirement  
Students must earn a minimum of 30 semester hours at the University of Arkansas, Fayetteville campus – this includes UA faculty-led study abroad classes, online/on-campus classes, and Global Campus courses; and all other courses paid towards Fayetteville campus tuition and fees. These 30 semester hours are to be upper-division semester hours required for the completion of a degree program. Additional hours in residence can be required for completing a minor. Hours earned in another school or college at UA, Fayetteville, may be used to satisfy this requirement with approval of appropriate faculty curriculum committee.
  - b) College Residency Requirement and 24 Hour Rule  
A student graduating from Fulbright College must have completed at least 30 hours of credit in courses offered by Fulbright College, at least 24 of which must be 3000 and 4000 level courses from departments in Fulbright College.

### 3. 40-Hour Rule

Students must present for degree credit at least 40 hours of work in courses numbered 3000 and above. Included in these 40 hours can be courses numbered 2000 if each has a specific course designated as a prerequisite. It is highly recommended that students complete all 40 hours in courses numbered 3000 and higher. These courses may be taken from other colleges or universities as long as the college residency requirement and the 24-hour rule are satisfied.

### 4. Grade-Point Average

Students graduating from Fulbright College must have a minimum cumulative GPA of 2.00.

### 5. "D"-Rule

If a student has grades of "D" in more than 25 percent of the hours presented for graduation credit, she/he will not be allowed to graduate.

### 6. 68-Hour Rule

Students who transfer into the University may present for degree credit no more than 68 hours of lower division course work (1000 and 2000 level).

### 7. Writing Requirement

Students graduating from Fulbright College must write a research/analytical paper for at least one upper-division course in his or her major. Each department has determined its own procedures for certifying completion of this requirement. Questions should be referred to the departmental chairperson. A student may choose to write a senior thesis in a major area of study. The thesis may be accorded up to six hours of credit. Defense of the thesis before a committee is required. Satisfactory completion of an honors project or a senior thesis may be submitted to meet the college writing requirement.

### 8. Students must complete the stated requirements for a Fulbright College major in addition to all University Requirements for Graduation, including the University Core requirements.

Questions concerning fulfilling the requirements should be referred to the student's adviser or to the dean's office, which will maintain current lists of approved courses, experimental offerings approved to fulfill requirements for a specified period of time, examination schedules, and other options available to the student.

**Fulbright College Senior Scholar:** A student who has earned at least 50 percent of his or her college credits at the University of Arkansas and has maintained a grade-point average of at least 3.80 through the semester preceding graduation shall earn the distinction of "Fulbright College Senior Scholar." In addition to completing one of the sets of degree requirements listed below, a student must also complete the University Requirements for Graduation, including the University Core requirements (see page 41).

## Combined Academic and Medical or Dental Degree

Fulbright College offers a Bachelor of Science degree in medical science or medical science (dentistry). A student may substitute the first year of regular medical or dental work taken in any standard, approved medical or dental school for 33 hours of the total required for the Bachelor of Science degree provided that the following requirements are met:

1. Completion of all core requirements for a B.S. degree, as appropriate, prior to student's entrance in medical or dental school.
2. Completion of a minimum of 12 hours of courses numbered above 3000 taken in Fulbright College.
3. Completion of at least 30 hours immediately prior to student's entrance in medical or dental school in residence in Fulbright College.

Students interested in this degree should consult with their adviser or with the Fulbright College dean's office early in their program. Formal application for the degree should be made to the Registrar.

This program is for highly qualified students with outstanding academic records who may be eligible for early admission to medical school or dental school programs. The year of a medical or dental study substitutes for the major in the B.S. degree program.

## Additional Majors

Students fulfilling all requirements for the B.S., B.S.W., B.F.A. and B.M. degrees, including all core requirements and at least one major in these degree programs, may also claim an additional major in a humanistic discipline, social science, or interdisciplinary program associated with a BA degree. Upon completing all major requirements for that discipline, students wishing to have an additional major will not also receive a BA degree, but the additional major will be made part of their transcript. Students interested in this option should consult regularly with an academic adviser in the additional major and must notify the Fulbright College dean's office (MAIN 525) when degree application is made.

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## HONORS PROGRAM

To create an intellectual environment that challenges the best of students, the J. William Fulbright College of Arts and Sciences provides a comprehensive program of Honors Studies. This includes the Fulbright College Scholars Program, a four-year interdisciplinary honors program for students of superior academic ability or artistic talent, and the Departmental Honors Program, an honors program emphasizing directed independent study within a department or discipline of the college.

For admission into the Fulbright Honors Program, an incoming student must have at least a 3.5 high school grade point average and a minimum ACT composite score of 28 or 1240 SAT. A current Fulbright College student must have a University of Arkansas grade point average of 3.5 or above and a faculty recommendation from the department of study.

A student who successfully completes a program of Honors Studies within Fulbright College is eligible to receive a baccalaureate degree with the distinction Fulbright College Scholar *Cum Laude*, or Departmental Scholar *Cum Laude* in the major field of study. Higher distinctions of *Magna Cum Laude* or *Summa Cum Laude* may be awarded to outstanding honors students by recommendation of the Fulbright College Honors Council.

To earn the distinction Fulbright College Scholar *Cum Laude* at graduation, a student must successfully complete the honors core curriculum, maintain a minimum grade-point average of 3.5, and satisfy requirements for departmental honors in the major field of study, including preparation and oral defense of an honors thesis. The Honors Council may award the higher distinctions of *Magna Cum Laude* or *Summa Cum Laude* based upon a student's total academic performance, including the academic transcript, the quality of the scholarly activity pursued within the major field of study, and the breadth of college study as a whole.

To earn the distinction of Departmental Scholar *Cum Laude* at graduation, a student must successfully complete requirements prescribed by the major department, including an honors thesis and oral examination, maintain a minimum grade-point average of 3.5, and take 12 hours (which may include six hours of thesis) in Honors Studies. If a student demonstrates superior academic performance or an exceptionally high level of scholarly activity, the Honors Council may award the distinction of *Magna Cum Laude*. In exceptional instances where truly outstanding work within the major field is coupled with the superior understanding of its relationship to the college work as a whole, the distinction *Summa Cum Laude* may be awarded.

For more information about Honors Studies within Fulbright College, visit the web site at [www.uark.edu/honors](http://www.uark.edu/honors).

## Degrees with Honors

The J. William Fulbright College of Arts and Sciences is dedicated to providing students a liberal education in the arts, humanities, and sciences. Such an education should be soundly based, innovative, and enriched by a creative faculty. This is especially true for students with superior academic ability or artistic talent. To achieve these aims, the college faculty has developed and participates in the Fulbright College Scholars Program and the Departmental Honors Program.

**Requirements for the Fulbright College Scholars Program:** Credit or exemption for University Core in English composition, including ENGL 1013, ENGL 1023, and ENGL 2003, and in American history or American government, completion of the requirements for departmental honors in a department or study area of the college, including preparation and oral defense of an honors thesis, a cumulative grade-point average of 3.5 or above, and completion of the honors core

curriculum. Students who do not have at least a 3.5 GPA will not be allowed to graduate with honors.

**Requirements for Departmental Honors:** Specific academic requirements including course work, participation in departmental honors colloquia or seminars, and independent study projects are established by the faculty of the individual departments or study areas and are approved by the Honors Council. However, all departmental honors students must have a 3.5 cumulative grade-point average, complete and defend an honors thesis, and take 12 hours (which may include six hours of thesis) in Honors Studies. Information concerning these requirements is given within each department's catalog listings.

The minimum academic requirements of the honors core curriculum for the B.A./B.S.W., B.S., B.M., and B.F.A. degree programs can be found in the degree requirements for each program listed below.

**Honors Core Curriculum**

**Bachelor of Arts or Bachelor of Social Work Degree**

Requirements for Departmental Honors: Specific academic requirements including course work, participation in departmental honors colloquia or seminars, and independent study projects are established by the faculty of the individual departments or study areas and are approved by the Honors Council. However, all departmental honors students must have a 3.5 cumulative grade-point average, complete and defend an honors thesis, and take 12 hours (which may include six hours of thesis) in Honors Studies. Information concerning these requirements is given within each department's catalog listings.

The following outlines the minimum academic requirements of the honors core curriculum for the B.A. and B.S.W. degree programs.

<b>Honors Core Curriculum</b>	<b>Hours</b>
<b><i>Humanities and Social Sciences Option 1</i></b>	
<b><i>Core – 27 hours; 15 hours must be at honors level</i></b>	
World Civilization	6
HIST 1113H or 1113 World Civilization I	
HIST 1123H or 1123 World Civilization II	
World Literature	6
WLIT 1113H or 1113 World Literature I and	
WLIT 1123H or 1123 World Literature II or foreign language	
literature course, any other WLIT course, CLST 1003 or	
CLST 1013	
Philosophy	3
PHIL 2003H or 2003 Intro to Philosophy	
Fine Arts	6
ARCH 1003H or 1003 Architecture Lecture	
ARHS 1003H or 1003 Art Lecture	
COMM 1003H or 1003 Film Lecture	
DANC 1003H or 1003 Introduction to Dance	
DRAM 1003 or 1003 Theater Lecture	
MLIT 1003H or 1003 Music Literature	
Social Sciences	6
ANTH 1023H or 1023 Cultural Anthropology	
GEOG 2003 World Regional Geography	
ECON 2013H or 2013 Macroeconomics	
ECON 2023H or 2023 Microeconomics	
PSYC 2003H or 2003 General Psychology (required for BSW	
Social Work majors)	
SOC 2013H or 2013 General Sociology (required for BSW	
Social Work majors)	
<b><i>Humanities and Social Sciences Option 2</i></b>	
<b><i>Core – 28 hours; 16 hours must be at honors level</i></b>	
HUMN 1114H, HUMN 1124H,	16
HUMN 2114H, HUMN 2124H	
Philosophy	3
PHIL 2003H or 2003 Intro to Philosophy	
Fine Arts	3
ARCH 1003H or 1003 Architecture Lecture	

ARHS 1003H or 1003 Art Lecture	
COMM 1003H or 1003 Film Lecture	
DANC 1003H or 1003 Introduction to Dance	
DRAM 1003 or 1003 Theater Lecture	
MLIT 1003H or 1003 Music Literature	
Social Sciences	6
ANTH 1023H or 1023 Cultural Anthropology	
GEOG 2003 World Regional Geography	
ECON 2013H or 2013 Macroeconomics	
ECON 2023H or 2023 Microeconomics	
PSYC 2003H or 2003 General Psychology (required for	
B.S.W. Social Work majors)	
SOC 2013H or 2013 General Sociology (required for B.S.W.	
Social Work majors)	
<b>Students pursuing either option must also complete the following:</b>	
Honors Colloquia (one from each approved area):	9
Humanities Colloquium	
Social Science Colloquium	
Natural Science or Math Colloquium	
Foreign Language: (depending upon placement) See your adviser.	0-12
Students must demonstrate proficiency in a single modern	
or classical language other than English, usually by complet-	
ing a sequence of four courses (1003, 1013, 2003, 2013).	
See Fulbright College Admission Requirements (page 129).	
Students meeting the normal admission standard (two years of	
high school language) may expect to satisfy this requirement	
with fewer courses, depending upon placement. In cases of	
unusually thorough preparation, or in the case of international	
students, exemption may be sought from the department of	
foreign languages.	
Natural Science and Mathematics	
Core – 15-16 hours; 8 hours must be at honors level	
Natural Sciences	12
At least 4 hours must be chosen from biological and 4 hours	
from physical	
Biological Sciences	
ANTH 1013/1011M or 1013/1011L Intro to Biological	
Anthropology	
BIOL 1543/1541M or 1543/1541L Principles of Biology	
BIOL 1603/1601M or 1603/1601L Principles of Zoology	
BIOL 1613/1611M or 1613/1611L Plant Biology	
BIOL 2013/2011M or 2013/2011L General Microbiology	
Physical Sciences	
ASTR 2003H/2001M or 2003/2001L Survey of the Universe	
CHEM 1103/1101L University Chemistry I	
CHEM 1123H/1121M or 1123/1121L University Chemistry	
II	
GEOL 1113H/1111M or 1113/1111L General Geology	
GEOL 1133/1131L Environmental Geology	
PHYS 1023H/1021M or 1023/1021L Physics and Human	
Affairs	
PHYS 2054H/(M) or 2054/(L) University Physics I	
PHYS 2074H/ (M) or 2074/(L) University Physics II	
Mathematics	3-4
MATH 2033 Mathematics in Society or MATH 2033/2031M	
MATH 2043 Survey of Calculus	
MATH 2053 Finite Math	
MATH 2183 Mathematical Reasoning	
MATH 2554H or 2554 Calculus I	
MATH 2564H or 2564 Calculus II	
MATH 2574H or 2574 Calculus III	

**Bachelor of Science Degree**

Requirements for Departmental Honors: Specific academic requirements including course work, participation in departmental honors colloquia or seminars, and independent study projects are established by the faculty of the individual departments or study areas and are approved by the Honors Council. However, all departmental honors students must have a 3.5 cumulative grade-point average, complete and defend an honors thesis, and take 12 hours (which may include six hours of thesis) in Honors Studies. Information concerning these requirements is given within each department's catalog listings.

The following outlines the minimum academic requirements of the honors core curriculum for the B.S degree program.

<b>Honors Core Curriculum</b>	<b>Hours</b>
<b><i>Humanities and Social Sciences Option 1</i></b>	
<b><i>Core – 18 hours; 9 hours must be at honors level</i></b>	
World Civilization	6
HIST 1113H or 1113 World Civilization I	
HIST 1123H or 1123 World Civilization II	
Fine Arts/World Literature/Philosophy	9
Must be selected from two different areas.	
<b>Fine Arts</b>	
ARCH 1003H or 1003 Architecture Lecture	
ARHS 1003H or 1003 Art Lecture	
COMM 1003H or 1003 Film Lecture	
DANC 1003H or 1003 Intro to Dance	
DRAM 1003H or 1003 Theater Lecture	
MLIT 1003H or 1003 Music Lecture	
<b>World Literature</b>	
WLIT 1113H or 1113 World Literature I	
WLIT 1123H or 1123 World Literature II or foreign language literature course, any other WLIT course, CLST 1003 or CLST 1013	
<b>Philosophy</b>	
PHIL 2003H or 2003 Introduction to Philosophy	
Social Sciences	3
ANTH 1023H or 1023 Cultural Anthropology	
ECON 2013H or 2013 Macroeconomics	
ECON 2023H or 2023 Microeconomics	
GEOG 2003 World Regional Geography	
PSYC 2003H or 2003 General Psychology	
SOCI 2013H or 2013 General Sociology	
<b><i>Humanities and Social Sciences Option 2</i></b>	
<b><i>Core – 18 hours; 9 hours must be at honors level</i></b>	
HUMN 1114H, HUMN 1124H, HUMN 2114H	12
Humanities/Fine Arts/World Literature/Philosophy	
Must select one course from humanities, fine arts, world literature or philosophy:	3
<b>Humanities</b>	
HUMN 2124H	
<b>Fine Arts</b>	
ARCH 1003H or 1003 Architecture Lecture	
ARHS 1003H or 1003 Art Lecture	
COMM 1003H or 1003 Film Lecture	
DANC 1003H or 1003 Intro Dance	
DRAM 1003H or 1003 Theater Lecture	
MLIT 1003H or 1003 Music Lecture	
<b>World Literature</b>	
WLIT 1123H or 1123 World Literature II or foreign language literature course, any other WLIT course, CLST 1003 or CLST 1013	
<b>Philosophy</b>	
PHIL 2003H or 2003 Introduction to Philosophy	

Social Sciences	3
ANTH 1023H or 1023 Cultural Anthropology	
ECON 2013H or 2013 Macroeconomics	
ECON 2023H or 2023 Microeconomics	
GEOG 2003 World Regional Geography	
PSYC 2003H or 2003 General Psychology	
SOCI 2013H or 2013 General Sociology	
<b>Students pursuing either option must also complete the following:</b>	
Honors Colloquium (one from each approved area):	9
Humanities Colloquium	
Social Science Colloquium	
Natural Science or Math Colloquium	
Natural Sciences and Mathematics	
Core – 20 hours; 16 hours must be at honors level	
Complete 16 honors hours from at least two of the five different areas below. At least one class from Area 5 is required, although not necessarily at the Honors level.	
<b>Natural Sciences</b>	16
<b>Area 1</b>	
ASTR 2003H/2001M Survey of the Universe	
PHYS 2054H/2054H(M) University Physics I	
PHYS 2074H/2074H(M) University Physics II	
<b>Area 2</b>	
BIOL 1543/1541M Principles of Biology	
BIOL 1603/1601M Principles of Zoology	
BIOL 1613/1611M Plant Biology	
BIOL 2013/2011M General Microbiology	
<b>Area 3</b>	
CHEM 1103/1101L University Chemistry I	
CHEM 1123H/1121M University Chemistry II	
CHEM 1213/1211L Chemistry I for Majors	
CHEM 1223/1221L Chemistry II for Majors	
CHEM 3603H/3602M Organic Chemistry I	
CHEM 3613H/3612M Organic Chemistry II	
<b>Area 4</b>	
GEOL 1113H/1111M General Geology	
GEOL 1133/1131L Environmental Geology	
<b>Mathematics</b>	4
<b>Area 5</b>	
MATH 2554H or 2554 Calculus I	
MATH 2564H or 2564 Calculus II	
MATH 2574H or 2574 Calculus III	
Foreign Language: (depending upon placement)	0-9
See your adviser. Students must demonstrate proficiency in a single modern or classical language other than English, usually by completing a sequence of three courses (1003, 1013, 2003). Students meeting the normal admission standard (two years of high school language) may expect to satisfy this requirement with fewer courses, depending upon placement. In cases of unusually thorough preparation, or in the case of international students, exemption may be sought from the department of foreign languages.	
<b>Bachelor of Music Degree</b>	
Requirements for Departmental Honors: Specific academic requirements including course work, participation in departmental honors colloquia or seminars, and independent study projects are established by the faculty of the individual departments or study areas and are approved by the Honors Council.	
However, all departmental honors students must have a 3.5 cumulative grade-point average, complete and defend an honors thesis, and take 12 hours (which may include six hours of thesis) in Honors Studies. Information concerning these requirements is given within each department's catalog listings.	

The following outlines the minimum academic requirements of the honors core curriculum for the B.F.A. degree program.

<b>Honors Core Curriculum</b>	<b>Hours</b>
<b>Humanities Option 1</b>	
World Civilization HIST 1113H, HIST 1123H	6
World Literature WLIT 1113H	3
Fine Arts MLIT 1013H	3
Colloquium in Humanities Course offerings vary each semester.	3
<b>Humanities Option 2</b>	
Honors Roots of Culture HUMN 1114H, HUMN 1124H, HUMN 2114H	12
Fine Arts MLIT 1013H	3
Colloquium in Humanities Students pursuing Humanities Option 2 who complete the fourth semester of Honors Roots Culture (HUMN 2124H) will receive a 3-hour waiver for the Humanities Colloquium requirement. Otherwise, they must choose course work from the humanities colloquia course listing. Course offerings vary each semester.	
<b>Students pursuing either option must also complete the following:</b>	
Foreign Language: (depending upon placement) See your adviser.	0-6
Social Science Select from the following: ANTH 1023H, GEOG 2103H, ECON 2013H, ECON 2023H, ECON 2013 and ECON 2023, PSYC 2003H, SOCI 2013H	3
Natural Sciences Eight hours of honors credit to be chosen from the lab sciences. See adviser for specific science course listing.	8
Mathematics Fulbright Scholars must fulfill the math requirement of MATH 2043 or MATH 2053 or MATH 2183 or MATH 2554.	3-4

**Bachelor of Fine Arts Degree**

Specific academic requirements including course work, participation in departmental honors colloquia or seminars, and independent study projects are established by the faculty of the individual departments or study areas and are approved by the Honors Council. However, all departmental honors students must have a 3.5 cumulative grade-point average, complete and defend an honors thesis, and take 12 hours (which may include six hours of thesis) in Honors Studies. Information concerning these requirements is given within each department's catalog listings.

The following outlines the minimum academic requirements of the honors core curriculum for the B.F.A. degree program.

<b>Honors Core Curriculum</b>	<b>Hours</b>
<b>Humanities Option 1</b>	
World Civilization HIST 1113H, HIST 1123H	6
World Literature WLIT 1113H	3
Fine Arts, World Literature II, and Philosophy Must be selected from two different areas.	6

Fine Arts COMM 1003H, DANC 1003H, DRAM 1003H, MLIT 1003H	
Philosophy PHIL 2003H	
World Literature II WLIT 1123H	
Colloquium in Humanities Course offerings vary each semester.	3
<b>Humanities Option 2</b>	
Honors Roots of Culture HUMN 1114H, HUMN 1124H, HUMN 2114H	12
Honors Roots of Culture, Philosophy, Humanities Colloquium Honors Roots of Culture HUMN 2124H	6-7
Philosophy PHIL 2003H	
Colloquium in Humanities Course offerings vary each semester.	
<b>Students pursuing either option must also complete the following:</b>	
Foreign Language: (depending on placement) See your adviser.	0-9
Social Science Select from the following: ANTH 1023H, ECON 2013H, ECON 2023H, ECON 2013 and ECON 2023, PSYC 2003H, SOCI 2013H	3
Colloquia in Social Sciences Must be selected from two different areas of social sciences. Course offerings vary each semester. See adviser.	3
Natural Science: Eight hours of honors to be chosen from lab sciences. See adviser for specific science course listing.	8
Mathematics: Fulbright Scholars must fulfill the math requirement of MATH 2043 or MATH 2053 or MATH 2183 or MATH 2554.	3-4

**GRADUATE STUDIES**

The Graduate School, in cooperation with the faculty of Fulbright College of Arts and Sciences, offers work leading to the graduate certificate or to the degrees of Master of Arts, Master of Science, Master of Music, Master of Fine Arts, Master of Public Administration, Master of Social Work, and Doctor of Philosophy.

Students interested in any of these advanced degrees should consult the *Graduate School Catalog* or the Dean of the Graduate School.

**ACCREDITATIONS**

The American Council on Education in Journalism and Mass Communications has accredited the Bachelor of Arts (B.A.) degree program in journalism. The Bachelor of Arts (B.A.), Bachelor of Music (B.M.), and Master of Music (M.M.) degree programs in the Department of Music are accredited by the National Association of Schools of Music. The Doctor of Philosophy (Ph.D.) degree program in clinical psychology is accredited by the American Psychological Association. The Bachelor of Social Work (B.S.W.) degree and the Master of Social Work (M.S.W.) degree are accredited by the Council on Social Work Education.



## DEPARTMENTS, MAJORS AND MINORS

### AFRICAN AND AFRICAN AMERICAN STUDIES (AAS)

Calvin White  
Chair of Studies  
416 Old Main  
479-575-3001  
<http://aast.uark.edu>

#### FACULTY

- Professor Morgan (sociology), Robinson (history)
- Associate Professors D'Alisera (anthropology), Jones (music)
- Assistant Professor White (history)

Students who wish to gain knowledge and understanding of the history, social organization, current status, and problems of African Americans and of their contributions to the American heritage may elect a combined major in African and African American studies together with a major in anthropology, economics, history, philosophy, political science, psychology, sociology, or social welfare.

#### Requirements for a Combined Major in African and African American Studies:

1. Eighteen hours in African and African American Studies courses in addition to the requirements for the departmental major;
2. African and African American Studies required courses: HIST 3233 African American History to 1877, HIST 3243 African American History since 1877, ANTH 4583 Peoples and Cultures of Sub-Saharan Africa;
3. The remaining six hours will be selected from the following recommended courses:  
ANTH 4513 African Religions: Gods, Witches and Ancestors  
HIST 3443 Modern Imperialism  
HIST 3253 The History of Sub-Saharan Africa  
HIST 4563 The Old South 1607-1865  
HIST 4573 The New South, 1860 to Present  
SOCI 3043 Contemporary Caribbean  
SOCI 4073 Peoples of East Africa  
SOCI 4123 Black Ghetto  
WLIT 4993 African Literature  
And selected Special Topics/Special Studies courses with approval from AAST adviser;
4. No course can be counted both for African and African American Studies and the departmental major.

With careful advising, a combined major of African and African American Studies and majors other than those listed may be developed to meet student needs. Members of the African and African American Studies Committee and interdepartmental committee are Charles Robinson (chair), history; Yimisi Jimo, English; Gordon Morgan, sociology; Charlene Johnson, education; JoAnn D'Alisera, anthropology; John Newman, art; and Carl Riley, arts and sciences.

**Requirements for a Minor in African and African American Studies:** HIST 3233, HIST 3243 and one of the following ANTH 4513, ANTH 4583, or SOCI 4073. In addition, at least 6 hours of approved elective courses. Interested students should consult with the African/African American Studies Chairman for selection of appropriate classes.

Students desiring further information may consult with assistant professor White of the history department.

See Page 308 for African and African American Studies (AAS) courses.

### AMERICAN STUDIES (AMST)

Robert B. Cochran  
Chair of Studies  
530 Old Main  
479-575-7708  
<http://www.uark.edu/misc/carsinfo/major.htm>  
[rcochran@uark.edu](mailto:rcochran@uark.edu)

The J. William Fulbright College of Arts and Sciences has a long-established commitment to the study of American cultures. Virtually every department offers courses centered on various aspects of human experience on the North American continent. The American Studies major promotes interdisciplinary approaches to these fields and provides substantial flexibility for students wishing to design tightly focused or highly individualized courses of study.

**Requirements for a Major in American Studies:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

The American Studies major program requires 30 semester hours, which must include the following:

1. Three hours Introduction to American Studies, AMST 2003.
2. Three hours of American history, **HIST 2003** or **HIST 2013**.
3. Three hours of American National Government, **PLSC 2003**.
4. Three hours of American literature to be selected from ENGL 3833, ENGL 3843, ENGL 3853 or ENGL 3863. (Papers submitted in this course will fulfill the Fulbright College writing requirement.)
5. Eighteen hours to be selected from the following courses, with the selection to include:
  - a. At least one of the following:  
ARCH 4483, ARHS 4913, ARHS 4923, COMM 4143,  
COMM 4353, COMM 4383, COMM 4883, MUHS 4253
  - b. At least one of the following:  
ANTH 3213, ANTH 3253, GEOG 4063,  
SOCI 3193, SOCI 3253
  - c. At least one of the following:  
PLSC 3153, PLSC 3853, PLSC 3933, PLSC 4203
  - d. Nine hours in the chosen area of concentration. Sample areas of concentration include the following:  
**African American Culture** – selections from:  
HIST 3233, PLSC 4243, SOCI 4123, and other approved courses.  
**Contemporary Politics** – selections from:  
COMM 4383, HIST 4733, SOCI 3153, and other approved courses.  
**Gender Issues** – selections from:  
ENGL 3923H, and other approved courses.  
**Native American Culture** – selections from:  
ANTH 3213, ANTH 3263,  
HIST 3263, and other approved courses.  
**Southern Culture** – selections from:  
ENGL 3923H, HIST 4563, HIST 4573,  
and other approved courses  
**Western or Frontier Studies** – selections from:  
HIST 3383, HIST 4463, PLSC 3223,  
and other approved courses

**Requirements for the Major in American Studies with Emphasis on Regional Studies:** Students wishing to major in American Studies with emphasis on regional studies may complete requirements (1), (2), (3), (4), and (5) as all majors. They must also complete ANTH or SOCI 3253 to satisfy requirement (5A) and PLSC 3223 to satisfy requirement (5C). Either HIST 4563, or HIST 4573 must also be completed in satisfying requirement (5D). These requirements total nine hours, leaving six elective hours to complete requirement (5D).

**American Studies**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area. Students must complete at least 124 hours and this must be considered when scheduling upper-level hours in the senior year.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (If required) or any higher-level MATH
- 3 HIST 2003 History of the Am People to 1877 or HIST 2013 History of the Am People 1877-present
- 3 AMST 2003 Intro to Am Studies or General Elective
- 3 University/state social science requirement
- 15 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 University/state fine arts or humanities core requirement
- 3 PLSC 2003 American National Government
- 3 General Elective
- 4 Science university/state core lecture with corequisite lab requirement
- 16 Semester Hours**

**Fall Semester Year 2**

- 3 AMST 2003 Intro to Am Studies (if needed) or General Elective
- 3 †‡Course from Group 1, 2, 3 or 4 below (as needed)
- 3 †American Literature Course or University/state core social science requirement
- 3 University/state humanities or fine arts core requirement (as needed)
- 4 Science university/state core lecture with corequisite lab requirement
- 16 Semester Hours**

**Spring Semester Year 2**

- 3 †‡Course from Group 1, 2, 3 or 4 below (as needed)
- 3 †‡Course from Group 1, 2, 3 or 4 below (as needed)
- 9 General Electives
- 15 Semester Hours**

**Fall Semester Year 3**

- 3 †‡Course from Group 1, 2, 3 or 4 below (as needed)
- 3 †‡Course from Group 1, 2, 3 or 4 below (as needed)
- 3 University/state core social science requirement or †American Literature Course (as needed)
- 3 †Advanced Level Elective
- 4 General Elective
- 16 Semester Hours**

**Spring Semester Year 3**

- 3 †‡Course from Group 1, 2, 3 or 4 below (as needed)
- 3 †‡Upper Level Fulbright College Elective
- 7 General Electives
- 3 †Advanced Level Elective
- 16 Semester Hours**

**Fall Semester Year 4**

- 3 †‡Upper Level Fulbright College Elective
- 9 General Electives
- 3 †Advanced Level Elective
- 15 Semester Hours**

**Spring Semester Year 4**

- 3 †‡Upper Level Fulbright College Elective
- 3 †Advanced Level Elective
- 9 General Electives
- 15 Semester Hours**
- 124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

The following groups are referenced in the eight-semester plan above.

**Group 1**

- ARCH 4483 Architecture of the Americas
- ARHS 4913 American Art to 1860 (ARHS 2923)
- ARHS 4923 American Art 1860-1960 (ARHS 2923)
- COMM 4143 American Film Survey

- COMM 4353 American Public Address (Jr. Standing)
- COMM 4383 Rhetoric of the Modern American Presidency
- COMM 4883 Television and American Culture (COMM 2333)
- MUHS 4253 Special Topics in Music History (MUHS 3703 & 3713)

**Group 2**

- ANTH 3213 Indians of North America
- ANTH 3253 Cultures of the South
- GEOG 4063 Urban Geography (Jr. Standing)
- SOCI 3193 Race, Class, and Gender in America (SOCI 2013)
- SOCI 3253 Cultures of the South

**Group 3**

- PLSC 3153 Public Policy (PLSC 2003)
- PLSC 3853 American Foreign Policy (PLSC 2003 or 2013)
- PLSC 3933 Contemporary American Political Thought
- PLSC 4203 American Political Parties (PLSC 2003)

**Group 4**

- At least 9 hours must be chosen from one of the following concentrations (or another approved by the director):
- African American Studies
  - HIST 3233 African American History to 1877
  - PLSC 4243 Minority Politics
  - SOCI 4123 The Black Ghetto
- Contemporary Politics
  - COMM 4383 Rhetoric of the American Presidency
  - HIST 4733 Recent America, 1941 to present
  - SOCI 3153 Urban Sociology
- Gender Issues
  - ENGL 3923H Honors Colloquium (Honors)
- Native American Culture
  - ANTH 3203 American Indians Today
  - ANTH 3213 Indians of North America
  - ANTH 3263 Indians of Arkansas and the South
  - HIST 3263 History of the American Indian
- Southern Culture
  - ENGL 3923H Honors Colloquium
  - HIST 4563 The Old South, 1607-1865
  - HIST 4573 The New South, 1860-present
- Western or Frontier Studies
  - HIST 3383 Arkansas and the Southwest
  - HIST 4463 The American Frontier
  - PLSC 3223 Arkansas Politics

**Requirements for the Certificate in American Studies for International Students Not Seeking a University of Arkansas Degree:**

International students not seeking a University of Arkansas degree may receive a certificate in American Studies by completing requirements (2) and (3), plus completing a total of twelve hours in any combination from the courses listed under requirement (4). This represents a total of 18 hours.

**Requirements for Departmental Honors in American Studies:** The Departmental Honors Program in American Studies offers junior and senior students the opportunity to enroll in enriched courses and to conduct independent research. In addition to satisfying all other requirements for the major, honors candidates must complete at least 12 hours of honors work, including six in honors essay. The Honors Program in American Studies requires a total of 33 hours in addition to University and college requirements.

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See Page 313 for American Studies (AMST) courses.

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## ANTHROPOLOGY (ANTH)

Peter S. Ungar  
 Chair of the Department  
 330 Old Main  
 479-575-2508  
<http://anthropology.uark.edu>  
[anth@uark.edu](mailto:anth@uark.edu)

### FACULTY

- Distinguished Professor Ungar
- Professors Kay, Kvamme, Plavcan, Rose, Sabo, Schneider, Swedenburg
- Research Professor Mainfort
- Associate Professors Casana, D'Alisera, Erickson, Nolan
- Research Associate Professors Early, Green
- Visiting Assistant Professors Delezene, Polanski, Swarmy

Courses in anthropology provide an introduction to world peoples, their ways of living, and world views. Anthropology helps students to better understand human similarities and differences.

The department of anthropology offers the Bachelor of Science degree in anthropology. The Bachelor of Science degree program is geared toward students with specializations in anthropological sciences. It is recommended for students planning to continue their education in basic or applied anthropological sciences in graduate or professional school. A B.S. degree in anthropology is also useful students planning to continue their education toward health or medical related careers.

### Bachelor of Science in Anthropology

The department of anthropology offers the Bachelor of Science degree in anthropology. The Bachelor of Science degree program is geared toward students with specializations in anthropological sciences. It is recommended for students planning to continue their education in basic or applied anthropological sciences in graduate or professional school. A B.S. degree in anthropology is also useful students planning to continue their education toward health or medical related careers.

**Requirements for a B.S. Degree with a Major in Anthropology:** A minimum of 124 hours is required, including 55 hours specified as designated below.

Required Anthropology Core Courses: ANTH 1013/1011L, Introduction to Biological Anthropology and Laboratory, ANTH 1023 Introduction to Cultural Anthropology, ANTH 3023/3021L Approaches to Archeology and Laboratory, and ANTH 4013 History of Anthropological Thought.

Anthropology Electives: 15 hours selected from courses numbered 3000 or higher.

Science: A minimum of 20 hours of electives from BIOL, CHEM, GEOL, and/or PHYS.

Math: Minimum of 6 hours of math beyond College Algebra (MATH 1203) selected from among the following courses: MATH 1213 Plane Trigonometry or MATH 1284C Precalculus Mathematics, MATH 2554 Calculus I, MATH 2564 Calculus II or STAT 2303 Principles of Statistics.

The following courses that are strongly recommended for those students pursuing a health or medical-related career: ANTH 3423/3421L Human Osteology, BIOL 1603/1601L Principles of Zoology, BIOL 2013/2011L General Microbiology, BIOL 2213/2211L Human Physiology, BIOL 2323/2321L General Genetics, BIOL 2443/2441L Human Anatomy, BIOL 3023 Evolutionary Biology, BIOL 3404 Comparative Vertebrate Morphology, BIOL 4234 Comparative Physiology, BIOL 4263 Cell Physiology, BIOL 4713/4711L Immunology, CHEM 3603/3601L Organic Chemistry, and CHEM 3813 Introduction to Biochemistry.

### Anthropology B.S.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

- 4 ANTH 1013/1011L Introduction to Biological Anthropology
- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra (if required) or MATH 1284C or †MATH 2554
- 3 ANTH 1023 Introduction to Cultural Anthropology
- 3 University/state humanities or fine arts core requirement
- 16 Semester Hours**

#### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 4 MATH 1284C Precalculus Mathematics or †MATH 2554 Calculus I
- 4 Science university/state core lecture and corequisite lab from BIOL, CHEM, GEOL or PHYS
- 3 U.S. History Core: HIST 2003 or HIST 2013 or PLSC 2003
- 3 University/state Social Science core course
- 17 Semester Hours**

#### Fall Semester Year 2

- 3-4 †MATH 2554 Calculus I (if not previously met) or †MATH 2564 or †STAT 2303
- 3 3 University/state fine arts core course
- 4 Science elective and accompanying laboratory from BIOL, CHEM, GEOL or PHYS
- 3-4 General Elective
- 14 Semester Hours**

#### Spring Semester Year 2

- 3 Science elective and accompanying laboratory from BIOL, CHEM, GEOL or PHYS
- 3 †‡ANTH 3023/3021L Approaches to Archeology
- 3 Science elective and accompanying laboratory from BIOL, CHEM, GEOL or PHYS
- 6 University/state social science core course
- 15 Semester Hours**

#### Fall Semester Year 3

- 6 †‡ANTH electives among 3000-4000-level courses
- 3 †‡3000-4000-level Fulbright College electives
- 6 General Electives
- 15 Semester Hours**

#### Spring Semester Year 3

- 9 †‡ANTH electives among 3000-4000-level courses
- 3 †3000-4000 level General Electives
- 4 Science elective and accompanying laboratory from BIOL, CHEM, GEOL or PHYS
- 16 Semester Hours**

#### Fall Semester Year 4

- 3 †‡ANTH 4013 History of Anthropological Thought
- 12 †3000-4000 level General Electives (or 2000-level Advanced level elective)
- 15 Semester Hours**

#### Spring Semester Year 4

- 16 General Electives
- 16 Semester Hours**
- 124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

### Bachelor of Arts in Anthropology

**Requirements for a Bachelor of Arts Degree with a Major in Anthropology:** 35 semester hours including ANTH 1013, ANTH 1011L, ANTH 1023, ANTH 3023, ANTH 3021L, and ANTH 4013.

These 35 hours must also include:

One course in each ANTH subfield (Cultural, Archeology, Biological) beyond the core (9 hours).

3 hours from each of two different geographical areas in ANTH for a total of 6 hours.

6 elective credit hours in anthropology. These may be satisfied in concert with an optional specialization as described below.

**Optional Specializations**

**Specialization in Archeology:**

To complete the specialization, a student is required to fulfill the following course requirements:

Three of the following method and theory courses or equivalent classes offered under ANTH 3903 and ANTH 4903, approved as having an archeological method and theory focus (9 credits).

- ANTH 4093 Archeology of Death
- ANTH 4353 Laboratory Methods in Archeology
- ANTH 4443 Cultural Resource Management I
- ANTH 4603 Landscape Archeology
- ANTH 4633 Archeological Prospecting and Remote Sensing
- ANTH 4813 Ethnographic Approaches to the Past
- ANTH 4803 Historical Archeology

Archeological Field Session (6 credits)

- ANTH 4256

**Specialization in Biological Anthropology:**

To complete the specialization, a student is required to fulfill the following course requirements:

Four of the following courses in biological anthropology, including any 3000-4000 special topics or seminar courses offered that are deemed appropriate for training in any of the subdisciplines of biological anthropology (12-13 credits).

- ANTH 3423/3421L Human Osteology
- ANTH 3433 Human Evolution
- ANTH 3443 Criminalistics: Forensic Sciences
- ANTH 3533 Medical Anthropology
- ANTH 3923H Honors Colloquium: Primate Behavioral Ecology
- ANTH 4523 Dental Science
- ANTH 4613 Primate Adaptation and Evolution

**Specialization in Cartography/Remote Sensing/GIS:** This program gives students an opportunity to develop expertise in (1) cartography, map design and computer-assisted map production, (2) remote sensing and image interpretation, including photographic systems, sensor systems, and digital image processing, and (3) geographic information systems, including data sources, analytical techniques, and hardware/software systems.

To complete the specialization, a student is required to fulfill the following course requirements.

Required Courses:

- GEOG 3023, GEOS 4413, and ANTH 3543

Elective Courses (9 hours to be selected from the following):

- GEOG 4523, GEOL 5423, ANTH 4553, ANTH 4563, ANTH 4593, STAT 4003 (or other approved statistics course), CVEG 2053 (or other approved surveying course)

**Specialization in Cultural Anthropology:**

To complete the specialization, a student is required to fulfill the following course requirements:

Students must take a world language through the 2013 level (up to 12 credits).

Two of the following method and theory courses or equivalent classes offered under ANTH 3903 and ANTH 4903 approved as having a cultural anthropology method and theory focus (6 credits).

- ANTH 3123 The Anthropology of Religion
- ANTH 3143 Language and Expressive Culture
- ANTH 3163 Male and Female: A Cultural and Biological Overview
- ANTH 3533 Medical Anthropology
- ANTH 4033 Popular Culture
- ANTH 4143 Ecological Anthropology
- ANTH 4363 Museums, Material Culture, and Popular Imagination
- ANTH 4813 Ethnographic Approaches to the Past

**Anthropology B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 4 ANTH 1013/1011L Introduction to Biological Anthropology
- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra (if required)
- 3 ANTH 1023 Introduction to Cultural Anthropology
- 3 University/state humanities or fine arts core requirement
- 16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 University/state humanities or fine arts core requirement
- 4 Science university/state core lecture with corequisite lab requirement
- 3 University/state social science core requirement
- 3 U.S. History Core Course: HIST 2003 or HIST 2013 or PLSC 2003
- 16 Semester Hours**

**Fall Semester Year 2**

- 4 †† ANTH 3023/3021L Approaches to Archeology and Lab
- 3 University/state social science core requirement
- 3 † ANTH cultural anthropology subfield course among 3000-4000 level classes
- 6 General Elective
- 16 Semester Hours**

**Spring Semester Year 2**

- 3 † ANTH biological anthropology subfield course among 3000-4000 level classes
- 3 † ANTH archeology subfield course among 3000-4000 level classes
- 3 † ANTH geographical area course among 3000-4000 level classes
- 6 † ANTH electives among 3000-4000 level classes
- 15 Semester Hours**

**Fall Semester Year 3**

- 3 † ANTH geographical area course among 3000-4000 level classes
- 6 †† 3000-4000 Level General Electives (or 2000-level Advanced Level Electives)
- 6 General Electives
- 15 Semester Hours**

**Spring Semester Year 3**

- 6 † 3000-4000 level General Electives
- 9 General Electives
- 15 Semester Hours**

**Fall Semester Year 4**

- 3 † ANTH 4013 History of Anthropological Thought
- 12 General Electives
- 15 Semester Hours**

**Spring Semester Year 4**

- 16 General Electives
- 16 Semester Hours**
- 124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Writing Requirement:** The Fulbright College research/analytical paper requirement for anthropology majors is fulfilled in ANTH 4013.

**Requirements for Departmental Honors in Anthropology:** The Departmental Honors Program in Anthropology provides an opportunity for outstanding undergraduate majors to conduct independent research under the supervision of a faculty member. The research project culminates in an honors thesis, which is primary for the award "Anthropology Scholar *Cum Laude*." Higher degree distinctions are recommended only in truly exceptional cases and are based upon the candidate's entire program of honors studies.

Honors candidates must meet the college requirements for an honors degree. They must complete and defend an honors thesis and take 12 hours, which may include 6 hours of thesis, in Honors Studies. The candidate is expected to maintain a minimum 3.5 cumulative grade-point average in anthropology and other course work.

**Requirements for a Minor in Anthropology:** 15 hours including ANTH 1023.

At least 9 hours must be in courses numbered 3000 or above. Students who minor in anthropology should consult with an anthropology adviser to select appropriate courses. A student must notify the department of his or her intent to minor.

For the combined major in Anthropology and African and African American Studies, see the African and African American Studies listing.

For requirements for the M.A. and Ph.D. degrees in anthropology, see the Graduate School Catalog.

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See Page 314 for Anthropology (ANTH) courses.

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**ART (ARTS)**

Jeannie Hulén  
Chair of the Department  
116 Fine Arts Building  
479-575-5202  
<http://art.uark.edu>

**FACULTY**

- Professors Jacobs, Peven
- Professor Emeriti Brody, Ross, Stout
- Associate Professors Hapgood, Hulén, La Porte, Mazow, Musgnug, Nelson, Newman, Springer
- Associate Professor Emerita Golden
- Assistant Professor Walls
- Visiting Assistant Professors McConnell, Swartwood
- Instructors Edwards, Faur, Jones, Wiseman

**Bachelor of Arts Degree**

Transfer students should confer with the departmental advisers prior to entrance for information concerning entrance requirements and transfer credits. Transfer credit will be allowed from other accredited and recognized art departments if the credit earned is compatible with program and course requirements within the University of Arkansas Department of Art and reflects a grade of "C" or higher. In addition, a student must spend a minimum of 2 semesters in residence. Credit for advanced studio classes in the department is contingent upon presentation of a portfolio of works created in a college-level class equivalent to the class the student is seeking credit for in the Department of Art. Professors in the relevant studio area will evaluate portfolios and determine transfer credits.

**Requirements for a Major in Art with a Concentration in Studio Art:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met.

A minimum of 58 semester hours, including 15 hours of courses, taken outside the department of art (as approved by a departmental adviser); and 43 hours to include ARTS 1013, ARTS 1313, ARTS 1323, ARTS 2013, ARTS 2313, ARTS 4921, and at least 12 hours in art history to include: ARHS 2913 (Survey I) and 2923 (Survey II); one course from ARHS 4833 (Ancient), ARHS 4843 (Medieval), ARHS 4853 (Italian Renaissance), ARHS 4863 (Northern Renaissance), ARHS 4873 (Baroque); and one course from ARHS 4883 (18th and 19th Century European Art), ARHS 4893 (20th Century European), ARHS 4913 (American Art to 1860), ARHS 4923 (American Art 1860-1960), ARHS 4813 (History of Photography), ARHS 4823 (History of Graphic Design). In addition to the freshman year block of courses, the art major must complete a minimum of three semesters (9 credits) in one specialty area of art and a minimum of two semesters (6 credits) in a second area. Areas of selection are drawing, painting, sculpture, printmaking, ceramics, photography, and visual design.

Art majors must complete a basic fine arts course that satisfies the University/state core requirement from outside the Department of Art.

**Art B.A. with a Concentration in Studio Art****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

Primary concentration requires 9 hours in one area chosen from ceramics, drawing, visual design, painting, photography, printmaking or sculpture.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (or any higher level mathematics)
- 3 ARTS 1013 Drawing Fundamentals 1
- 3 ARTS 1313 2-Dimensional Design
- 3 Approved non-Art Elective
- 15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 ARTS 1323 3-Dimensional Design
- 3 †ARTS 2013 Figure Drawing 1 or †ARTS 2313 Computer Applications in Art
- 3 University/state core U.S. history or American National Government
- 3 Approved non-Art Elective
- 15 Semester Hours**

**Fall Semester Year 2**

- 3 †ARTS 2313 Computer Applications in Art or †ARTS 2013 Figure Drawing 1
- 3 ARHS 2913 Art History Survey 1
- 3 University/state core fine arts or humanities requirement
- 4 Science University/state core lecture w/ corequisite lab requirement
- 3 General Elective
- 16 Semester Hours**

**Spring Semester Year 2**

- 3 ††ARTS primary or secondary concentration
- 3 ARHS 2923 Art History Survey 2
- 3 University/state core humanities or fine arts requirement (as needed)
- 3 Approved non-Art Elective
- 3 †Advanced Level Elective
- 15 Semester Hours**

**Fall Semester Year 3**

- 3 ††ARTS primary or secondary concentration
- 3 ††Upper Level ARHS Group 1 or 2 (below)
- 3 University/state core social science core requirement
- 3 Approved non-Art Elective
- 3 †3000+ General Elective
- 15 Semester Hours**

**Spring Semester Year 3**

- 3 ††ARTS primary or secondary concentration
- 3 ††ARHS Upper Level Group 1 or 2 (below, as needed)
- 3 University/state core social science core requirement
- 3 †3000+ General Elective
- 4 General Electives
- 16 Semester Hours**

**Fall Semester Year 4**

- 3 ††ARTS primary or secondary concentration
- 3 ††3000+ Fulbright College Elective
- 3 University/state core social science core requirement
- 6 General Electives
- 15 Semester Hours**

**Spring Semester Year 4**

- 1 ††ARTS 4921 Senior Portfolio Review
- 3 ††ARTS primary or secondary concentration
- 4 Science University/state core lecture w/ corequisite lab requirement
- 3 Approved non-Art Elective
- 6 General Electives
- 17 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Upper Level ARHS Group 1. Choose one course from:

- ARHS 4833 Ancient Art (ARHS 2913)
- ARHS 4843 Medieval Art (ARHS 2913)
- ARHS 4853 Italian Renaissance Art (ARHS 2923)

- ARHS 4863 Northern Renaissance Art (ARHS 2923)
- ARHS 4873 Baroque Art (ARHS 2923)
- ARHS 4983 Special Topics in Art History
- Upper Level ARHS Group 2. Choose one course from:
- ARHS 4813 History of Photography
- ARHS 4883 18th and 19th Century European Art (ARHS 2923)
- ARHS 4893 20th Century European Art (ARHS 2923)
- ARHS 4913 American Art to 1860 (ARHS 2923)
- ARHS 4923 American Art 1860-1960 (ARHS 2923)
- ARHS4993 Special Topics in Modern Art

**Requirements for a Major in Art with a Concentration in Art History:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 51 semester hours:

3-9 hours – Completion of 2013 Intermediate II of a world language. (This is usually accomplished through completion of a sequence of language courses: 1013, 2003 and 2013. NOTE: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements section for details.)

9 – Nine hours of courses from outside the department of art (as approved by a departmental adviser)

And 39 semester hours including: ARTS 1013, 1313 or ARTS 1323, ARHS 2913, and ARHS 2923. In addition to the preceding requirements, 18 hours of upper division art history courses to include at least two courses selected from ARHS 4833, ARHS 4843, ARHS 4853, ARHS 4863, ARHS 4873, and ARHS 4983; and two courses selected from ARHS 4813, ARHS 4883, ARHS 4893, ARHS 4913, ARHS 4923, and ARHS 4993. In addition, two seminar courses in art history, and one elective course in art history or studio art.

Art majors must complete a basic fine arts course that satisfies the University/state core requirement from outside the department of Art.

**Art B.A. with a Concentration in Art History  
Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (or any higher level mathematics)
- 3 ARHS 2913 Art History Survey 1
- 3 1013 Elementary II world language (or higher level, depending on placement)
- 3 University/state core U.S. history, fine arts, or humanities requirement
- 15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 ARHS 2923 Art History Survey 2
- 3 ARTS 1013 Drawing Fundamentals 1
- 4 Science University/state core lecture with corequisite lab requirement
- 3 2003 Intermediate I world language (or higher level)
- 16 Semester Hours**

**Fall Semester Year 2**

- 3 ARTS 1313 Two-Dimensional Design or ARTS 1323 Three-Dimensional Design
- 3 ‡Upper Level Art History Group 1 or 2 (below)
- 3 2013 Intermediate II world language (as needed)
- 3 University/state core fine arts, humanities or U.S. history requirement (as needed)
- 3 University/state core social sciences requirement
- 15 Semester Hours**

**Spring Semester Year 2**

- 3 ‡Upper Level Art History Group 1 or 2 (below)
- 3 †Advanced Level Elective

- 3 University/state core humanities, U.S. history or fine arts requirement (as needed)
- 3 University/state core social sciences requirement
- 4 Science University/state core lecture w/ corequisite lab requirement
- 16 Semester Hours**

**Fall Semester Year 3**

- 3 ‡Upper Level Art History Group 1 or 2 (below, as needed)
- 6 †Advanced Level Electives
- 3 Approved non-Art elective
- 3 University/state core social sciences requirement
- 15 Semester Hours**

**Spring Semester Year 3**

- 3 ‡Upper Level Art History Group 1 or 2 (below, as needed)
- 3 ‡Upper Level Art Elective
- 3 Approved non-Art elective
- 6 General Electives
- 15 Semester Hours**

**Fall Semester Year 4**

- 3 ‡ARHS Seminar
- 3 Approved non-Art elective
- 3 ‡Upper Level Art History Group 1 or 2 (below as needed)
- 7 General Electives
- 16 Semester Hours**

**Spring Semester Year 4**

- 3 ‡ARHS Seminar
- 3 ‡Upper Level ARSC Elective
- 3 †3000-plus Advanced Level Elective
- 3 †Advanced Level Elective
- 3 Upper Level Art History Group 1 or 2 (below, as needed)
- 1 General Elective
- 16 Semester Hours**
- 124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Upper Level ARHS Group 1. Choose three courses from:

- ARHS 4833 Ancient Art (ARHS 2913)
  - ARHS 4843 Medieval Art (ARHS 2913)
  - ARHS 4853 Italian Renaissance Art (ARHS 2923)
  - ARHS 4863 Northern Renaissance Art (ARHS 2923)
  - ARHS 4873 Baroque Art (ARHS 2923)
  - ARHS 4983 Special Topics in Art History
- Upper Level ARHS Group 2. Choose three courses from:
- ARHS 4813 History of Photography
  - ARHS 4883 18th and 19th Century European Art (ARHS 2923)
  - ARHS 4893 20th Century European Art (ARHS 2923)
  - ARHS 4913 American Art to 1860 (ARHS 2923)
  - ARHS 4923 American Art 1860-1960 (ARHS 2923)
  - ARHS4993 Special Topics in Modern Art

**Requirements for a Minor in Art History:** A minimum of 18 semester hours to include ARTS 1013, ARHS 2913, ARHS 2923, and three additional art history courses exclusive of seminars. A student must notify the department of his or her intent to minor. The minor is especially suit to students majoring in anthropology, English, foreign languages, history, philosophy, and music.

**Requirements for Departmental Honors in Art:** As part of the Honors Studies Program of the J. William Fulbright College of Arts and Sciences, the department of art provides the opportunity for academically superior junior- and senior-level students to acquire broader and deeper knowledge and skills in the visual arts and related disciplines. This is accomplished through independent research projects in studio art and/or art history under the direction of the art faculty. Outstanding achievement is recognized by awarding the distinction “Art Scholar Cum Laude.” Students may apply for honors studies beginning in the second semester of their sophomore year and normally will not be accepted into the program after completion of the second semester of their junior year. The department requires each applicant to have a minimum cumulative grade-point average of 3.5 in all college course work, a minimum grade-point average of 3.5 in all course work taken in the department of art, completed ARHS 2913 and ARHS 2923, completed at least 20 semester hours

of work in art department courses, and at least 30 semester hours of general education requirements. Included in those hours, a student must complete and defend an honors thesis and take 12 hours, which may include 6 hours of thesis, in honors studies. Higher degree distinctions take into consideration the student's entire academic career and are recommended for only those students whose honors projects and programs of study demonstrate a truly exceptional degree of creativity and scholarship.

## Bachelor of Fine Arts Degree

**Admission:** Students earning a grade-point average of 3.00 or higher in art, after the completion of ARTS 1013, 1313, and 1323, and who have maintained an overall grade-point average of 2.00 are eligible to make application to the B.F.A. degree program. In addition to meeting the required grade-point average, all students must submit, as part of their application, a portfolio of current representative work for evaluation by the art faculty. Acceptance into the B.F.A. program is contingent upon favorable evaluation by the art faculty of the applicant's portfolio. Upon acceptance into the B.F.A. degree program, each student will be assigned a major adviser for the purpose of completing a degree plan, which must meet departmental approval.

After entry into the B.F.A. program, the student is required to complete two semesters with a minimum of three credit hours of course work in their major studio area each semester.

Transfer credit will be allowed from other accredited and recognized art departments if the credit earned is compatible with program and course requirements within the UA art department and reflects a grade of "C" or higher. This department will not accept more than 50 percent of the required B.F.A. professional degree credits from another institution. The Department of Art will require portfolio review for acceptance of all studio art transfer courses above the foundations level.

**Degree Requirements:** The Bachelor of Fine Arts degree will be awarded to students, who, upon the completion of the approved program, have maintained a 3.00 grade-point average within the UA art department and a 2.00 grade-point average overall. Students in the B.F.A. program whose grade point average falls below 3.0 in art classes for two consecutive semesters will be dismissed from the B.F.A. program. A faculty-supervised critique of the work of each student, once each semester in the program, is required. A senior review and exhibition will be required prior to the granting of the degree.

**Off-campus Study Requirement:** Each student is required to complete an approved off-campus study experience each semester in the program. This may involve a field trip to an urban center that includes visits to major art collections.

**Requirements for the Bachelor of Fine Arts Degree with a Concentration in Studio Art:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. A minimum of 87 semester hours including ARTS 1013, ARTS 1313, ARTS 1323, ARTS 2003, ARTS 2013, ARTS 2313, ARTS 3333, ARTS 3023 or ARTS 4343, ARTS 4921, PHIL 2003, PHIL 4403, plus a minimum of 18 semester hours in the selected studio major, a minimum of 23 semester hours in art electives (must include a minimum of one course in each of the following areas: painting, sculpture, printmaking, visual design, photography, and ceramics. Up to six credit hours may be taken outside of the department with approval), and at least 15 semester hours in art history including ARHS 2913, ARHS 2923, and ARHS 4943.

### Art B.F.A. with a Concentration in Studio Art Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

Primary concentration requires 9 hours in one area chosen from ceramics, drawing, visual design, painting, photography, printmaking or sculpture.

#### Fall Semester Year 1

3	ENGL 1013 Composition I
3	MATH 1203 College Algebra (or higher level mathematics)
3	ARTS 1013 Drawing Fundamentals 1
3	ARTS 1313 2-Dimensional Design
3	ARHS 2913 Art History Survey I
<b>15</b>	<b>Semester Hours</b>

#### Spring Semester Year 1

3	ENGL 1023 Composition II
3	ARTS 1323 3-Dimensional Design
3	†ARTS 2013 Figure Drawing or †ARTS 2313 Computer Applications in Art
3	ARHS 2923 Art History Survey II
3	University/state core social science requirement
<b>15</b>	<b>Semester Hours</b>

#### Fall Semester Year 2

3	Arts Primary Studio Concentration 1
3	ARTS 2313 Computer Applications in Art or †ARTS 2013 Figure Drawing (as needed)
3	ARTS Elective area 1
4	Science University/state core lecture with corequisite lab requirement
3	University/state core social science requirement
<b>16</b>	<b>Semester Hours</b>

APPLY FOR B.F.A. DEGREE PROGRAM  
MUST BE ACCEPTED INTO B.F.A. PROGRAM TO CONTINUE

#### Spring Semester Year 2

3	†Advanced Foundations Course
3	ARTS Elective area 2
3	†‡ARTS Primary Studio Concentration 2
4	Science University/state core lecture with corequisite lab requirement
3	PHIL 2003 or U.S. History University/state core requirement
<b>16</b>	<b>Semester Hours</b>

#### Fall Semester Year 3

3	†‡Advanced Foundations Course (below)
3	†‡ARTS Primary Studio Concentration 3
3	ARTS Elective area 3
3	†‡ARHS Art History upper level
3	U.S. History University/state core requirement or PHIL 2003 (as needed)
<b>15</b>	<b>Semester Hours</b>

#### Spring Semester Year 3

3	†‡ARTS Primary Studio Concentration 4
3	ARTS Elective area 4
3	†‡Advanced Foundations Course (below)
3	†‡ARHS Art History upper level
3	General Elective
<b>15</b>	<b>Semester Hours</b>

#### Fall Semester Year 4

3	†‡ARTS Primary Concentration 5
3	ARTS Elective area 5
3	ARTS Elective area 6
3	†‡ARHS 4943 Seminar in Art Criticism
3	Social Science University/state core requirement
1	General Elective
<b>16</b>	<b>Semester Hours</b>

#### Spring Semester Year 4

3	†‡ARTS Primary Studio Concentration 6
3	†‡ARTS Upper-level Election (may be in primary area)
3	†‡ARTS Upper-level Election (may be in primary area)
1	†‡ARTS 4921 Senior Portfolio Review
3	†‡PHIL 4403 Philosophy of Art
3	Arts Elective (if needed) or General Elective
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

#### Advanced Foundation Courses:

ARTS 2003 Drawing Fundamentals II (Spring)  
ARTS 3333 Color Studies (Fall)  
ARTS 3023 Drawing III (Fall) or ARTS 4343 Advanced Design (Spring)

### Requirements for the Bachelor of Fine Arts Degree with a Concentration in Art

**Education:** A minimum of 76 hours to include:

3-6 – **2003 Intermediate I of a world language.** This is usually accomplished through completion of a sequence of two language courses: 1013 and 2003. (NOTE: 1003 usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 130 for further details.)

- 3 – COMM 1313 Public Speaking
  - 3 – PHIL 2003 Intro to Philosophy
  - 3 – PHIL 4403 Philosophy of Art
  - 3 – PSYC 2003 General Psychology
- and ARTS 1013, ARTS 1313, ARTS 1323, ARTS 2003, ARTS 2013, ARTS 2313, ARTS 3333, ARTS 3023 or ARTS 4343, and ARTS 4921, a minimum of 12 hours in a selected studio major and 6 hours in a selected studio minor, at least 12 hours in art history including ARHS 2913, ARHS 2923, and ARHS 4943, at least 6 hours of 3000- or 4000-level studio art electives exclusive of the studio major and minor.

Students who wish to apply for admission to the internship program in art education must complete the following Stages.

**Stage I:** Complete an evaluation for internship. Students must also meet the following criteria to be cleared for the internship:

1. Declare the major in art education in the Fulbright Advising Center, 518 Old Main.
2. Successful completion of the PRAXIS I test by meeting or exceeding the Arkansas Department of Education cut-off scores. This test should be taken after the student has completed 30 credit hours and upon completion of ENGL 1013, ENGL 1023, and MATH 1203.
3. Obtain a “C” or better in the following pre-education core courses: CIED 1002, CIED 1011, CIED 3023, and CIED 3033.
4. Obtain a “C” or better in ARED 3613, ARED 3643, ARED 3653.
5. Satisfactory completion of the Evaluation for Internship form. The Evaluation form must be completed by October 1 prior to doing a fall internship or March 1 prior to doing a spring internship. This form is available online at [http://coehp.uark.edu/Evaluation\\_for\\_Art\\_Internship.doc](http://coehp.uark.edu/Evaluation_for_Art_Internship.doc).  
The completed form must be returned to the Coordinator of Teacher Education, 8 Peabody Hall, no later than the stated deadline.
6. Complete the B.F.A. degree with a cumulative GPA of 2.50 or higher. The degree must be posted to your University of Arkansas transcript at the Registrar’s Office prior to internship.
7. Obtain departmental clearance for internship based on successful completion of portfolios, evaluation for internship, GPA requirements, course work requirements, selected written recommendations, an interview, and/or other requirements specified by your program.
8. Complete licensure packet available from the Coordinator of Teacher Education, Peabody Hall Room 8.

All requirements in Stage I must be met to be cleared for the internship. Please contact the Coordinator of Teacher Education, 8 Peabody Hall, College of Education and Health Professions for more information.

**Stage II: Internship**

1. Complete the one-semester internship at an approved site in Washington or Benton counties.
2. Complete Praxis II requirements. See your adviser for completion dates.

NOTE: Students should always consult the Coordinator of Teacher Education for any licensure requirement changes. Students will not be licensed to teach in Arkansas until they have met all requirements for licensure as set forth by the Arkansas Department of Education.

Usually licensure in another state is facilitated by qualifying for a license in Arkansas. An application in another state must be made on the application form of that state, which can be obtained by request from the State Teacher Licensure office in the capital city. An official transcript should accompany the application. In many instances the applications are referred to the Coordinator of Teacher Education to verify program completion in teacher education.

**Writing Requirement:** The Fulbright College research/analytical writing requirement for art majors, B.A. and B.F.A. degrees, will be fulfilled in art history courses ARHS 4833, ARHS 4843, ARHS 4853, ARHS 4863, ARHS 4873, ARHS 4943, and ARHS 4963. It also may be an honors thesis in art history (only).

**Art B.F.A. with a Concentration in Art Education**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

ARTS Electives exclusive of the studio major and minor to be selected from ARTS 3103, ARTS 3203, ARTS 3363, ARTS 3463, ARTS 3503 or ARTS 3523, ARTS 3803.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra (or higher level mathematics)
- 3 ARTS 1013 Drawing Fundamentals 1
- 3 ARTS 1313 Two-Dimensional Design
- 3 ARTS 2913 Art History Survey I
- 15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 ARTS 1323 3-Dimensional Design
- 3 †ARTS 2013 Figure Drawing or ARTS 2313 Computer Applications in Art
- 3 ARTS 2923 Art History Survey II
- 3 1013 Elementary I world language or higher (depending on placement in sequence)
- 15 Semester Hours**

**Fall Semester Year 2**

- 3 ARTS Primary Studio Concentration 1
- 3 †‡ARTS Advanced Foundations Course
- 3 PSYC 2003 General Psychology
- 3 ARTS 2313 Computer Applications in Art or ARTS 2013 Figure Drawing (as needed)
- 3 2003 Elementary II world language or higher level
- 15 Semester Hours**

APPLY FOR B.F.A PROGRAM  
MUST BE ACCEPTED INTO B.F.A. PROGRAM TO CONTINUE

**Spring Semester Year 2**

- 3 †ARTS Advanced Foundations Course (listed below)
- 3 †‡ARTS Primary Studio Concentration 2
- 4 Science University/state core lecture with corequisite lab requirement
- 3 CIED 1002/1011 Introduction to Education
- 3 U.S. History University/state core requirement
- 16 Semester Hours**

**Fall Semester Year 3**

- 3 †‡ARTS Advanced Foundations Course (listed below)
- 3 †‡ARTS Primary Studio Concentration 3
- 3 ARED 3613 Public School Art
- 4 Science University/state core lecture with corequisite lab requirement
- 3 PHIL 2003 Intro to Philosophy
- 16 Semester Hours**

TAKE PRAXIS 1 EXAM

**Spring Semester Year 3**

- 3 †‡ARTS Primary Studio Concentration 4
- 3 †ARTS Advanced Foundations Course (listed below) or ARTS Secondary Studio Concentration
- 3 †‡PHIL 4403 Philosophy of Art
- 3 †CIED 3033 Classroom Learning Theory
- 3 COMM 1313 Public Speaking
- 1 General Elective
- 16 Semester Hours**

**Fall Semester Year 4**

- 3 ARTS elective (exclusive of studio major and minor)
- 3 ARTS Secondary Studio Concentration or ARTS Advanced Foundations Course (listed below)
- 3 †‡ARHS 4943 Art Criticism
- 3 †‡ARED 3643 Teaching Art in Elementary schools
- 3 Social Science University/state core requirement
- 15 Semester Hours**

**Spring Semester Year 4**

- 3 ARTS elective (exclusive of studio major and minor)
- 3 Social Sciences University/state core requirement
- 3 †‡ARED 3653 Teaching Art in Secondary Schools
- 1 †‡ARTS 4921 Senior Portfolio Review
- 3 †CIED 3023 Survey of Exceptionalities



3	†#ARHS advanced elective
16	<b>Semester Hours</b>
124	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
<p>Note: In addition to and after completion of the program listed above, for certification, the student must complete an additional 12 hours of Student Teaching in Art, ARED 476V and take the Praxis II exams (concurrent with enrollment in ARED 476V).</p> <p>Advanced Foundations Courses:                  ARTS 2003 Drawing Fundamentals II (Spring)                  ARTS 3333 Color Studies (Fall)                  ARTS 3023 Drawing III (Fall) or ARTS 4343 Advanced Design (Spring)</p>	

For requirements for the M.F.A. degree program in art, see the *Graduate School Catalog*.

See Page 318 for Art (ARTS) courses.

**ARTS AND SCIENCES (ARSC)**

Charles H. Adams  
 Chair of Studies  
 525 Old Main  
 479-575-4801

Students may enroll in off-campus programs (ARSC) under special circumstances and with the approval of the Associate Dean of Fulbright College.

See Page 318 for Arts and Sciences (ARSC) courses.

**ASIAN STUDIES (AIST)**

Ka Zeng  
 Chair of Studies  
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**Requirements for the Asian Studies Combined Major:**

**Language Competence:** Students must complete CHIN 2013 (or equivalent) or JAPN 2013 (or equivalent). Subject to the approval of the Director of Studies, students with language competence in one language (Chinese or Japanese) may receive some elective credit for competence level courses in the other language. Proficiency in other Asian languages may also satisfy this requirement.

In addition to the above language requirement, students must complete 21 hours in Asia-related courses, subject to the following conditions:

**Colloquium** (3-6 hours): Students must complete at least three hours in the interdisciplinary colloquium, AIST 4003/AIST 4003H. The AIST Colloquium may be repeated, provided the topic is different.

**Electives** (15-18 hours): In addition to the above requirements and the requirements for the departmental major, students must complete 15-18 hours of Asia-related courses (AIST approved electives listed below) subject to the following conditions of distribution:

1. Students must complete 6 hours of history courses;
2. Students must complete 6 hours of social science courses;
3. Courses must be selected from at least three different departments;
4. A maximum of nine hours may be submitted from any one department;
5. In addition, the following may be applied toward the major:
  - a. Up to 6 hours of upper-level language courses (such as CHIN 3003,

- CHIN 3033, CHIN 3103, JAPN 3003, JAPN 3013, JAPN 3033);
- b. Up to 6 hours of credits in an approved study-abroad program;
- c. Up to 6 hours of CHIN or JAPN 3983/3983H (Special Studies)
- d. Other Asia-related courses with approval of the director of Asian Studies

**Requirements for a Minor in Asian Studies:**

Students may earn a minor in Asian Studies by taking courses in art, anthropology, economics, geography, history, languages, sociology, political science, and literature of Asia. Students must fulfill the language requirement described below and complete 15 hours in Asia-related courses in order to earn the minor.

**Language Requirement:** Students must complete CHIN 2013 (or equivalent) or JAPN 2013 (or equivalent). At the discretion of the chair of studies, proficiency in other Asian languages may also satisfy this requirement.

Beyond the language requirement, students must complete 15 credit hours of approved courses, including at least three hours in the Asian Studies Colloquium (AIST 4003). The following courses may be taken in fulfillment of the elective requirements:

- Approved AIST Electives
- ECON 3933 Japanese Economic System
  - ECON 4633 International Trade Policy
  - HIST 3513 History of China to 1644
  - HIST 3523 Modern China
  - JAPN 4213 Japanese Culture
  - JAPN 4313/4313H Language and Society of Japan
  - MUSY 4113H Honors Ethnomusicology
  - MUSY 4313H Honors Special Topics in Asian and Middle Eastern Musics
  - MUSY 477V/477VH Independent Research in Ethnomusicology
  - PLSC 3503 Governments and Politics of East Asia
  - PLSC 4823 Foreign Policy of East Asia

Students may also apply three hours of credit in an approved study-abroad program in an Asian country and three hours of upper-level Chinese or Japanese toward the minor.

Other courses, MGMT 4583, International Management, and Performing Arts of East Asia, may be taken for credit toward the minor with the approval of the chair of Asian Studies.

See Page 313 for Asian Studies (AIST) courses.

**BIOLOGICAL SCIENCES (BISC)**

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**FACULTY**

- Distinguished Professor Henry
- University Professors James, Smith (K.)
- Professors Beaupre, Brown, Durdik, Etges, Kral, Rhoads, Spiegel, Walker
- Professors Emeriti Evans, Kilambi, Martin, Meyer, Smith (E.), Talburt
- Research Professors Krementz, Magoulick, Stephenson
- Associate Professors Ivey, Lehmann, McNabb, Pinto, Silberman
- Associate Professors Emeriti Bailey, Lane, Wickliff
- Assistant Professors Du, Evans-White, Huxel, Lessner, Tipsmark
- Assistant Research Professors Goforth, Radwell

The Department of Biological Sciences offers a Bachelor of Science degree for those students who seek a degree with a broad background in the life sciences. The B.S. is recommended for students planning to continue their education in basic or applied biology in graduate or professional school. A Bachelor of Arts degree is available for students who do not necessarily plan on a career as a professional biologist but who desire a good foundation in the discipline. Students seeking research experience are invited to participate in the college honors program.

**Requirements for a B.S. Degree with a Major in Biology:** A minimum of 124

hours is required, including 40 hours in the major as specified below.

1. Biology Core (13 hours): Cell Biology (BIOL 2533), General Genetics (BIOL 2323), Evolutionary Biology (BIOL 3023), General Ecology (BIOL 3863) and a minimum of one hour of Core Laboratory selected from Cell Biology Laboratory (BIOL 2531L), General Genetics Laboratory (BIOL 2321L), and General Ecology Laboratory (BIOL 3861L)
2. An additional 27 hours of electives in biology and/or biology related electives including:
  - a. No more than 8 hours of elective courses at the 1000 level. This includes Principles of Biology. Principles of Biology (BIOL 1543/1541L) is not required for the B.S. major. Well-prepared students, in consultation with their adviser, may opt to begin their coursework with the Core.
  - b. At least 2 elective courses numbered 2000 or higher which are lab courses. This includes Core Labs taken in addition to the basic Core requirement. Courses whose catalog description explicitly excludes them from counting toward the major may not be used to meet this requirement. (Laboratory courses also include BIOL 480V, BIOL 480VH, BIOL 499V, and BIOL 499VH.)
  - c. At least 18 hours in BIOL courses numbered 3000 or higher, of which at least 12 hours must be from courses numbered 4000 or higher.
  - d. A course meeting the Fulbright College writing requirement. (The means of meeting the writing requirement are listed following the description of Requirements for Departmental Honors in Biology.)

NOTE: Biology related electives that are not taught by the Department of Biological Sciences must be approved using the "Exception Request for Major or Minor Requirements" form.

**Requirements in cognate science and mathematics include the following:**

1. CHEM 1103/1101L (may be completed by advanced placement), CHEM 1123/1121L, CHEM 3603/3601L, CHEM 3613/3611L, CHEM 3813
2. PHYS 2033/2031L, PHYS 2033/2031L or PHYS 2054, PHYS 2074
3. MATH 2554 (MATH 2564 is recommended)
4. STAT 2023 or STAT 4003/4001L or equivalent.

**Requirement in Philosophy, must include one of the following:** PHIL 2103 or PHIL 2203 or PHIL 3113 or PHIL 4213.

**Biology B.S.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area. Students must complete at least 124 hours and this must be considered when scheduling upper-level hours in the senior year.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 1213 or 1284C or †MATH 2554
- 4 BIOL 1543/BIOL 1541L Principles of Biology and Lab
- 3-4 CHEM 1103/ (CHEM 1101L optional) University Chemistry I
- 3 US history requirement HIST 2003 or HIST 2013 or PLSC 2003, or core from Fine Arts)

**16-18 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2554 or †MATH 2564
- 4 CHEM 1123/CHEM 1121L University Chemistry II and Lab
- 3 Fine Arts or US history requirement HIST 2003 or HIST 2013 or PLSC 2003 (as needed)
- 1 General Elective

**15 Semester Hours**

**Fall Semester Year 2**

- 3-4 †BIOL 2533 Cell (BIOL 2531L optional)
- 4 †CHEM 3603/CHEM 3601L Organic Chemistry I and Lab
- 3 University/state core Social Science requirement or PHIL Requirement
- 4 BIOL lab course or approved BIOL-related elective 2000-level or above
- 1 General Elective

**15-16 Semester Hours**

**Spring Semester Year 2**

- 3-4 †BIOL 2323/BIOL 2321L Genetics (BIOL 2321L optional)
- 4 †CHEM 3613/ CHEM 3611L Organic Chemistry II and Lab
- 3 University/core from social science
- 3 PHIL requirement or University/state core from social science (as needed)
- 3 General Elective

**16-17 Semester Hours**

**Fall Semester Year 3**

- 3 †BIOL 3023 Evolutionary Biology
- 3 †CHEM 3813 Introduction to Biochemistry
- 4 †PHYS 2033/ PHYS 2011L College Physics I and Lab or PHYS 2054 University Physics I
- 3 Core from humanities (if needed) or core from social science
- 3 Core from social science (as needed) or General Elective

**16 Semester Hours**

**Spring Semester Year 3**

- 3-4 †BIOL 3023 Evolutionary Biology (if still needed) or †BIOL 3000-4000 Level Elective
- 3-4 †BIOL 3863/ (BIOL 3861L optional) General Ecology
- 4 †PHYS 2033/ PHYS 2031L College Physics II and Lab or PHYS 2074 University Physics II
- 4 BIOL lab course 2000-level or above

**14-16 Semester Hours**

**Fall Semester Year 4**

- 3-4 †BIOL 3000-4000 Level Elective
- 3-4 †BIOL 4000 Level Elective
- 3 †STAT 2023 Biostatistics
- 3 General Elective
- 3 General Elective

**15-17 Semester Hours**

**Spring Semester Year 4**

- 3-4 †BIOL 4000 Level Elective
- 3-4 †BIOL 4000 Level Elective
- 3 †BIOL 3000-4000 Level Elective
- 3 General Elective
- 3 General Elective

**15-17 Semester Hours**

**124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See 3 on Graduation Requirements Checklist or see the Catalog of Studies.
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See 2b on Graduation Requirements Checklist or see the Catalog of Studies.

**Requirements for a B.A. Degree with a Major in Biology:**

A minimum of 124 hours is required, including:

1. BIOL 1543/1541L Principles of Biology. Majors may substitute another 1000-level BIOL course (BIOL 1603/1601L Principles of Zoology or BIOL 1613/1611L Plant Biology) for BIOL 1543/1541L; a maximum of four 1000-level credits may be applied toward the major.
2. An additional 26 hours of biological sciences, including:
  - a. Biology Core (13 hours): Cell Biology (BIOL 2533), General Genetics (BIOL 2323), Evolutionary Biology (BIOL 3023), General Ecology (BIOL 3863), and a minimum of one hour of Core Laboratory selected from Cell Biology Laboratory (BIOL 2531L), General Genetics Laboratory (BIOL 2321L), and General Ecology Laboratory (BIOL 3861L).
  - b. Biology Electives (13 hours): must include at least 9 hours in BIOL courses numbered 3000 or higher and at least one course numbered 2000 or higher with a laboratory. (Laboratory courses also include BIOL 480V, BIOL 480VH, BIOL 499, and BIOL 499VH.)
3. Requirements in cognate science and mathematics include:
  - a. CHEM 1103/1101L, CHEM 1123/1121L, and either CHEM 2613/2611L or CHEM 3603/3601L and CHEM 3613/3611L
  - b. PHYS 2033/2031L, PHYS 2033/2031L
  - c. MATH 2043 or MATH 2554
  - d. STAT 2023 or STAT 2303 or STAT 4003/4001L or MATH 2183
4. Requirement in Philosophy: PHIL 2103 or PHIL 2203 or PHIL 3113 or PHIL 4213

**Biology B.A.****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 1213 Plane Trig. or MATH 1284C Precalculus (if needed for MATH 2554) or Core from areas a, b, c, d or e (as needed)
- 4 BIOL 1543/BIOL 1541L Principles of Biology and Lab
- 3-4 CHEM 1103/1101L (CHEM 1101L optional)
- 1-2 General Elective (as needed for minimum 15-hour schedule)

**15-16 Semester Hours****Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 † MATH 2043 Survey of Calculus or †MATH 2554 Calculus I
- 4 CHEM 1123/CHEM 1121L
- 3 HIST 2003 or HIST 2013 or PLSC 2003
- 3 Core from Fine Arts

**16-17 Semester Hours****Fall Semester Year 2**

- 3-4 †BIOL 2533 (BIOL 2531L optional) Cell Biology
- 4 †CHEM 3603/3601L or BIOL 2323/ BIOL 2321L Gen. Genetics
- 3 Core area from Social Science
- 3 Core area from Social Science (as needed), or General Elective
- 3 General Elective

**16-17 Semester Hours****Spring Semester Year 2**

- 3-4 † BIOL 2323/ BIOL 2321L (BIOL 2321L lab optional) Gen. Genetics or Biology Elective or BIOL 3023 Evolutionary Biology
- 4 CHEM 3613/3611L Organic Chemistry II or CHEM 2613/2611L Organic Physiological Chemistry
- 3 PHIL 2103 or †PHIL 2203 or †PHIL 3113 or †PHIL 4213 or Core from Social Science (as needed)
- 3 Core from Humanities (as needed) or General Elective
- 3 General Elective or Core from Social Science (as needed)

**16-17 Semester Hours****Fall Semester Year 3**

- 3-4 † BIOL 3023 Evolutionary Biology or BIOL 3863/3861L (3861L lab optional) General Ecology or Biology Elective
- 3-4 † Biology Elective
- 4 † PHYS 2013/ PHYS 2011L College Physics I
- 3 † STAT 2023 or STAT 2303 or †STAT 4003/4001L or †MATH 2183
- 3 Core from Social Science (if needed) or PHIL 2103 or †PHIL 2203 or †PHIL 3113 or †PHIL 4213

**16-18 Semester Hours****Spring Semester Year 3**

- 3-4 †BIOL 3863/ BIOL 3861L or † BIOL 3023 or † BIOL elective (below)
- 3-4 † 3000-4000 level Biology Elective
- 4 † PHYS 2033/ PHYS 2031L College Physics II
- 3 General Elective
- 3 General Elective

**16-18 Semester Hours****Fall Semester Year 4**

- 3-4 † BIOL 3000-4000 Level Biology Elective
- 3-4 † BIOL 3000-4000 Level Biology Elective
- 9 General Electives

**15-17\* Semester Hours****Spring Semester Year 4**

- 3-4 † BIOL 3000-4000 Level Elective from Zoology group
- 3-4 † BIOL 3000-4000 Level Elective
- 6 General Electives
- 3 † Upper Level Elective in Fulbright College (if needed for 24-hour rule) or General Elective

**15-17 Semester Hours****124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for Departmental Honors in Biology:** The biological sciences honors program is designed to provide students an opportunity to investigate questions in biology through an expanded reading program and research experience. Biological science majors may apply to enter the program between the second semester of the sophomore year and the end of the junior year. Application is made through both Honors Studies (MAIN 517) and the Department of Biological Sciences (SCEN 601). Applicants must have a 3.5 grade-point average. Students should consult with their adviser to identify and contact a potential faculty research mentor. The student's research activities will then be directed by the departmental faculty member who agrees to sponsor the student.

Students may enroll for up to four hours of credit in BIOL 499VH during the junior year and up to eight hours of credit in BIOL 499VH during the senior year. A maximum of six of these credits may be applied toward a major. Participants must complete and defend an honors thesis and take 12 hours in Honors Studies, which may include six hours of thesis. The honors thesis is based on an original research project and presented orally before a committee composed of two faculty from the biological sciences, a person from outside the biological sciences, and a representative from the Honors Council. This committee makes a recommendation concerning the award of the honors distinction to the Honors Council. Students who successfully complete the departmental honors program usually graduate as "Departmental Scholar *Cum Laude*." Higher degree distinctions are recommended only in exceptional cases and are based upon the candidate's entire involvement in the honors program. Completion of an honors thesis fulfills the writing requirement in biological sciences, which precludes credit for BIOL 498V (Senior Thesis) for the same body of work.

**Writing Requirement:** The college writing requirement for majors in biology may be met by one of the following:

1. Completion of an honors thesis,
2. Completion of a senior thesis (BIOL 498V) supervised by a faculty member in biological sciences,
3. Completion of a *required* term paper with a grade of B or above in a BIOL course numbered 3000 or above on a topic approved by the instructor, or
4. Completion of a paper, supervised by a Biological Sciences faculty member, in Special Topics (BIOL 480V)

NOTE: A student exercising Option 3 or 4 may not use the paper written for that option for credit in BIOL 498V.

**Requirements for a Minor in Biology:** Students must take BIOL 1543/1541L, or equivalent, three biology core courses and two BIOL electives as outlined in the requirements for a B.A. degree in biology. A fourth biology core course may be selected as one of the electives. Students must notify the Fulbright College Dean's Office of their intent to minor in biology using the Program Update form.

**Biology (B.A. or B.S.) Life/Earth Science Teacher Licensure Requirements:** Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students interested in teaching science in middle school should consult with a middle level adviser in the College of Education and Health Professions.

For information on advanced degrees in biology, see the *Graduate School Catalog*.

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See Page 322 for Biology (BIOL) courses.

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## BUSINESS MINOR FOR NON-BUSINESS STUDENTS

The Sam M. Walton College of Business minor requires completion of a minimum of 21 required hours of study (including equivalencies) with at least 50 percent of the courses applied toward the minor taken in residence. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

Fulbright College students seeking a minor in the Walton College must notify the Fulbright College Dean's Office (MAIN 525).

All students seeking a business minor are required to complete the Walton College computer competency requirement (WCOB 1120) and the following courses:  
ECON 2143 Basic Economics Theory and Practice

WCOB 1023 Business Foundations

WCOB 1033 Data Analysis and Interpretation or equivalent

In addition, students must select and complete one of the following concentrations:

**Concentration 1 – General Business**

Select 12 hours from the following courses (at least 6 hours must be 3000-4000 level)

WCOB 1012 Legal Environment of Business

WCOB 2013 Markets and Consumers

WCOB 2023 Production and Delivery of Goods and Services

WCOB 2033 Acquiring and Managing Human Capital

WCOB 2043 Acquiring and Managing Financial Resources

Plus any other 3000- or 4000-level Walton College course

**Concentration 2 – Accounting**

ACCT 2013 Accounting Principles

ACCT 3613 Managerial Uses of Accounting Information

ACCT 3723 Intermediate Accounting I

Plus an additional three hours selected from the following:

ACCT 3533 Accounting Technology

ACCT 3843 Fundamentals of Taxation

**Concentration 3 – Business Economics**

ECON 4333 Economics of Organizations

Plus an additional 9 hours of 3000- or 4000-level business economics courses

**Concentration 4 – Enterprise Resource Planning**

WCOB 2013 Markets and Consumers

WCOB 2043 Acquiring and Managing Financial Resources

WCOB 4213 ERP Fundamentals

Plus an additional three hours from the following:

ISYS 4233 Seminar in ERP Development

ISYS 4293 Business Intelligence

WCOB 4223 ERP Configuration and Implementation

**Concentration 5 – Enterprise Systems**

ISYS 4453 Introduction for Enterprise Servers

ISYS 4463 Enterprise Transaction Systems

Plus an additional six hours from the following:

ISYS 4233 Seminar in ERP Development

ISYS 4293 Business Intelligence

WCOB 4213 ERP Fundamentals

WCOB 4223 ERP Configuration and Implementation

**Concentration 6 – Finance**

WCOB 2043 Acquiring and Managing Financial Resources

Plus an additional nine hours of 3000- or 4000-level finance courses.

**Concentration 7 – Information Systems**

ISYS 3293 System Analysis and Design

ISYS 3393 Business Applications and Development Fundamentals

Plus an additional six hours from the following:

WCOB 4213 ERP Fundamentals

WCOB 4223 ERP Configuration and Implementation

One three hour 4000 level ISYS class

**Concentration 8 – International Business**

Select 12 hours from the following:

ECON 3843 Economic Development, World Bank, and Multilateral Finance

ECON 3853 Emerging Markets

ECON 3933 Japanese Economics

ECON 4633 International Trade

ECON 4643 International Macroeconomics and Finance

ECON 468V International Economics and Business Seminar

FINN 3703 International Finance

MGMT 4583 International Management

MKTG 4633 Global Marketing

SPCM 3643 International Transportation Logistics

**Concentration 9 – Management**

MGMT 4243 Ethics and Corporate Responsibility

Plus an additional 9 hours of 3000/4000 level management courses (may include WCOB 2033, Acquiring and Managing Human Capital or MGMT 3563, Organizational Behavior)

**Concentration 10 – Marketing**

MKTG 3433 Introduction to Marketing Strategy

Plus an additional 9 hours selected from the following:

MKTG 4233 Integrated Marketing Communications

MKTG 3553 Consumer Behavior

MKTG 3633 Marketing Research

MKTG 4343 Selling and Sales Management

MKTG 4633 Global Marketing

MKTG 4433 Retail Strategy

MKTG 4443 Retail Buying and Merchandise

SPCM 3613 Business Logistics

**Concentration 11 – Retail**

MKTG 3433 Introduction to Marketing Strategy

MKTG 3553 Consumer Behavior

MKTG 4433 Retail Strategy

MKTG 4443 Retail Buying and Merchandise

**Concentration 12 – Supply Chain Management**

SPCM 3443 Principles of Transportation

SPCM 3613 Business Logistics

Plus an additional 6 hours selected from the following:

SPCM 3623 Purchasing and Inventory Systems

SPCM 3643 International Transportation and Logistics

SPCM 4633 Transportation Carrier Management

SPCM 4653 Transportation and Logistics

In addition to the above course requirements, non-business-degree-seeking students seeking a minor should note the following:

1. Students who elect to obtain a business minor must provide written notice of their intent to minor to the dean's office of the college in which they are receiving a degree. This notice and all requirements for the business minor must be completed prior to the awarding of the student's undergraduate degree.
2. Business minor students must complete all 1000- and 2000-level courses required for the business minor and be a junior- or senior-level student to enroll in 3000- or 4000-level business courses.
3. All specific course prerequisites must be met. Although business minor students are not required to satisfy the entire pre-business core, they must complete the required courses and any other prerequisite course specified prior to enrolling in a 3000/4000-level course.
4. Business minor students may complete multiple minors with the exception of General Business and an additional area of business study. Students may not use more than three hours of minor courses toward additional minor requirements.
5. ECON 2143 will substitute for ECON 2013/2023 for prerequisite purposes. In addition, students who take both ECON 2013 (Macroeconomics) and ECON 2023 (Microeconomics) will satisfy the economics requirements of the minor.
6. Business minor students are ineligible to take WCOB 3016 (Business Strategy and Planning).
7. All equivalencies must be approved by the assistant dean for undergraduate programs.

## CHEMISTRY AND BIOCHEMISTRY (CHBC)

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### FACULTY

- Distinguished Professors Gawley, Koeppel, Millett, Pulay, Wilkins
- University Professors Durham, Hinton
- University Professor Emeriti Cordes, Fry
- Professors Bobbitt, Davis, Fritsch, McIntosh, Stenken, Stites
- Professors Emeriti Blyholder, Johnson, Thoma
- Associate Professors Adams, Allison, Kumar, Paul, Sakon, Tian
- Assistant Professors Chen, Heyes, Zheng
- Adjunct Professor Becker
- Adjunct Associate Professors Edkins, Turnbull

### Chemistry, Bachelor of Science Degree

**Requirements for a B.S. degree with a Major in Chemistry:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 40 semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L**, (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), CHEM 2263, CHEM 2261L, CHEM 3504, CHEM 3512L, CHEM 3514, CHEM 3703/3702L, CHEM 3713/3712L, CHEM 4123, CHEM 4213/4211L, CHEM 4723, and at least one additional advanced lecture course is required. A minimum of 18 hours of science outside of chemistry and including mathematics through **MATH 2574** and physics through **PHYS 2074** are required. These mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program. Some work in the biological sciences is recommended. This program meets the minimum requirements for certification by the American Chemical Society if CHEM 3813 (or CHEM 4813H/4843H or CHEM 5813/5843) is included. Sample schedules may be obtained from the department of chemistry and biochemistry. Prospective students should consult a departmental adviser.

### Chemistry B.S.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area. Students must complete at least 124 hours and this must be considered when scheduling upper-level hours in the senior year.

This program meets the minimum requirements for certification by the American Chemical Society if CHEM 3813 (or CHEM 4813H/4843H or CHEM 5813/5843) is included.

#### Fall Semester Year 1

3	ENGL 1013 Composition I
4	†MATH 2554 Calculus I
4	CHEM 1213/1211L Chem for Majors I or CHEM 1103/1101L University Chem I
3	University/state core U.S. history requirement
3	General Elective
<b>17</b>	<b>Semester Hours</b>

#### Spring Semester Year 1

3	ENGL 1023 Composition II
4	†MATH 2564 Calculus II
4	CHEM 1223/1221L Chemistry for Majors II or CHEM 1123/1121L University Chemistry II
3	University/state core social science requirement

3	General Elective
<b>17</b>	<b>Semester Hours</b>

#### Fall Semester Year 2

4	†MATH 2574 Calculus III
4	†PHYS 2054 University Physics I with lab component
5	‡CHEM 3703/3702L Organic Chemistry I
3	University/state core fine arts or humanities requirement
<b>16</b>	<b>Semester Hours</b>

#### Spring Semester Year 2

4	†PHYS 2074 University Physics II
4	‡CHEM 3713/3712L Organic Chemistry II for majors
3	University/state core humanities or fine arts requirement (as needed)
3	University/state core social science requirement
3	General Elective
<b>17</b>	<b>Semester Hours</b>

#### Fall Semester Year 3

4	‡CHEM 3504 Physical Chemistry I
4	†CHEM 2263/2261L Analytical Chemistry Lecture/Lab
3-4	†BIOL 1543/1541L or General Elective
3	University/state core social science requirement
<b>14-15</b>	<b>Semester Hours</b>

#### Spring Semester Year 3

6	‡CHEM 3514/3512L Physical Chemistry II
4	Advanced Level Elective Course
3-4	BIOL 1543/1541L (if still needed) or General Elective
<b>13-14</b>	<b>Semester Hours</b>

#### Fall Semester Year 4

3	‡CHEM 4123 Advanced Inorganic Chemistry 1
3	‡CHEM 4723 Experimental Methods in Organic and Inorganic
3	‡CHEM 3813 Introduction to Biochemistry
3	CHEM elective
3	General Elective
<b>15</b>	<b>Semester Hours</b>

#### Spring Semester Year 4

3	‡CHEM 4213/4211L Instrumental Analysis
3	‡CHEM 4853 Biochemistry Techniques
6-9	General Electives (as needed to total 124)
<b>12-15</b>	<b>Semester Hours</b>

#### 124 Total Hours

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

### Requirements for a B.S. degree with a Major in Chemistry, Biophysical Option:

In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 43 semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L**, (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), CHEM 2263, CHEM 2261L, CHEM 3504, CHEM 3603/3601L and 3613/3611L or CHEM 3703/3702L and CHEM 3713/3712L, CHEM 3514/3512L, CHEM 4213/4211L, CHEM 4853 or completion of a senior thesis based on independent research wherein at least 1 credit hour is earned in CHEM 400V (chemistry research) and/or CHEM 498V (senior thesis) during each of 3 different semesters, and 6 hours from CHEM 5813-5843 (same as CHEM 4813H-4843H) or CHEM 3813 and CHEM 4723, **MATH 2554** and **MATH 2564**, **PHYS 2054** with lab component, and **PHYS 2074** with lab component, and 11 hours from the biological sciences, to include **BIOL 1543/1541L**, **BIOL 2533/2531L**, and one additional lecture course numbered above 3000. The mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program.

### Chemistry B.S. with Biophysical Option

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit

granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 CHEM 1103/1101L University Chemistry
- 4 †MATH 2554 Calculus I
- 3 University/state core fine arts or humanities course
- 14 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 4 CHEM 1123/1121L University Chemistry II
- 3 University/state core humanities or fine arts course (as needed)
- 3 University/state core U.S. history course
- 17 Semester Hours**

**Fall Semester Year 2**

- 4 †CHEM 3603/3601L Organic Chemistry I
- 4 †PHYS 2054/2050L University Physics I
- 4 BIOL 1543/1541L Principles of Biology
- 3 University/state core social science course
- 15 Semester Hours**

**Spring Semester Year 2**

- 4 †CHEM 3613/3611L Organic Chemistry II
- 4 †PHYS 2074 University Physics II
- 4 †BIOL 2553/2531L Cell Biology
- 3 †CHEM 2263 Analytical Chemistry
- 3 †Advanced Level Elective
- 18 Semester Hours**

**Fall Semester Year 3**

- 1 †CHEM 2261L Analytical Chemistry Lab
- 4 †CHEM 3504 Physical Chemistry I
- 3 †Advanced Level Elective
- 3 University/state core social science course
- 3 General Elective
- 14 Semester Hours**

**Spring Semester Year 3**

- 6 †CHEM 3514/3512L Physical Chemistry II
- 4 †CHEM 4213/4211L Instrumental Analysis
- 3 University/state core social science course
- 3 General Elective
- 16 Semester Hours**

**Fall Semester Year 4**

- 3 †CHEM 5813 (4813H) Biochemistry I
- 3 †BIOL 3000/4000 Level Elective
- 9 General electives
- 15 Semester Hours**

**Spring Semester Year 4**

- 3 †CHEM 5843 (4843H) Biochemistry II
- 3 †CHEM 4853 Biochemistry Techniques
- 9 General electives
- 15 Semester Hours**
- 124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a B.S. degree with a Major in Chemistry, Biochemistry Option:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 39 semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L** (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), CHEM 2263, CHEM 2261L, either CHEM 3504 and 3514/3512L or CHEM 3453/3451L, CHEM 3703/3702L, CHEM 3713/3712L, CHEM 4853 or completion of a senior thesis based on independent research wherein at least 1 credit hour is earned in CHEM 400V (chemistry research) and/or CHEM 498V (senior thesis) during each of 3 different semesters, CHEM 5813-5843 (same as CHEM 4813H-4843H) or

CHEM 3813 and CHEM 4723, and either CHEM 4213/4211L or CHEM 4123, additional required courses to include **MATH 2554** and **MATH 2564**, either **PHYS 2013/2011L**, **PHYS 2033/2031L** or **PHYS 2054** with lab component, **PHYS 2074** with lab component, and 15 hours of biological sciences to include **BIOL 1543/1541L**, **BIOL 2533/2531L**, **BIOL 2013/2011L**, and either **BIOL 4233** or **BIOL 2323**. The mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program.

**Chemistry B.S. with Biochemistry Option****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

This program meets the minimum requirements for certification by the American Chemical Society if CHEM 3813 (or CHEM 4813H/4843H or CHEM 5813/5843) is included.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 1213 Plane Trig or MATH 1284C PreCalculus or †MATH 2554 Calculus I
- 4 CHEM 1213/1211L Chemistry for Majors I or CHEM 1103/1101L University Chemistry I
- 3 University/state core fine arts or humanities requirement
- 0-3 University/state core U.S. history requirement if taking MATH 1213
- 14-16 Semester hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2554 Calculus I or †MATH 2564 Calculus II
- 4 CHEM 1223/1221L Chem for Majors II or CHEM 1123/1121L University Chemistry II
- 3 University/state core humanities or fine arts requirement (as needed)
- 3 University/state core social science requirement
- 17 Semester hours**

**Fall Semester Year 2**

- 3-4 †MATH 2564 Calculus II (if needed) or University/state core U.S. history requirement (as needed)
- 4 †PHYS 2013/2011L College Physics or †PHYS 2054/2050L University Physics I
- 5 †CHEM 3703/3702L Organic Chemistry I for majors
- 3 University/state core social science requirement
- 15-16 Semester hours**

**Spring Semester Year 2**

- 4 †PHYS 2033/2031L College Physics or †PHYS 2074 University Physics II
- 5 †CHEM 3713/3712L Organic Chemistry II for majors
- 4 BIOL 1543/1541L Principles of Biology
- 3 †CHEM 2263 Analytical Chemistry Lecture
- 16 Semester hours**

**Fall Semester Year 3**

- 4 †CHEM 3453/3451L Elements of Physical Chemistry
- 1 †CHEM 2261L Analytical Chemistry Laboratory
- 4 BIOL 2533/2531L Cell Biology
- 3 University/state core social science requirements
- 3 General Elective
- 15 Semester hours**

**Spring Semester Year 3**

- 3-4 †CHEM 4213/4211L Instrumental Analysis or †CHEM 4123 Advanced Inorganic Chemistry I
- 4 BIOL 2013/2011L General Microbiology
- 9 General Electives
- 16-17 Semester hours**

**Fall Semester Year 4**

- 3 †CHEM 4813H Biochemistry I
- 3-4 †BIOL 2323 General Genetics or †BIOL 4233 Microbial Genetics
- 9 General Electives
- 15-16 Semester hours**

**Spring Semester Year 4**

- 3 †CHEM 4843H Biochemistry II
- 3 †CHEM 4853 Biomechanical Techniques
- 6-10 General Electives (to complete 124-hour requirement)
- 12-16 Semester hours**
- 124 Total Hours**

†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
PHYS 2054 Calculus Based University Physics (pre- or co-requisite MATH 2554) and PHYS 2074 (pre- or co-requisite MATH 2564), is a better choice for students interested in graduate school.	

## Chemistry, Bachelor of Arts Degree

The Chemistry Bachelor of Arts degree is appropriate for premedical students, prospective secondary school science teachers, and others who do not intend to pursue professional careers in chemistry.

**Requirements for a B.A. degree with a Major in Chemistry:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

Completion of a world language course at the 2003 Intermediate I level (This is usually accomplished through completion of a sequence of two world language courses: 1013 and 2003. Please note: 1003 usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 130 for further details.), **CHEM 1213/1211L**, **CHEM 1223/1221L**, (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), CHEM 2263, CHEM 2261L, and 18 additional semester hours in chemistry to include CHEM 3703/3702L and 3713/3712L or CHEM 3603/3601L and 3613/3611L, and either CHEM 3453/3451L, or the combination CHEM 3504 and CHEM 3514/3512L and two additional lecture courses numbered above 3000. **PHYS 2033/2031L** and **MATH 2554** or **MATH 2043** are prerequisites for CHEM 3453, and **PHYS 2074** and **MATH 2574** are prerequisites for the alternate physical chemistry course sequence CHEM 3504 and CHEM 3514/3512L. These physics and mathematics prerequisite requirements are substantial, and these courses and their prerequisites should be scheduled early in the student's program. Sample schedules may be obtained from the department of chemistry and biochemistry. Prospective students should consult a departmental adviser.

### Chemistry B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

3	ENGL 1013 Composition I
3-4	MATH 1203 (if required) or †MATH 2043 or †MATH 2554 (as advised)*
4	CHEM 1213/1211L Chemistry for Majors I or CHEM 1103/1101L University Chemistry I
3	Elementary II world language course numbered 1013**
3	University/state core US history requirement

#### 16-17 Semester Hours

#### Spring Semester Year 1

3	ENGL 1023 Composition II
3-4	†MATH 2043 Survey of Calculus or MATH 2554 Calculus I* (as needed) or Elective
3	CHEM 1223/1221L Chemistry for Majors II or CHEM 1123/1121L University Chemistry II
3	Intermediate I world language course numbered 2003
3	University/state core social science requirement

#### 15-16 Semester Hours

#### Fall Semester Year 2

4-5	†CHEM 3703/3702L Organic I for Majors or †CHEM 3603/3601L Organic I
4	†PHYS 2013/2011L College Physics I
3	University/state core fine arts or humanities requirement
3	University/state core social science requirement
3	General Elective

#### 17-18 Semester Hours

#### Spring Semester Year 2

4-5	†CHEM 3713/3712L Organic II for Majors or †CHEM 3613/3611L Organic II
4	†PHYS 2023/2021L College Physics II
3	University/state core humanities or fine arts requirement (as needed)
3	University/state core social science requirement
3	General Elective

#### 17-18 Semester Hours

#### Fall Semester Year 3

3	†CHEM 2263 Analytical Lecture
4	†CHEM 3453/3451L Elements of Physical CHEM
9	General Electives

#### 16 Semester Hours

#### Spring Semester Year 3

16	General Electives
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#### 16 Semester Hours

#### Fall Semester Year 4

3	†CHEM 3813 Introduction to Biochemistry or †CHEM 4813H Biochemistry I
1	†CHEM 2261L Analytical Lab
3	†Upper Level Fulbright College Elective
7	General Elective

#### 14 Semester Hours

#### Spring Semester Year 4

3	†CHEM 4853 Biochemical Techniques
3	†CHEM 4843H or †CHEM 3113 Intermediate Inorganic Chemistry or †CHEM 4043 Environmental Chemistry
9	General Electives

#### 15 Semester Hours

#### 124 Total Hours

†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
*	Depending on placement; MATH 2043 Survey of Calculus is another option for this degree. Student may also choose to take MATH 1284C Precalculus in Fall Semester 1 and MATH 2554 Calculus in Spring Semester 1. Another option is to complete MATH 1203 in Fall Semester 1 and MATH 2043 Survey of Calculus in Spring Semester 1.
**	This is usually accomplished through completion of a sequence of two world language courses: 1013 and 2003. (Please note: 1003 usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 130 for further details.)

### Requirements for a B.A. degree with a Major in Chemistry, Biochemistry Option:

In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 32 semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L**, (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), CHEM 2263, CHEM 2261L, either CHEM 3453/3451L or CHEM 3504 and CHEM 3514/3512L, either CHEM 3603/3601L and 3613/3611L or CHEM 3703/3702L and 3713/3712L, CHEM 4853 or completion of a senior thesis based on independent research wherein at least 1 credit hour is earned in CHEM 400V (chemistry research) and/or CHEM 498V (senior thesis) during each of 3 different semesters, and either CHEM 5813-5843 (same as CHEM 4813H-4843H) or CHEM 3813 and 4213/4211L or CHEM 3813 and 4123 or CHEM 3813 and 4723.

Also required are: **MATH 2554** or **MATH 2043**, **PHYS 2013/2011L** and **2033/2031L** or **PHYS 2054-2074**, 11 hours from the biological sciences (at least 3 hours of which must be upper-level courses), and completion of a world language course at the 2003 Intermediate I level. (This is usually accomplished through completion of a sequence of two world language courses: 1013 and 2003. Please note: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 130 for further details.) The mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program.

**Chemistry B.A. with Biochemistry Option****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. The following eight-semester plan refers to additional B.A. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 †MATH 2554 Calculus I or other mathematics course as advised for major\*
- 4 CHEM 1213/1211L Chem for Majors I or 1103/1101L University Chem I
- 3 Elementary II world language course numbered 1013
- 3 University/state core US history requirement

**16-17 Semester Hours****Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2564 Calculus II\*
- 4 CHEM 1223/1221L Chem for Majors II or 1123/1121L University Chem II
- 3 Intermediate I world language course numbered 2003
- 3 University/state core social science requirement

**16-17 Semester Hours****Fall Semester Year 2**

- 4 BIOL 1543/1541L Principles of Biology
- 4 †PHYS 2054/2050L University Physics I or †PHYS 2013/2011L College Physics I
- 3 †Advanced Elective
- 3 University/state core fine arts or humanities requirement
- 3 University/state core social science requirement

**17 Semester Hours****Spring Semester Year 2**

- 4 †CHEM 2263/2261L Analytical Chemistry and lab
- 4 †PHYS 2074 University Physics II or †PHYS 2033/2031L College Physics II
- 3 Biology Elective
- 3 University/state core humanities or fine arts requirement (as needed)
- 3 University/state core social science requirement

**17 Semester Hours****Fall Semester Year 3**

- 5 †CHEM 3703/3702L Organic Chem I for Majors
- 4 †CHEM 3453/3451L Elements of Physical Chem or CHEM 3504 Physical Chem
- 3 General Electives
- 4 †Upper Level Biology Elective

**16 Semester Hours****Spring Semester Year 3**

- 5 †CHEM 3713/3712L Organic Chem II for Majors
- 6 †CHEM 3514/3512L Physical Chem II or †CHEM Elective 3000-4000 Level
- 3 General Elective

**14 Semester Hours****Fall Semester Year 4**

- 3 †CHEM 3813 Introduction to Biochemistry or †CHEM 4813H
- 3 †CHEM 4123 Advanced Inorganic Chem I
- 9 General Electives

**15 Semester Hours****Spring Semester Year 4**

- 3 †CHEM 4853 Biochemical Techniques
- 3 †CHEM 4843H or †3113 Intermediate Inorganic Chem or †4043 Environmental Chem

**9 General Electives****15 Semester Hours****124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
- \* Depending on placement; MATH 2043 Survey of Calculus is another option. Student may also choose to take MATH 1284C Precalculus in Fall Semester Year 1 and MATH 2554 Calculus in Spring Semester Year 1. Another option is to complete MATH 1203 in Fall Semester 1 and MATH 2043 Survey of Calculus in Spring Semester Year 1.

**Writing Requirement:** Chemistry majors will satisfy the Fulbright College writing requirement by satisfactory completion of the formal research/analytical reports required in Physical Chemistry Laboratory, CHEM 3451L or CHEM 3512L.

**Requirements for Departmental Honors in Chemistry:** Students with good academic backgrounds and strong interests in research are encouraged to participate in the department of chemistry and biochemistry honors program. Entrance into the program is normally during the sophomore year or the first semester of the junior year, and a minimum cumulative GPA of 3.5 is required. Entrance is initiated by consulting the faculty academic adviser, who will help arrange conferences with potential faculty research project advisers. When there is agreement between the student and the adviser on a research project or area, an Honors Advisory Committee is set up to supervise the honors candidate's program. The heart of the program is the research project, but students are encouraged to broaden their experience beyond required courses within chemistry, the natural sciences, the social sciences, and the humanities. Participation in Honors Colloquia, honors sections of regular courses, and chemistry departmental and divisional seminars is especially recommended. All honors candidates enroll in the spring semester Honors Seminar (CHEM 4011H), and senior honors students must make at least one seminar presentation. All honors candidates will be required to complete and defend an honors thesis and take 12 hours (which may include 6 hours of thesis) in Honors Studies. The thesis is required in the spring semester of the senior year, followed by an oral presentation. On the basis of these written and oral reports and their evaluation of all aspects of the student's honor program, the candidate's Honors Advisory Committee will recommend whether or not the distinction "Chemistry or Biochemistry Scholar *Cum Laude*" should be awarded. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies.

**Requirements for a Minor in Chemistry:** 18 hours of courses above the 1000 level including CHEM 2263, CHEM 2261L, CHEM 3603/3601L, CHEM 3613/3611L, CHEM 3453, and a 3-hour course at the 3000-4000 level. A student must notify the department of his or her intent to minor.

**Chemistry (B.A. or B.S.) Physical/Earth Science Teacher Licensure Requirements:** Please refer to the Secondary Education Requirements for Fulbright College Students on page 125. Students wanting to teach science in middle school should consult with a middle level adviser in the College of Education and Health Professions.

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See Page 328 for Chemistry (CHEM) courses.

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**CLASSICAL STUDIES (CLST)**

Daniel B. Levine  
Chair of Studies  
502 Kimpel Hall  
479-575-2951  
<http://classics.uark.edu>

**FACULTY**

- Professors Levine, Spellman
- Associate Professors Coon, Fredrick

**Requirements for a Major in Classical Studies:** The college offers a major in classical studies leading to the Bachelor of Arts degree.

In addition to the state/university core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Program Policy), the following departmental and major course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

- 3 – COMM 1313 Public Speaking
- 3 – ENGL 2003 Advanced Composition (see catalog course description for exemption requirements) or ENGL 2013 Essay Writing
- 6 – Humanities, 3 of which must come from either **PHIL 2003** or **WLIT 1113**; the remaining 3 hours may be fulfilled by any other state/university humanities core course.

Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).



6 – World Civilization (Social Sciences) to be fulfilled by **HIST 1113** and **1123**

This fulfills 6 hours of social science university/state core; the remaining 3 hours in the social science core must be fulfilled by a non-HIST social science university/state core course.)

Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).

Students should also complete appropriate courses from the following:

- 15 hours of Ancient Greek or 15 hours of Latin.
- 18 hours of additional work in classical languages and/or specific classical studies-related electives, to be selected from the following courses:  
 ARCH 2233  
 ARHS 4833 (prerequisite ARHS 2913 Art History Survey I)  
 ARHS 4843 (prerequisite ARHS 2913 Art History Survey I)  
 CLST 1003, CLST 1013  
 HIST 4003, HIST 4013, HIST 4023, HIST 4043, HIST 4053  
 PHIL 4003 (prerequisite 3 hours of philosophy)  
 PHIL 4013 (prerequisite 3 hours of philosophy)  
 PHIL 4023.
- No more than nine hours of electives from the medieval period may be applied to the major requirements.
- 3. Three hours of a classical studies colloquium (CLST 4003H).

**Classical Studies B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (If required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 Ancient GREK or LATN 1003\* Elementary Classical Language I (if no high school ancient Greek or Latin was taken)
- 3 U.S. History university/state core requirement
- 3 Fine Arts or non-HIST Social Science university/state core requirement

**15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 COMM 1313 Public Speaking
- 3 Ancient GREK or LATN 1013 Elementary Classical Language II
- 3 CLST 1013 Introduction to Classical Studies: Rome (recommended) or other approved classical studies/language elective
- 3 non-HIST Social Science or Fine Arts university/state core requirement

**15 Semester Hours**

**Fall Semester Year 2**

- 3 Ancient GREK or LATN 2003 Intermediate Classical Language I
- 3 GREK or LATN 1003 Elementary Classical Language I or General Elective
- 3 HIST 1113
- 3 PHIL 2003
- 3 CLST 1003 Introduction to Classical Studies: Greece (recommended) or other approved classical studies/language elective

**15 Semester Hours**

**Spring Semester Year 2**

- 3 Ancient GREK or LATN 2013 Intermediate Classical Language II
- 3 GREK or LATN 1013 Elementary Classical Language II or General Elective
- 3 †Advanced Level Elective
- 4 Science university/state core lecture with corequisite lab requirement
- 3 HIST 1123

**16 Semester Hours**

**Fall Semester Year 3**

- 3 †† GREK or LATN Advanced Language
- 3 GREK or LATN 2003 Intermediate Classical Language I or General Elective
- 3 †Advanced Level Elective
- 3 ARHS 2913 Art History Survey I or General Elective
- 4 General Electives

**16 Semester Hours**

**Spring Semester Year 3**

- 3 GREK or LATN 2013 Intermediate Classical Language II or General Elective

- 3 †† Classical Studies Elective
- 3 †† CLST 4003H Honors Classical Studies or †† Classical Studies Elective
- 3 General Elective
- 4 Science university/state core lecture w/ corequisite lab requirement

**16 Semester Hours**

**Fall Semester Year 4**

- 3 †† Classical Studies Elective
- 3 †† Classical Studies Elective
- 10 General Electives

**16 Semester Hours**

**Spring Semester Year 4**

- 3 †† Classical Studies Elective
- 3 †† Classical Studies Elective
- 3 †† CLST 4003H Honors Classical Studies (if needed) or †† Classical Studies Elective
- 3 † Advanced Level Elective
- 3 †† Upper-Level ARSC Elective
- 3 General Electives (as needed to total 124 degree credit hours)

**15-18 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Classical Studies:** Students should select appropriate courses from the following areas:

1. 9 hours of Ancient Greek or Latin courses numbered above 2000,
2. 6 hours of additional work in classical languages and/or specific classical studies-related electives, to be selected from the following courses: ARCH 2233, ARHS 4833, ARHS 4843, CLST 1003, CLST 1013, HIST 4003, HIST 4013, HIST 4023, HIST 4043, HIST 4053, PHIL 4003, PHIL 4013, PHIL 4023.
3. Three hours of a classical studies colloquium (CLST 4003H).

**Requirements for Honors in Classical Studies:** The Honors Program in Classical Studies gives students of high ability the opportunity to strengthen their study of classics by intensifying their experience with ancient languages and cultures.

In addition to the requirements for graduation with a major in classical studies and the general college requirements for a B.A. degree, honors candidates in classical studies must

1. be accepted as honors candidates by the Classical Studies Committee,
2. complete at least three semesters in a second classical language,
3. enroll in at least two 1-hour units of CLST 399VH and pursue independent-study topics under the guidance of classical studies faculty,
4. enroll for two hours of CLST 399VH and write an honors thesis, and
5. defend and discuss their entire honors program in an oral examination.

Successful completion of the requirements will be recognized by the award of the distinction "Classical Studies Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies.

See page 335 for Classical Studies (CLST) courses

## COMMUNICATION (COMM)

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 479-575-3046  
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### FACULTY

- Professors Allen, Frentz, Scheide, Smith, Webb, Wicks
- Professors Emeriti Rea, Rogers
- Associate Professors Amason, Brady, Rosteck, Warren
- Associate Professor Emeritus Bailey
- Assistant Professors Cavallero, Corrigan, Schulte, Veden, Walker
- Assistant Professor Emeritus Galloway
- Adjunct Assistant Professor Cowling

As a subject for academic study, communication bridges the humanities and the social sciences. It focuses on relationships – personal, group, and societal – and the factors and processes that affect important relationships. Friendships and families, business relationships and political systems, cultural interaction and technological advances are important areas of study in communication. Communication students may concern themselves with the dynamics of interpersonal persuasion, the effects of media technologies, the nature of gender stereotypes, the function of roles within the family, the structure of organizational authority, the influence of cultural myths, the impact of social movements, and the history of rhetoric. Because the program offers many diverse interests, there is a place for anyone with a genuine curiosity about human communication and its effect upon society.

Communication majors from recent graduating classes now hold responsible positions in government and public affairs, in management, marketing, and public relations within private business, and in television and mass media organizations. Many others are successfully pursuing further education in graduate and professional schools.

The department of communication offers general studies of the discipline, as well as concentration in three specific emphasis areas:

1. rhetoric and public communication,
2. interpersonal, small group, and organizational communication, and
3. mass communication.

Students may also select a program for acquisition of teaching certification in the field.

**Admission Requirements for a Major in Communication:** For standing as a major, entering freshmen must have ACT composite scores of 20 or higher, and those transferring into the program after the first semester of college study must have a cumulative grade-point average of 2.00 or higher.

**University and College Requirements for a Major in Communication:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

3 hours – MATH 2033\*, 2043C, 2053C, 2183\*, 2554C, or STAT 2303\*

\* These courses are highly recommended.

3-6 hours – Completion of a world language course at the 2003 Intermediate I level is preferred. (This is usually accomplished through completion of a sequence of two language courses: 1013 and 2003. Note: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 130 for further details.) Alternatively, 6 hours of courses from a single culture or world region including African, Asian, European, Latin American and Latino, or Middle Eastern and Islamic may be used to fulfill this requirement. Courses must be approved by a departmental adviser.

9 hours – Fine arts and Humanities courses to include: **COMM 1003**, one additional **University/state fine arts core course**, and one **University/state humanities core course**

42 hours – Communication courses:

- 9 hours consisting of COMM 1023, 1233 and 1313 (each with a minimum grade of “C”);
- 3 hours of COMM 2333 (with a minimum grade of “C”);
- 21 hours of communication courses numbered 3000-4000;
- 9 hours of communication electives.

Communication courses that may satisfy the college or University Core requirements will not count toward the communication electives. To graduate, students must have a cumulative grade-point average of 2.00 or above within the major.

**Writing Requirement:** The college writing requirement may be satisfied by a research paper achieving a grade of “C” or better submitted for an upper-division communication class and approved by the chair of the department.

**Requirements for Departmental Honors in Communication:** The Honors Program in communication gives an opportunity for a student to achieve an additional level of intellectual growth and a satisfaction of accomplishment. A student engages in independent research and writing, under the supervision of a member of the communication faculty, and participates in special honors classes, seminars, and colloquia.

Faculty recognize outstanding achievement by a student by recommending that the bachelor’s degree in communication be awarded with the distinction “Communication Scholar *Cum Laude*.” Higher distinctions may be awarded to truly outstanding students based upon the whole of their academic program and quality of honors research.

To enter the Honors Program, a student must possess a 3.5 minimum grade-point average on all academic work and receive the recommendation of a faculty member in communication to the Honors Council of Fulbright College. A student may pursue an independent research program of a historical, critical, descriptive, or experimental nature, within any of the areas of rhetorical or communication theory, history of public address, interpersonal, small-group, or organizational communication, persuasion, argumentation, political communication, freedom of speech, communication education, or in any closely related areas of inquiry. A student interested in mass communications, broadcasting, or film may choose to pursue either a research project or a creative study. In addition to satisfying the general college and departmental requirements for a bachelor’s degree, a student must satisfy departmental honors requirements, which include the following:

1. become an honors candidate no later than the first semester of the junior year of study,
2. enroll in COMM 399VH, Honors Course, a minimum of one hour of credit each semester during the junior-senior years,
3. achieve a 3.5 minimum grade-point average in communication,
4. take 12 hours, which may include 6 hours of thesis in Honors Studies, and
5. write and defend before a faculty examining committee a thesis based on the investigative or creative project undertaken in COMM 399VH.

For a full description of the Honors Program and its requirements, consult with an adviser in the department of communication.

### Communication B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

- |           |  |
|-----------|--|
| 3         | ENGL 1013 Composition I  |
| 3         | MATH 1203 (if required) or †MATH 2033, 2183, STAT 2303 or higher-level MATH course |
| 3         | COMM 1313 Public Speaking  |
| 3         | US History university/state core requirement                                       |
| 3         | Elementary II world language course numbered 1013                                  |
| <b>15</b> | <b>Semester Hours</b>  |

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II  
 3 †MATH 2033, 2183, STAT 2303 (or higher level math course, as required) or General Elective  
 3 Intermediate I world language course numbered 2003  
 3 COMM 1023 or COMM 1233  
 3 Fine Arts or Humanities core course or COMM 1003 (as needed)  
**15 Semester Hours**

**Fall Semester Year 2**

- 3 COMM 2333 Comm Research or any COMM elective  
 4 Science university/state core lecture with corequisite lab requirement  
 3 Social Science university/state core requirement  
 3 Fine Arts or Humanities core course or COMM 1003 (as needed)  
 3 COMM 1233 or COMM 1023 (as needed)  
**16 Semester Hours**

**Spring Semester Year 2**

- 3 †Advanced Level Elective  
 3 COMM 2333 Comm Research or any COMM Elective  
 3 Social Science university/state core requirement  
 4 Science university/state core lecture with corequisite lab requirement  
 3 Fine Arts or Humanities core course or COMM 1003 (as needed)  
**16 Semester Hours**

**Fall Semester Year 3**

- 3 †‡3000 or †‡4000-level COMM elective  
 3 †‡3000 or †‡4000-level COMM elective  
 3 †Advanced Level Elective  
 3 Social Science university/state core requirement  
 3 General Elective  
**15 Semester Hours**

**Spring Semester Year 3**

- 3 †‡3000 or †‡4000-level COMM elective  
 3 †‡3000 or †‡4000-level COMM elective  
 3 †Advanced Level Elective  
 6 General Electives  
**15 Semester Hours**

**Fall Semester Year 4**

- 3 †‡3000 or †‡4000-level COMM elective  
 3 †‡3000 or †‡4000-level elective  
 3 †‡COMM 3000 or 4000-level elective  
 3 †Advanced Level Elective  
 4 General Electives  
**16 Semester Hours**

**Spring Semester Year 4**

- 3 †‡3000 or 4000-level COMM elective  
 3 †‡3000 or 4000-level COMM elective  
 3 †‡3000 or 4000-level Fulbright College elective  
 3 †Advanced Level Elective (as needed)  
 3 †Advanced Level Elective (as needed) or General Elective  
**15 Semester Hours**  
**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Communication:** 21 hours including at least 12 hours must be numbered 3000 or above. A student should consult with an adviser in the department for appropriate courses.

**Communication (B.A.) Drama/Speech Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

See Page 336 for Communication (COMM) courses

**DRAMA (DRAM)**

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**FACULTY**

- Professors Gibbs, Herzberg, Martin, Riha, Wade
- Professor Emeritus Gross
- Associate Professors Dwyer, Landman
- Assistant Professors Sibley, Stone
- Instructors Lane, Leftwich, Stoker
- Lecturers Frank, Lee
- Visiting Assistant Professor Ford

The Department of Drama offers the Bachelor of Arts (B.A.) degree in Drama, a broad spectrum program in the context of a liberal arts education, and the Master of Fine Arts (M.F.A.) degree in six concentrations: Acting, Directing, Playwriting, Costume Design, Scene Design and Lighting Design. (Please see the Graduate Catalog for information regarding the MFA degree.) Classes at both undergraduate and graduate levels are focused on providing a strong, professional orientation to theatre performance and technology in conjunction with appropriate research-based course work to address the required foundations in theatre history, dramatic literature and dramatic criticism.

The educational objectives of the Department of Drama are centered on producing graduates prepared to enter the competitive world of professional play production as well as a variety of teaching and research fields. In addition a background in Drama has proven to be a valuable asset to those wishing to pursue a wide range of corporate and industrial occupations.

The play production program is the “laboratory” for study in Drama. To that end the Department produces an average of 10 plays each year involving students in virtually all aspects of production. Auditions are open to all students on campus.

The Department of Drama also supports course work in Dance, offering a variety of basic and advanced studio courses.

**Requirements for a Major in Drama:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Program Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the university/state minimum core requirements.

6 – 3 hours of any world language at the 1013 Elementary II level; and 3 hours of continued coursework in the same world language, or 3 hours of a different world language course. (Note: 1003 Elementary I world language courses may not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

3 – **MATH 2033, MATH 2043, MATH 2053, or MATH 2183** or any other higher-level math for which MATH 1203 College Algebra is a prerequisite

3 – A University/state core fine arts course other than DRAM 1003 Theatre Appreciation

6 – One 3-hour course from two of the following three categories:

**HIST 1113 or HIST 1123 World Civilization I or II:**

**WLIT 1113 or WLIT 1123 World Literature I or II**

**PHIL 2003 Intro to Philosophy or PHIL 2103 Intro to Ethics**

In addition, all drama majors must complete a minimum of 40 semester hours of Drama courses to include 18 semester hours in courses numbered 3000 and above or the prescribed program for teacher licensure in speech education.

**All drama majors must complete the following 23 hours:**

DRAM 1223 Intro. to Dramatic Art or DRAM 1003 or DRAM 1003H.

(Note: students who fulfill this requirement with DRAM 1003 or DRAM 1003H must also complete one additional University/state core fine arts

course. Drama majors may not receive credit for both DRAM 1223 and DRAM 1003.)

DRAM 1313/1311L Stage Technology I and Lab: Costumes and Makeup  
 DRAM 1323/1321L Stage Technology II and Lab: Scenery and Lighting  
 DRAM 1683 Acting I

DRAM 2313 Introduction to Theatrical Design (*DRAM 1323*)

DRAM 4233 History of the Theatre I (Pre-req: *DRAM 1223 or DRAM 1003 or 1003H*) Fulfills Fulbright College writing requirement

DRAM 4333 History of the Theatre II (Pre-req: *DRAM 1223 or DRAM 1003 or 1003H*) Fulfills Fulbright College writing requirement

**Group A:** 3 hours to be chosen from:

DRAM 3653 Directing I (Pre-req: *DRAM 1223 or 1003 or 1003H, 1683, 1313/1311 and 1323/1321 and DRAM 2683*)

DRAM 3683 Stage Management (Pre-req: *DRAM 1223 or 1003 or 1003H, 1683, 1313/1311 and 1323/1321*)

**Group B:** 3 hours to be chosen from:

DRAM 3213 Costume Design I (*DRAM 1313/1311*)

DRAM 3733 Stage Lighting I (*DRAM 1323/1321*)

DRAM 3903 Theatrical Makeup (*DRAM 1313/1311*)

DRAM 3943 Scene Painting (*DRAM 1323/1321, 2313*)

DRAM 4653 Scene Design I (*DRAM 1323/1321*)

**Group C:** 3 hours to be chosen from:

DRAM 3803 Development of the Drama (*DRAM 1223*)

DRAM 4733 Dramatic Criticism (*DRAM 3803*) Fulfills Fulbright College writing requirement

DRAM 4463 African American Theatre History

DRAM 491V Special Topics In Script Analysis/Synthesis

DRAM 4953 Theatre Study In Britain or a dramatic literature, dramatic criticism or theatre history seminar as approved by the Drama adviser.

**Group D:** 6 hours of electives to be chosen from the following: DRAM 2683, any DRAM course 3000 or above with the exception of DRAM 3001, 3011, 3021 and 3041.

In addition, all drama majors are required to take an additional 2 credit hours of DRAM 3001 Theatre Practicum, one hour to be taken each academic year. Consult Drama Adviser for more information on these credits.

**Writing Requirement:** The Fulbright College research/analytical paper requirement for drama majors will be fulfilled in DRAM 4233, DRAM 4333, DRAM 4453, or DRAM 4733. Satisfactory completion of an honors project or senior thesis may fulfill the requirement.

**Senior Progress Review:** All drama majors are required, in the semester before graduation, to successfully complete the Senior Progress Review, a faculty assessment of each student's accomplishments in performance and production.

**Requirements for Departmental Honors in Drama:** The Departmental Honors Program in Drama provides upper-division undergraduate students with an opportunity to formally participate in creative and scholarly activities in theatre. Honors candidates engage in independent study and research under the guidance of the drama faculty and participate in special honors seminars and colloquia. Outstanding student achievement will be recognized by awarding the distinction "Drama Scholar *Cum Laude*" at graduation. In addition to satisfying the general college requirements for the bachelor's degree with Honors, honors candidates in drama must:

1. become a candidate no later than the second semester of their junior year,
2. enroll in honors colloquia when available,
3. enroll in six hours of honors research DRAM 399VH,
4. complete and defend in oral examination an honors thesis based upon the project carried out in DRAM 399VH, and
5. achieve a cumulative grade-point average of 3.5. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the candidate's entire academic program. Usually these are awarded only to students with a cumulative grade-point average of 3.50 or above, whose project demonstrates a high degree of creativity and scholarship.

**Drama B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for University requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

All drama majors are required to take an additional two hours of DRAM 3001 Theatre Practicum, one hour to be taken each academic year. Consult Drama Adviser for more information on these credits.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 DRAM 1223 Introduction to Dramatic Art or DRAM 1003 Theatre Appreciation (Students who complete DRAM 1003 to satisfy this Drama B.A. requirement must take one additional university/state fine arts core course. Drama majors may not receive credit for both DRAM 1223 and DRAM 1003.)
- 3-4 DRAM 1313/1311L Stage Tech I: Costumes and Makeup/Lab or DRAM 1683 Acting I
- 3 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or any higher-level math
- 3 1013 Elementary II world language course (depending on placement in language sequence)

**15-16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 DRAM 1323/1321L Stage Tech II: Scenery & Lighting/Lab or DRAM 1683 Acting I (as needed)
- 3 †MATH 2033, 2043, 2053, 2183 or any higher-level math (as needed) or General Elective
- 3 2003 Intermediate I world language course (depending on placement in language sequence) or 3 hours of a different world language
- 3 Social science university/state core requirement

**15-16 Semester Hours**

**Fall Semester Year 2**

- 3-4 DRAM 1313/1311L Stage Tech I/Lab (if needed) or DRAM 2313 Intro. to Theatrical Design (pre-requisite is DRAM 1323/1321L)
- 4 Science university/state core lecture with corequisite lab requirement
- 3 Fine arts (other than DRAM 1003)
- 3 U.S. History or Social Science university/state core requirement
- 3 General Elective

**16-17 Semester Hours**

**Spring Semester Year 2**

- 3-4 DRAM 1323/1321L Stage Tech II: Scenery & Lighting/Lab or DRAM 1683 Acting I (as needed)
- 3 ††DRAM group A, B, C or D (as needed)
- 3 †Advanced Level Elective
- 3 General Elective
- 3 General Elective (or †DRAM 2683 Acting II if planning to take ††DRAM 3653 Directing I)

**15-16 Semester Hours**

**Fall Semester Year 3**

- 3 †DRAM 2313 Intro. to Theatrical Design (if needed) or ††DRAM 4233 History of the Theatre I or †Advanced Level Elective
- 3 ††DRAM group A, B, C or D (as needed)
- 3 Social science or US History university/state core requirement
- 3 Cognate Group 1
- 4 Science university/state core lecture with corequisite lab requirement
- 1 ††DRAM 3001 Production Practicum (as needed)\*

**16-17 Semester Hours**

**Spring Semester Year 3**

- 3 ††DRAM 4333 History of the Theatre II or †Advanced Level Elective
- 3 ††DRAM group A, B, C or D (as needed)
- 3 †Advanced Level Elective
- 3 Social science university/state core requirement (as needed)
- 3 Cognate Group 2 (as needed) or General Elective
- 1 ††DRAM 3001 Production Practicum (as needed)\*

**15-16 Semester Hours**

**Fall Semester Year 4**

- 3 ††DRAM 4233 History of the Theatre I (if needed) or ††DRAM group A, B, C or D (as needed)
- 3 ††DRAM group A, B, C or D (if needed) or General Elective
- 3 ††3000-level or higher Fulbright College elective

6	General Electives
1	†‡DRAM 3001 Production Practicum (as needed)*
<b>15-16 Semester Hours</b>	
<b>Spring Semester Year 4</b>	
3	†‡DRAM 4333 History of the Theatre II (if needed) or †‡DRAM group A, B, C or D (as needed)
3	†‡DRAM group A, B, C or D (if needed) or General Elective
3	†‡3000-level or higher Fulbright College Elective
3	†Advanced Level Elective
3	General Elective
1	†‡DRAM 3001 Production Practicum (as needed)*
<b>15-16 Semester Hours</b>	
<b>124</b>	<b>Total Hours</b>

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

\* Students must complete two semesters of DRAM 3001 prior to graduation; however, no more than 2 credits of DRAM 3001 may be taken.

**Requirements for a Minor in Drama:** A minimum of 18 semester hours in drama, including DRAM 1223 or DRAM 1003 or DRAM 1003H. One of the following courses or course/lab combinations is also required: DRAM 1313 and 1311L, or DRAM 1323 and 1321L, or DRAM 1683. The remaining hours must be selected from courses at the 3000- or 4000-level, the specific courses to be determined by the student in consultation with a drama department faculty adviser. The student must notify the department of his or her intent to minor.

#### **Drama (B.A.) Drama/Speech Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

For requirements for the M.A. and M.F.A. degrees in drama, see the *Graduate School Catalog*.

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See Page 341 for Drama (DRAM) and Dance (DANC) courses

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## **ECONOMICS (ECON)**

Gary D. Ferrier  
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 479-575-ECON (3266)  
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#### **FACULTY**

- University Professors Britton, Gay
- University Professor and Lewis E. Epley Jr. Professor in Economics Ferrier
- Margaret Gerig and R.S. Martin Jr. Chair in Business Professor Farmer
- ConocoPhillips Chair in International Business and Economics Associate Professor Kali
- Professors Curington, Deck, Dixon, Horowitz, Ziegler
- Associate Professors Mendez, Reyes
- Assistant Professors Civelli, Gu, Hao, Jahedi
- Clinical Professor Stapp
- Clinical Assistant Professor Embaye

**Requirements for a Major in Economics:** In addition to the University/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

30 semester hours of ECON courses, including **ECON 2013** and **ECON 2023**, ECON 3033, ECON 3133, ECON 4743 or ECON 4753, and ECON 4033.

COMM 1313 Public Speaking

**MATH 2043 Survey of Calculus** and **MATH 2053 Finite Math**, or **MATH 2554 Calculus I**

WCOB 1033 Data Analysis and Interpretation or STAT 2303 Principles of Statistics

NOTE: It is strongly recommended that economics majors who plan to continue their studies at the graduate level take at least two semesters of calculus (**MATH 2554** and **MATH 2564**) and linear algebra (**MATH 3083**).

#### **Economics B.A.**

##### **Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for University requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

##### **Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 2053 Finite Math or MATH 2554 Calculus I
- 3 University/state core fine arts or humanities requirement
- 3 University/state core US history requirement
- 3 University/state core social science requirement (not ECON)

##### **15-16 Semester Hours**

##### **Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2043 Survey of Calculus or MATH 2564 Calculus II
- 3 †ECON 2013 Prin. of Macroeconomics or ECON 2023 Prin. of Microeconomics
- 3 University/state core humanities or fine arts requirement (as needed)
- 4 Science University/state core lecture with corequisite lab requirement

##### **16-17 Semester Hours**

##### **Fall Semester Year 2**

- 3 †ECON 2023 Prin. of Microeconomics or †ECON 2013 Prin. of Macroeconomics (as needed)
- 3 COMM 1313 Public Speaking
- 6 General Elective
- 3 WCOB 1033 Data Analysis or STAT 2303 Principles of Statistics

##### **15 Semester Hours**

##### **Spring Semester Year 2**

- 3 †Advanced Level Elective
- 3 †‡ECON 3033 Microeconomic Theory or ECON 3133 Macroeconomics Theory
- 6 General Electives
- 4 Science University/state core lecture with corequisite lab requirement)

##### **16 Total Hours**

##### **Fall Semester Year 3**

- 3 †‡ECON 3133 Macroeconomics Theory or †‡ECON 3033 Microeconomic Theory (as needed)
- 3 †‡ECON 3000-4000 level
- 10 General Electives

##### **16 Semester Hours**

##### **Spring Semester Year 3**

- 3 †‡ECON 4033 History of Economics Thought or †‡ECON 4743 Introduction to Econometrics
- 3 †‡ECON 3000-4000 level
- 6 General Electives
- 3 †Advanced Level Elective

##### **15 Semester Hours**

##### **Fall Semester Year 4**

- 3 †‡ECON 3000-4000 level or †‡ECON 4753 Forecasting (as needed)
- 3 †‡ECON 3000-4000 level
- 10 General Electives

##### **16 Semester Hours**

##### **Spring Semester Year 4**

- 3 †‡ECON 4033 History of Economic Thought or †‡ECON 4743 Introduction to Econometrics (as needed)
- 3 †Advanced Level Elective

3	†‡ECON 4033 History of Economic Thought or †‡ECON 4743 Introduction to Econometrics (as needed)
3	†Advanced Level Elective
3	†Advanced Level Elective
6	General Electives
<b>15</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Major in Economics with Emphasis in International Economics and Business:** In addition to the University/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

30 semester hours of courses, including **ECON 2013**, **ECON 2023**, ECON 3033, ECON 3133, ECON 4633, ECON 4643, and 12 hours of international economics and business electives that may be selected from ECON 3843, ECON 3853, ECON 3933, ECON 410V, ECON 468V, MGMT 4583, or other courses approved by the departmental adviser. Course prerequisites for non-economics international business courses will count toward this 12-hour requirement. Thus, if a student wants to take MKTG 4633 Global Marketing as an international economics and business elective, he/she also must take the prerequisite MKTG 3433 Introduction to Marketing Strategy. These two courses will satisfy 6 hours of the elective requirement, 9 hours of upper-division course work in Fulbright College that focuses on a country or region of the world related to the foreign language, which might include upper-division courses in the same language, which should emphasize literature or cultural topics. Courses must be approved by the departmental adviser. Students who meet the requirements of the Fulbright College area studies programs in Asian Studies, Middle East Studies, Latin American and Latino Studies, or European Studies will be considered to have fulfilled this requirement,

**MATH 2043** and **MATH 2053** or **MATH 2554** and **MATH 2564**.

COMM 1313 Public Speaking (prereq for WCOB 1023)

9 hours of business/stat courses to include WCOB 1033 or STAT 2303, WCOB 1023 (*COMM 1313*) and 3 hours of WCOB 2013, WCOB 2023, WCOB 2033, WCOB 2043 (students must also complete WCOB 1120 or equivalent and WCOB 1012 as a prerequisite to any of the 2000-level WCOB courses) or ECON 4743 or ECON 4753.

6 hours of a world language at the intermediate level, or above. (This is usually accomplished through completion of a sequence of world language courses: 1013 Elementary II, 2003 Intermediate I and 2013 Intermediate II. Note: 1003 usually will not count toward the 124 hours required for degree credit; see Fulbright College Admission Requirements on page 129 for further details.)

3 hours of upper-division world language in the same language covering business communications, or equivalent. Any student whose minimum 6-hour requirement under (#6) above includes an upper-division course may choose to include business communications among the 6 hours of required University course work in the world language.

NOTE: It is strongly recommended that economics majors who plan to continue their studies at the graduate level take at least two semesters of calculus (MATH 2554 and MATH 2564) and linear algebra (MATH 3083).

**Economics B.A. with Emphasis in International Economics and Business Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for University requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

3	ENGL 1013 Composition I
3-4	MATH 2053 Finite Math or 2554 Calculus I
3	1013 Elementary II world language course
2	WCOB 1012 Legal Environment of Business
0	WCOB 1120 Computer Competency Requirement
3	COMM 1313 Public Speaking
0-1	General Elective (if needed to total 15 hours)
<b>15</b>	<b>Semester Hours</b>

**Spring Semester Year 1**

3	ENGL 1023 Composition II
3-4	MATH 2043 Survey of Calculus or MATH 2564 Calculus II
3	†ECON 2023 Principles of Microeconomics
3	2003 Intermediate I world language course
3	WCOB 1023 Business Foundations
1	General Elective (if needed to total 16 hours)
<b>15</b>	<b>Semester Hours</b>

**Fall Semester Year 2**

3	2013 Intermediate II world language course
3	†ECON 2013 Principles of Macroeconomics
3	WCOB 1033 Business Statistics or STAT 2303 Principles of Statistics
3	WCOB 2013, 2023, 2033, or 2043
3	University/state core US history requirement
<b>15-16</b>	<b>Semester Hours</b>

**Spring Semester Year 2**

3	†Advanced Level Elective
3	†‡ ECON 3033 Microeconomic Theory or †‡ ECON 3133 Macroeconomic Theory
3	†‡ Upper Division world language
3	University/state core fine arts or humanities requirement
3	University/state core social science requirement (non-ECON course)
<b>15</b>	<b>Semester Hours</b>

**Fall Semester Year 3**

3	†‡ ECON 3133 Macroeconomic Theory or †‡ECON 3033 Microeconomic Theory (as needed)
3	†‡ Upper Division world language
3	University/state core humanities or fine arts requirement
4	Science University/state core lecture with corequisite lab requirement
3	General Elective
<b>16</b>	<b>Semester Hours</b>

**Spring Semester Year 3**

3	†‡ ECON 4633 International Trade
3	† International Economics and Business Elective
3	†‡ Upper Division Foreign Language or 3000+ Fulbright College elective
3	†‡ Upper Level Area Studies from ARSC
4	Science University/state core lecture with corequisite lab requirement
<b>16</b>	<b>Semester Hours</b>

**Fall Semester Year 4**

3	†‡ ECON 4643 International Macroeconomics and Finance
3	†International Economics and Business Elective
3	†International Economics and Business Elective
3	†‡ Upper Level Area Studies from ARSC
4	General Electives
<b>16</b>	<b>Semester Hours</b>

**Spring Semester Year 4**

3	† International Economics and Business Elective
3	†‡ Upper Level Area Studies from ARSC
10	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Writing Requirement:** The Fulbright College writing requirement for economics majors will be fulfilled by the research/analytical paper required in ECON 4033.

For economics majors who elect to emphasize international economics and business, the writing requirement will be fulfilled by the research/analytical paper required in ECON 4633 or 4643.

**Requirements for Departmental Honors in Economics:** The Departmental Honors program provides upper-division students the opportunity to engage in independent study or research under the guidance of an individual member of the faculty. In addition to satisfying the general college requirements for the bachelor's degree with honors, honors candidates in economics are required to complete and orally defend an honors thesis based upon independent study under ECON 399VH (for 3 to 6 hours) and to have a minimum grade-point average of 3.5. Outstanding student achievement will be recognized by awarding the bachelor's degree with the distinction "Economics Scholar *Cum Laude*." Higher distinctions may be awarded to truly outstanding students based upon the whole of their academic program and quality of honors research.

Some courses in the Walton College of Business are given credit toward an economics major for the B.A. degree. See departmental adviser for designation.

For the combined major in economics and African and African American studies, see page 131.

**Requirements for a Minor in Economics:** 18 hours in economics. Required courses are ECON 3033 Microeconomic Theory, and ECON 3133 Macroeconomic Theory, plus 12 additional hours in economics, six of which must be in courses numbered 3000 or above.

NOTE: ECON 2013 and/or ECON 2023, or ECON 2143, are prerequisites to all economics courses numbered above 3000.

**Economics (B.A.) Social Studies Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125. Students wanting to teach social studies in middle school should consult with a middle level adviser in the College of Education and Health Professions.

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See Page 344 for Economics (ECON) courses

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## ENGLISH (ENGL)

Dorothy Stephens  
Chair of the Department  
338 Kimpel Hall  
479-575-4301  
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[English@cavern.uark.edu](mailto:English@cavern.uark.edu)

### FACULTY

- Distinguished Professor Emeritus Guilds
- University Professors Emeriti Harrison, Williams
- Professors Adams, Booker, Burris, Candido, Cochran, DuVal, Giles, Hays, Heffernan, Jolliffe, Montgomery, Quinn (W.), Roberts, Stephens
- Professors Emeriti Bennett, Bolsterli, Hart, Rudolph
- Visiting Professor Madison (R.)
- Associate Professors Brock, Dominguez Barajas, Gilchrist, Kahf, Marren, McCombs, Slattery
- Associate Professors Emeriti MacRae, Park
- Assistant Professors Fagan, Hinrichsen, Kayser, Sexton, Smith
- Visiting Assistant Professors Dempsey, Viswanathan
- Adjunct Assistant Professor Gertz
- Instructors Al Amrani, Bain, Gamble, Gray, Harrington, Hutton, Kuilan, Lewis, Lyons, Madison (K.), McGee-Anderson, Nickol, Parette, Quinn (E.), Rankin, Shchegoleva, Sparks, Walker, Wong

The Department of English offers a major in English, a minor in English, and a combined major in English and journalism.

The major in English is suitable for many purposes, both professional and cultural. By properly selecting courses, the student may prepare for postgraduate work

in literature and language; meet the English requirements for secondary teaching licensure; develop writing skills, both in creative and in expository writing; obtain appropriate pre-professional training for areas such as law; or study broadly in the literary culture of English-speaking peoples. A rich variety of courses is offered, and there is opportunity within the major for any student to explore areas of special interest: for example, American literature, the Renaissance, drama, the English language, and modern and contemporary literature.

**Requirements for a Major in English:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Policy), the following course requirements must be met.

Bolded course(s) from the list below may be applied to portions of the University/state minimum core requirements.

English majors are required to complete the following:

The 35-hour University core

**PHIL 2003 Introduction to Philosophy**

Any world language at the 2013 Intermediate II level. (This is usually accomplished through completion of a sequence of three world language courses: 1013, 2003 and 2013. NOTE: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

WLIT 1113 World Literature I and WLIT 1123 World Literature II

36 semester hours (not counting ENGL 0003, ENGL 1013, ENGL 1023, and ENGL 2003). These hours must include 12 hours of survey courses, including ENGL 2303; either ENGL 2313 or ENGL 2323; either ENGL 2343 or ENGL 2353; and one additional survey course chosen from ENGL 2313, ENGL 2323, ENGL 2343, and ENGL 2353. Majors must take an additional 12 hours that include ENGL 4303; one of ENGL 3713, ENGL 3723, and ENGL 3733; either ENGL 3743 or ENGL 3753; and one of ENGL 3833, ENGL 3843, ENGL 3853, and ENGL 3863. The remaining twelve hours can be taken in any English course numbered above 3000, with the stipulation that at least six of these hours must be numbered above 4000.

All English majors are strongly encouraged to complete a minor or a second major in one of the following: African and African American Studies, Anthropology, Art History, Classical Studies, Communication, Drama, European Studies, Gender Studies, History, Journalism, Latin American Studies, Legal Studies, Medieval and Renaissance Studies, Middle East Studies, Music, Philosophy, Political Science, Psychology, Religious Studies, or in a world language (Arabic, French, German, Japanese, Russian, Spanish or any other language that offers a minor).

English majors are strongly encouraged to fill their elective hours with courses from the departments or programs of study listed above.

### English B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

- |   |   |
|---|---|
| 3 | ENGL 1013 Composition I   |
| 3 | MATH 1203 (if required) or or any higher-level math                                     |
| 3 | WLIT 1113 World Literature I  |
| 3 | 1013 Elementary II world language course or higher (depending on placement in sequence) |
| 3 | University/state core fine arts or US history course requirement                        |

#### 15 Semester Hours

#### Spring Semester Year 1

- |   |  |
|---|--|
| 3 | ENGL 1023 Composition II   |
| 3 | 2003 Intermediate I world language course (or higher)                  |
| 3 | WLIT 1123 World Literature II  |
| 3 | University/state core social science requirement                       |
| 4 | Science University/state core lecture with corequisite lab requirement |

#### 16 Semester Hours

**Fall Semester Year 2**

- 3 †ENGL from Group A
- 3 †ENGL from Group A or General Elective
- 3 PHIL 2003 Intro to Philosophy
- 3 2013 Intermediate II world language course (as needed)
- 3 General Elective

**15 Semester Hours**

**Spring Semester Year 2**

- 3 †ENGL from Group A or General Elective
- 3 †3000-4000 Level Elective
- 3 University/state core US history or fine arts requirement (as needed)
- 3 University/state core social science requirement
- 3 General Elective

**15 Semester Hours**

**Fall Semester Year 3**

- 3 †ENGL from Group A
- 3 ††ENGL from group B or C
- 3 University/state core social science requirement
- 4 Science University/state core lecture with corequisite lab requirement
- 3 †3000-4000 Level Elective

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †ENGL from Group A (as needed) or General Elective
- 3 ††ENGL from Group B or C
- 10 General Electives

**16 Semester Hours**

**Fall Semester Year 4**

- 3 ††ENGL from Group B or C
- 3 ††ENGL from Group B or C
- 3 ††ENGL from Group B or C
- 7 General Electives

**16 Semester Hours**

**Spring Semester Year 4**

- 3 ††ENGL from Group B or C
- 3 ††ENGL from Group B or C
- 3 ††ENGL from Group B or C
- 6 General Electives

**15 Semester Hours**

**124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Group A:** Twelve hours chosen from the following:

- ENGL 2303 Survey of English Literature from Beginning through 17th Century (required)
- 3 hours from either
  - ENGL 2313 Survey of English Literature from 1700 to 1900 or
  - ENGL 2323 Survey of Modern British, Irish, and Postcolonial Literature
- 3 hours from either
  - ENGL 2343 Survey of American Literature from the Colonial Period through Naturalism or
  - ENGL 2353 Survey of Modern American Literature
- 3 hours from one of remaining ENGL 2313, ENGL 2323, ENGL 2343, or ENGL 2353

**Group B:** Twelve hours chosen from the following:

- 3 hours from either
  - ENGL 3713 Topics in Medieval Literature and Culture,
  - ENGL 3723 Topics in Renaissance Literature and Culture, or
  - ENGL 3733 Topics in Restoration and 18th Century Literature
- 3 hours from either
  - ENGL 3743 Topics in 19th Century British Literature and Culture or
  - ENGL 3753 Topics in Modern British Literature
- 3 hours from either
  - ENGL 3833 Topics in American Literature and Culture to 1900,
  - ENGL 3843 Topics in Modern American Literature and Culture,
  - ENGL 3653 Topics in African-American Literature and Culture, or
  - ENGL 3863 Topics in Literature and Culture of the American South
- 3 hours of ENGL 4303 Introduction to Shakespeare (required)

**Group C:** Twelve additional hours in English courses numbered above 3000, at least six of which must be numbered above 4000.

**Writing Requirement:** All upper-division English courses require a research or an analytical paper except ENGL 4003 and the courses in creative writing (ENGL 3013, ENGL 4013, ENGL 4023, ENGL 4073). For this reason all students who fulfill the requirements for a major in English thereby fulfill the Fulbright College writing requirement.

**Requirements for a Major with a Concentration in Creative Writing:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded course(s) from the list below may be applied to portions of the University/state minimum core requirements.

English majors are required to complete the following:

The 35-hour University core

**PHIL 2003 Introduction to Philosophy**

Any world language at the 2013 Intermediate II level (This is usually accomplished through completion of a sequence of three world language courses: 1013, 2003 and 2013. NOTE: 1003 usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

WLIT 1113 World Literature I

WLIT 1123 World Literature II

36 semester hours (not counting ENGL 0003, ENGL 1013, ENGL 1023, and ENGL 2003) to include three hours of ENGL 3203 Poetry; three hours of ENGL 3213 Fiction; three hours of ENGL 2023 Creative Writing I; three hours of ENGL 3013 Creative Writing II; three hours of ENGL 4013 Undergraduate Poetry Workshop or ENGL 4023 Undergraduate Fiction Workshop; twelve hours of survey courses (three hours of ENGL 2303, and nine hours from ENGL 2313, ENGL 2323, ENGL 2343, and ENGL 2353); three hours of ENGL 4303 Introduction to Shakespeare; and six additional hours chosen from ENGL courses numbered above 3000 and WLIT courses numbered above 2333.

**English B.A. with a Concentration in Creative Writing  
Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (if required) or any higher-level math course
- 3 WLIT 1113 World Literature I
- 3 1013 Elementary II world language course or higher (depending on placement in sequence)
- 3 University/state core fine arts or U.S. history course requirement

**15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 2003 Intermediate I world language course (or higher)
- 3 WLIT 1123 World Literature II
- 3 University/state core social science requirement
- 4 Science University/state core lecture with corequisite lab requirement

**16 Semester Hours**

**Fall Semester Year 2**

- 3 †ENGL from Group A below
- 3 †ENGL from Group A or General Elective
- 3 †Advanced Level Elective
- 3 PHIL 2003 Intro to Philosophy
- 3 2013 Intermediate II world language course (as needed)

**15 Semester Hours**

**Spring Semester Year 2**

- 3 †ENGL from Group A
- 3 †Advanced Level Elective
- 3 University/state core US history or fine arts requirement
- 3 University/state core social science requirement



3	General Elective
<b>15</b>	<b>Semester Hours</b>
<b>Fall Semester Year 3</b>	
3	†ENGL from Group A
3	†ENGL 2023 Creative Writing I
3	University/state core social science requirement
4	Science University/state core lecture with corequisite lab requirement
3	General Elective
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	†ENGL from Group A (if needed) or General Elective
3	‡†ENGL from Group B or C
10	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	‡†ENGL 3013 Creative Writing II
3	‡†ENGL from Group B or C
3	‡†ENGL from Group B or C
3	†3000-4000 Level Elective
4	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	‡†ENGL 4013 Undergraduate Poetry Workshop or ‡†4023 Undergraduate Fiction Workshop
3	‡†ENGL from Group B or C
3	‡†ENGL from Group B or C
3	‡†3000-4000 Level Fulbright College Elective
3	†3000-4000 General Elective
<b>15</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
<b>Group A:</b> Twelve hours chosen from the following:	
3 hours of ENGL 2303 Survey of English Literature from Beginning through 17th Century (required)	
3 hours from either ENGL 2313 Survey of English Literature from 1700 to 1900 or ENGL 2323 Survey of Modern British, Irish, and Postcolonial Literature	
3 hours from either ENGL 2343 Survey of American Literature from the Colonial Period through Naturalism or ENGL 2353 Survey of Modern American Literature	
3 hours from one of remaining ENGL 2313 or ENGL 2323 or ENGL 2343 or ENGL 2353	
<b>Group B:</b> Nine hours of the following:	
3 hours ENGL 3203 Poetry	
3 hours ENGL 3213 Fiction	
3 hours ENGL 4303 Introduction to Shakespeare	
<b>Group C:</b> Six additional hours chosen from English or World Literature courses numbered above 3000	

**Requirements for Departmental Honors in English:** The Departmental Honors Program in English allows upper-division undergraduates to strengthen their study of English and adapt it to their interests. Honors candidates enroll in special courses and do directed independent study and research. In addition to the college and departmental requirements for the major in English and the general college requirements for the B.A. degree, each honors candidate in English must

1. be accepted as an honors candidate by the department,
2. complete at least nine hours of honors course work, at least three hours of which must be in English,
3. enroll in at least three hours of Senior Thesis ENGL 498V and write an honors thesis, either a critical study or a creative writing project, and
4. defend the candidate's entire honors program in an oral examination.

Candidates may petition to enroll in a departmental graduate seminar. Candidates who complete the honors program with merit will graduate with the distinction

“English Scholar *Cum Laude*.” The distinctions of *Magna Cum Laude* and *Summa Cum Laude* will be awarded only for exceptional work and will be based on the candidate's entire honors program.

**Requirements for a Minor in English:** 18 hours of English (not counting ENGL 0003, ENGL 1013, ENGL 1023, and ENGL 2003) to include any nine hours of survey courses (chosen from ENGL 2303, ENGL 2313, ENGL 2323, ENGL 2343, and ENGL 2353) and nine additional hours chosen from English courses numbered above 3000 and WLIT courses above 2333.

**Requirements for a Combined Major in English and Journalism:** The Department of English and the Department of Journalism offer a combined major in English and Journalism. Please refer to the Department of Journalism for the specific course requirements and eight-semester degree program for the combined major.

**Assessment Requirement:** Every senior English major must take the program assessment exam administered by the department each spring semester to graduate. Exam results will not affect GPA, although the student's score will be noted on his or her permanent academic record. This requirement may be waived in extraordinary circumstances by the department's Director of Undergraduate Studies. Contact your adviser for more information.

**English (B.A.) Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach English in middle school should consult with a middle-level adviser in the College of Education and Health Professions.

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See Page 349 for English (ENGL) courses

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**EUROPEAN STUDIES (EUST)**

Fiona Davidson  
 Director of Studies  
 108 Ozark Hall  
 479-575-3879  
<http://eust.uark.edu>

**FACULTY**

- Professors Booker (English), Burriss (English), Candido (English), Dixon (geography), DuVal (English), Finlay (history), Gay (economics), Heffernan (English), Kelley (political science), Montgomery (English), Pritchett (Spanish), Purvis (journalism and political science), Stephens (English)
- Associate Professors Adler (philosophy), Arenberg (French), Bailey (communication), Christiansen (French), Condray (German), Davidson (geography), Jacobs (art), Minar (philosophy), Scheide (communication), Senor (philosophy), Sonn (history), Starks (history)
- Assistant Professors Antoy (history), Brogi (history), Comfort (French), Grob-Fitzgibbon (history), Hare (history), Hoyer (German), Rozier (Italian), Ruiz (Spanish), Sexton (English), Witherbee (English)

Courses are offered in European studies, broadly defined as the study of the geography, culture, history, language, and politics of central Europe, including the British Isles.

Students wishing to maximize their knowledge of European studies and wishing to prepare for graduate training and/or employment in the private sector or government in positions related to the area may earn a combined major in European studies together with a major in another discipline. Students are required to coordinate their academic programs both with their advisers in the major department and with the director of the European Studies program. New students entering the program are required to notify both the major adviser and the director of studies of their intention to participate. Freshmen and sophomores considering this program are advised to begin their study of an appropriate foreign language as early as possible.

**Requirements for a Combined Major in European Studies** – In addition to the requirements of a primary departmental major, students pursuing a combined major in European Studies must complete the following:

**Language Requirement:** Students must complete the equivalent of a third year

of a modern European language, e.g., six hours of advanced 3000- or 4000-level work in French, German, or Spanish. Less commonly taught languages such as Portuguese, Russian, or Italian may be used, subject to the availability of courses. Three to six hours in an approved study abroad program in Europe may substitute for all or part of this requirement. For native speakers of a European language other than English, this requirement is waived.

**Introduction to Europe:** Students must complete EUST 2013 Introduction to Europe, preferably before taking the colloquium.

**European Studies Colloquium:** Students must complete three to six hours of EUST 4003 European Studies Colloquium.

**Study Abroad:** Students who major in European Studies are required to spend at least one semester (Fall or Spring) in an approved international program. Students with a modern European language as their combined major (or minor) may (but are not required to) choose a program in the country of their language specialization. Students without a language combined major or minor are required to attend the University of Arkansas Rome Program for at least one semester. At least 9 and a maximum of 18 hours of credit towards the EUST major may be earned during study abroad. Exemptions to this requirement will be considered on a case-by-case basis and will be considered only 1) if the student has a compelling academic reason for conducting study abroad in another European country or b) if the student can demonstrate that the semester abroad requirement would entail significant personal or financial hardship.

In order to facilitate student preparation for study abroad, an additional fee will be assessed for EUST students after they declare the major. The fee will be assessed for either four semesters or until the student has completed their study abroad program, whichever period of time is shorter. The purpose of the fee is to help defray the costs of whatever study abroad program the student chooses to attend. Students will be exempt from this fee if they have already completed their study abroad requirement before declaring the EUST major.

**Electives:** Students must complete at least 18 hours of credit, in addition to the language requirement and the European studies colloquium, from among the following or in individualized studies under the direction of faculty participating in the program. Students choosing to take individualized reading or directed research courses as part of the major or minor must obtain the approval of the director of the area studies program and their major adviser. In addition, the following conditions apply:

1. A maximum of nine hours may be submitted from any one department, and
2. A maximum of six hours may be submitted from courses taken in the student's major department.

The following courses may be taken in fulfillment of elective requirements:

**Art History**

- ARHS 4873 Baroque Art
- ARHS 4883 18th and 19th Century European Art
- ARHS 4893 20th Century European Art

**English**

- Any 3000- or 4000-level course in 18th, 19th, or 20th century British, Irish, Scots, or continental literature, any comparative literature course with significant European content.

**Foreign Languages**

- Any 3000- or 4000-level French, German, Italian, Russian or peninsular Spanish literature or civilization course.

**Geography**

- GEOG 4243 Political Geography
- GEOG 4783 Geography of Europe

**History**

- HIST 3443 Modern Imperialism
- HIST 3533 World War II
- HIST 3553 Russia Since 1861
- HIST 3683 Europe in the 19th Century
- HIST 3693 Europe in the 20th Century
- HIST 4133 Society and Gender in Modern Europe
- HIST 4143 Intellectual History of Europe Since the Enlightenment
- HIST 4183 Great Britain 1707-1901
- HIST 4193 Great Britain 1901-2001
- HIST 4213 The Era of the French Revolution
- HIST 4223 France Since 1815

HIST 4243 Germany 1789-1918

HIST 4253 Germany, 1918-1945

**Music History**

- MUHS 3703 History of Music to 1750
- MUHS 3713 History of Music from 1750 to Present
- MUHS 4253 Special Topics in Music History (depending on topic)

**Philosophy**

- PHIL 4033 Modern Philosophy - 17th and 18th Centuries
- PHIL 4043 19th Century Continental Philosophy
- PHIL 4063 20th Century Continental Philosophy
- PHIL 4073 History of Analytic Philosophy

**Political Science**

- PLSC 4563 Government and Politics of Russia
- PLSC 4803 Foreign Policy Analysis

**Requirements for a Minor in European Studies:** Students wishing to minor in European studies must fulfill the EUST 2013 Introduction to Europe and EUST 4003 Colloquium requirements and the language requirements described below under the requirements for the major. They also must complete at least 12 hours from among the electives listed below. At least 3 of these credit hours may come from the study abroad experience (see below). A maximum of six hours of electives may be submitted from any one department.

**Study Abroad for Minors:** Students wishing to minor in EUST will be required to participate in a European study abroad program of at least 3 weeks duration. Exemptions to this requirement will be considered on the same basis as exemptions to the study abroad requirement for the major.

**Requirements for Honors in EUST:** The Honors Program in European Studies gives junior and senior students of high ability the opportunity to enroll in enriched courses and conduct independent research culminating in an honors thesis. In addition to satisfying the general Fulbright College requirements for graduation and the basic eligibility requirements for honors as established by the Honors Council, candidates for honors in European Studies must complete 12 hours of honors credit in partial satisfaction of requirements for the co-major. One to six of these may be thesis hours (EUST 399VH). The preferred method for satisfying the remaining hours is to enroll in the colloquium at least once for honors credit (EUST 4003H) and to take relevant honors colloquia or graduate courses (with permission) in one of the departments contributing to this interdisciplinary area study. The thesis committee shall include a representative from the major discipline (in the case of multiple majors, from the discipline contributing most significantly to the topic). Successful completion of these requirements will be recognized by the award of the distinction "European Studies Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in exceptional cases and are based upon the whole of the candidate's program of honors studies.

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**FOREIGN LANGUAGES**

See World Languages, Literatures, and Cultures on Page 200.

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**FULBRIGHT INSTITUTE OF INTERNATIONAL RELATIONS (IREL)**

Charles H. Adams  
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The Fulbright Institute of International Relations is a center for study, research, and analysis of foreign policy and international affairs within the J. William Fulbright College of Arts and Sciences. The institute honors J. William Fulbright for his leadership in international relations and his lasting contributions to international education

and better understanding among nations. In addition to instructional and research activities, the institute serves as a medium for international scholarly exchange and study programs, and sponsors conferences, seminars, public events, and publications on international relations.

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## GENDER STUDIES (GNST)

Susan Marren  
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### FACULTY

- Professors Coon, Gordon, Parry, Robinson, Schneider, Sonn, Stephens, Swedenburg, Zajicek
- Associate Professors Amason, D'Alisera, Erickson, Fredrick, House, Kahf, Marren, Starks
- Assistant Professors Arrington, Billings, Corrigan

The gender studies minor introduces students to the ways that various academic disciplines have examined women's and men's differing participation in work, the family, political systems, and creative endeavors. Courses explore sex and gender differences and such concepts as masculinity and femininity, essence and performance; distributions of power, work, and resources; and the symbolic representation of gender and identity in literature, religion, and art. The minor is often chosen by students interested in investigating materials previously neglected by scholars and in fresh perspectives on traditional subject matter.

**Requirements for a Minor in Gender Studies:** The student must complete 15 credit hours of regular courses listed below or special topics and seminars found in each semester's schedule of classes under Gender Studies, including HUMN 2003 Introduction to Gender Studies:

- ANTH 3163 Male and Female
- ANTH 3523 Gender and Politics in Latin America
- CLST 4003H Rome on Film
- COMM 3433 Family Communication
- COMM 3983 Rhetoric of American Women
- COMM 4333 Communication and Gender
- HIST 3083 Women and Christianity
- HIST 3923H Honors Colloquium: The History of Sex/Sexuality in America
- HIST 3923H Honors Colloquium: Russian and Soviet Women
- HIST 4133 Society and Gender in Modern Europe
- HIST 4413 New Women in the Middle East
- HUMN 2003 Intro. to Gender Studies
- HUMN 3923H Honors Intro. to Gender Studies
- LAST 4003 Latina Writers
- PLSC 4573 Gender and Politics
- SOCI 4133 The Family
- WLIT 3983 Special Studies: Women and Arabic Literature

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## GEOSCIENCES (GEOS)

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### FACULTY

- Distinguished Professor Stahle
- University Professor Limp
- Professors Boss, Brahana, Davis, Dixon, Guccione, Hehr (J.), Paradise, Zachry
- Professors Emeritus Cleaveland, Konig, MacDonald, Manger, Steele
- Associate Professors Cothren, Davidson, Graff, Teng, Tullis
- Assistant Professors Covington, Dumond, Hausmann, Suarez, Xie
- Research Associate Professor Hays
- Adjunct Professors Mock, Paillet
- Adjunct Assistant Professors Bragg, Brown, Fye, Green, Hehr (L.), Hubney, Melton, Moyer
- Instructors Hintz, Knierim, Pollock, Turner, Welcome, Winston

## Earth Science (ERSC)

Fulbright College offers a major in earth science leading to the Bachelor of Science degree. Prospective secondary teachers may plan a program, in cooperation with the College of Education, which will satisfy the teacher licensure requirements. Students interested in environmental problems, teaching earth science in public schools, or wishing to pursue graduate work in either geography or geology will obtain much of the necessary foundation through this degree. Because the program outlined below lists only minimum science requirements, it is expected that most students will use some of their elective credit hours to strengthen their mathematics and science backgrounds in areas other than geography and geology. These areas of additional study will be determined through consultation between the student and the adviser. Students interested in this major should contact either Professor Ralph Davis or Professor J.C. Dixon.

**Requirements for the B.S. Degree with a Major in Earth Science:** In addition to the University/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

	<b>Hours</b>
Basic Courses	
Biology	8
Chemistry or Physics	8
<b>GEOL 1113/111L</b>	4
<b>GEOL 1133/1131L</b>	4
<b>MATH (2043, 2053, 2183 or 2554)</b>	3-4
6 hours in a single world language at the 1013 Elementary II level or higher. (World language courses taken are dependent on placement level in sequence. NOTE: 1003, if required, usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)	6
ASTR 2003, ASTR 2001L	4
Advanced Courses	
GEOG 3003, GEOS 3023, GEOG 4353 or GEOG 4363	9
GEOL 2313, GEOL 3413, GEOL 4033 and GEOL 4924	13
At least 6 additional hours, at the 3000 level or above, in either geography or geology.	6
<b>Total Hours (depending on choice of MATH by student)</b>	<b>65-66</b>

Writing Requirement: The college writing requirement is to be met by comple-

tion of a term paper deemed satisfactory by the student's adviser and instructor of an upper-level geography or geography course. The college writing requirement may also be met by the completion of an honors thesis.

**Earth Science (B.S.) Teacher Licensure in Life/Earth Science or Physical/Earth Science Requirements:** Students wanting to teach science in middle or secondary school should consult with an adviser in the College of Education and Health Professions.

**Earth Science B.S.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 (If required) or †MATH 2043, 2053, 2183 or 2554
- 4 GEOL 1113/1111L General Geology
- 3 1013 Elementary II world language course (or higher level)
- 3 University/state core US History requirement

**16-17 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2043, 2053, 2183, 2554 (if needed) or General Elective
- 4 GEOL 1133/1133L Environmental Geology
- 3 2003 Intermediate I world language course (or higher level)
- 3 University/state core fine arts or humanities course requirement

**16-17 Total Hours**

**Fall Semester Year 2**

- 3 †GEOL 2313 Mineralogy and Petrology
- 4 CHEM or PHYS Course (as needed)
- 3 University/state core humanities or fine arts course requirement (as needed)
- 3 University/state core social science requirement
- 3 General Elective

**16 Total Hours**

**Spring Semester Year 2**

- 3 †GEOL 3413 Sedimentary Rocks & Fossils
- 3 †Advanced Level Elective
- 4 ASTR 2003/2001L
- 4 CHEM or PHYS Course (as needed)
- 3 University/state core social science requirement

**17 Total Hours**

**Fall Semester Year 3**

- 4 BIOL Course (as needed)
- 3 †GEOG 3023 Cartography
- 3 University/state core social science requirement
- 3 †Advanced Level Elective
- 3 †Advanced Level Elective

**16 Total Hours**

**Spring Semester Year 3**

- 4 BIOL Course (as needed)
- 3 †GEOG 3003 Conservation of Natural Resources
- 3 General Elective
- 3 †GEOL 4033 Hydrogeology

**13 Total Hours**

**Fall Semester Year 4**

- 3 †GEOG 4353 Elements of Weather (as needed) or †Advanced Level Elective
- 3 †Upper Level GEOG, GEOL, or GEOS Course
- 6 General Electives
- 3 †3000-plus Level Elective

**15 Total Hours**

**Spring Semester Year 4**

- 4 †GEOL 4924 Earth System History
- 3 †GEOG 4363 Climatology (as needed) or †Advanced Level Elective
- 3 †Upper Level GEOG, GEOL, or GEOS Course
- 3 †3000-plus Level Elective
- 0-2 General Electives as needed

**13-15 Semester Hours**

**124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Earth Science (B.S.) Teacher Licensure in Life/Earth Science or Physical/Earth Science Requirements:**

Students wanting to teach science in middle or secondary school should consult with an adviser in the College of Education and Health Professions.

**Geography (GEOG)**

Undergraduates who wish to major in geography should identify themselves to the department as soon as possible in order that they may develop a meaningful sequence of courses and take part in departmental activities. Two types of undergraduate programs with concentrations in geography are described below. Those interested in the graduate program should consult the *Graduate School Catalog*.

**Requirements for a Major in Geography:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

3 – **GEOG 1123**

3 – **GEOG 2003**

8 – **GEOL 1113/1111L and GEOL 1133/1131L**

6 – Six hours in a single world language at the 1013 Elementary II level or higher. (World language courses taken are dependent on placement level in sequence. NOTE: 1003, if required, usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

3 – GEOS 3023

In addition, students must complete a minimum of 15 hours of GEOG at the 3000-level or above, with a balance between regional and topical courses.

Students who expect to enter graduate school are encouraged to register for GEOG 410V their senior year. Electives in closely related fields are considered a part of the program and, upon prior approval of the department, six hours may be counted toward the major. Those planning to teach in secondary schools should note that they can both earn their degree in geography and qualify for a teaching certificate; they should consult with the department as early as possible.

**Writing Requirement:** The college writing requirement is to be met by completion of a term paper deemed satisfactory by the student's adviser and instructor of an upper-level geography course. The college writing requirement may also be met by the completion of an honors thesis.

**Geography B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 GEOG 1123 Human Geography
- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 College Algebra or any higher level math
- 3 1013 Elementary II world language course
- 3 University/state core fine arts, humanities or U.S. history requirement

**15-16 Semester Hours**

**Spring Semester Year 1**

- 4 GEOL 1113/1111L General Geology
- 3 ENGL 1023 Composition II
- 3 2003 Intermediate I world language course (or higher)

3	University/state core humanities, U.S. history, or fine arts requirement (as needed)
3	General Elective
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 2</b>	
3	GEOG 2003 World Regional Geography
4	GEOG 1133/1131L Environmental Geology/Lab
3	University/state core U.S. history, fine arts, or humanities course (as needed)
3	University/state core social science requirement (non-GEOG course)
3	General Elective
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	†‡GEOG 3000 level or above Elective
3	†Advanced Level Elective
10	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 3</b>	
3	†‡GEOG 3023 Introduction to Cartography
3	†‡GEOG 3000-level or above Elective
10	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	†‡GEOG 3000-level or above Elective
3	†‡GEOG 3000-level or above Elective
3	†Advanced Level Elective
6	General Electives
<b>15</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	†‡GEOG 3000-level or above Elective
3	†‡3000-plus Upper Level ARSC Elective with Departmental Consent
3	†Advanced Level Elective
6	General Electives
<b>15</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	†‡3000-plus Upper Level ARSC Elective with Departmental Consent
3	†‡3000-plus Upper Level ARSC Elective
3	†3000-plus Upper Level Elective
3	†Advanced Level Elective
3	General Elective
<b>15</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Geography:** 15 hours in geography to include GEOG 1123. At least 6 hours must be numbered 3000 or above and must include one regional and one topical course.

**Requirements for a Minor in Historic Preservation:** 18 hours from:

ARCH 1003, or both ARCH 1212 and 1222, or equivalent class in architecture

GEOG 4063, or LARC 3413, or equivalent class in urban studies

ANTH 4443, or equivalent class in cultural resources

GEOL 1133, or equivalent class in the human and physical aspects of the Earth

GEOG 3023 or equivalent class in spatial representation and visualization

GEOG 3033

GEOG 3033 Building Materials Field Studies and Laboratory is the required field and laboratory-based capstone course that will require two weekends (Saturday and Sunday) for completion. The course has been specifically designed for this program and will discuss the nature of building materials (wood, brick, mortar and stone), their identification and properties, weathering and erosion theory, assessment and mitigation (i.e. cleaning, consolidants, innovative trends). It is suggested that this class be taken last in the program series.

One semester participation in the University of Arkansas' Rome Program will substitute for six (6) credits from class sections "a" (Architectural History) and "b" (Urban Studies) listed above. A supplemental program internship is suggested in

addition to the classes required if the student's career path is in Historic Preservation.

**Cartography/Remote Sensing GIS Specialization:** This program gives students an opportunity to develop expertise in (1) cartography, map design and computer-assisted map production, (2) remote sensing and image interpretation, including photographic systems, sensor systems, and digital image processing, and (3) geographic information systems, including data sources, analytical techniques, and hardware/software systems.

To complete the specialization, a student is required to fulfill certain course requirements.

Required courses (9 hours):

GEOG 3023, GEOS 4413, and GEOS 3543 (same as ANTH 3543).

Elective courses (9 hours to be selected from the following):

GEOG 4523, GEOS 5423, GEOS 4553 (same as ANTH 4553), GEOS 4583 (same as ANTH 4563), GEOS 4593 (same as ANTH 4593), STAT 4003 (or other approved statistics course), CVEG 2053 (or other approved surveying course).

**Requirements for Departmental Honors in Geography:** Admission to the Departmental Honors Program in Geography is open to geography majors with a minimum grade-point average of 3.5 in all their work. All honors candidates must take 12 hours, which may include 6 hours of thesis, in Honors Studies. During the fall semester of either the junior or senior year the candidate will enroll in GEOG 399VH (no more than three hours of credit), an undergraduate seminar in geographical philosophy and methodology. During the senior year the honors candidate will complete the program by writing a senior honors paper under GEOG 399VH (no more than three hours of credit). Successful completion of the requirements will be recognized by the award of the distinction "Geography Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies.

**Geography (B.A.) Social Studies Teacher Licensure:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach social studies in middle school should consult with a middle level adviser in the College of Education and Health Professions.

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See Page 355 for Geography (GEOG) courses

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## Geology (GEOL)

The department of geosciences offers the Bachelor of Science degree in geology and the Bachelor of Science degree in earth science. It is emphasized that students wishing to become practicing professional geologists should hold the Bachelor of Science degree in geology at a minimum. It is further recognized that practicing professional geologists typically hold a Master of Science degree. The education of students pursuing the Bachelor of Science in earth science degree should reflect general education in the liberal arts with emphasis in geology. The goal of the program leading to the Bachelor of Science degree in geology is to provide students with a broad spectrum of the various subdisciplines of geology, while at the same time honoring an emphasis in the traditional areas of mineralogy, igneous, metamorphic and sedimentary petrology, structural geology and stratigraphic principles. This curriculum will prepare students to enter graduate programs without deficiencies at the University of Arkansas or other established programs.

**Requirements for a Major in Geology leading to the B.S. Degree:** In addition to the University/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

8 – **CHEM 1103/1101L** and **CHEM 1123/1121L**

8 – **PHYS 2013/2011L** and **PHYS 2033/2031L** or **PHYS 2054** and **PHYS 2074**

8 – **MATH 2554** and **MATH 2564**

6 – Six hours in a single world language at the 1013 Elementary II level or higher. (World language courses taken are dependent on placement level in sequence. NOTE: 1003, if required, usually will not count towards the 124

hours required for degree credit; see College Admission Requirements on page 129 for further details.)

3 – Three hours of upper-level science as approved by adviser

And a minimum of 40 semester hours of GEOL, GEOG or GEOS courses to include:

**GEOL 1113/1111L** (or GEOL 3002), **GEOL 1133/1131L**, GEOL 2313, GEOG 3383, GEOL 3413, GEOL 3514, GEOL 4223, GEOL 4063 or GEOL 4433, GEOL 4863, GEOL 4924, GEOL 4666, and an additional 9 hours of geology courses selected from GEOL or GEOS courses numbered 3000 or higher.

**Writing Requirement:** A scholarly writing assignment will be included in all geology courses numbered 2000 and above. Those papers submitted in geology courses 3000 and above will fulfill the Fulbright College writing requirement. The college writing requirement may also be met by the completion of an honors thesis.

**Geology B.S.**

**Nine-Semester Degree Program**

Students wishing to follow the nine-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

This program does require a summer field camp after the junior year.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 2-4 GEOL 1113/1111L General Geology/Lab or †GEOL 3002 Geology for Engineers
- 4 CHEM 1103/1101L University Chemistry I/ Lab
- 3 1013 Elementary II world language course (or higher, depending on placement)

**16-18 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 4 GEOL 1133/1131L Environmental Geology/Lab
- 4 CHEM 1123/1121L University Chemistry II/Lab
- 3 2003 Intermediate I world language course (or higher level)

**18 Semester Hours**

**Fall Semester Year 2**

- 3 †GEOL 2313 Mineralogy and Petrology
- 4 PHYS 2054 University Physics I/Lab or PHYS 2013/2011 College Physics I/Lab
- 3 University/state core US history course
- 3 University/state core social science requirement
- 3 General Elective

**16 Semester Hours**

**Spring Semester Year 2**

- 3 †GEOL 3413 Sedimentary Rocks and Fossils
- 4 PHYS 2074 University Physics II/Lab or PHYS 2033/2031 College Physics II/Lab
- 3 University/state core fine arts or humanities requirement
- 3 University/state core social science requirement
- 3 General Elective

**16 Semester Hours**

**Fall Semester Year 3**

- 3 †GEOG 3383 Principles of Landscape Evolution/Lab
- 4 †GEOL 3514 Structural Geology
- 3 General Elective
- 3 University/state core humanities or fine arts requirement (as needed)
- 3 University/state core social science requirement

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †GEOL 4223 Stratigraphy and Sedimentation/Lab
- 3 †GEOL 4863 Geological Data Analysis/Lab
- 6 General Electives

**12 Semester Hours**

**Summer Semester Year 3**

- 6 †GEOL 4666 Geology Field Camp (Summer Session 1--1st 6 weeks)

**Fall Semester Year 4**

3	†GEOL 4063 Principles of Geochemistry/Lab or GEOL 4433 Geophysics/Lab
6	†GEOL or GEOS electives numbered 3000 or above
3	General Elective
<b>12</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
4	†GEOL 4924 Earth System History (senior capstone course)
6	†GEOL or GEOS electives numbered 3000 or above
6	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Geology:** A minor in geology shall be awarded upon completion of the following course work: GEOL 1113/1111L (or 3002), GEOL 1133/1131L, GEOL 2313, two courses at the 3000-level, and one course at the 4000 level. Students are advised to consult with a geology faculty member to develop the course work program that best complements their major area of study.

**Requirements for Departmental Honors in Geology:** The Departmental Honors Program in Geology provides upper-division undergraduate students with an opportunity to formally participate in geologic research activities. Honors candidates carry out independent study and research under the guidance of the geology faculty. Outstanding student achievement will be recognized by awarding the distinction “Geology Scholar *Cum Laude*” at graduation. Higher degree distinctions may be awarded to truly outstanding students based upon the whole of their academic program and quality of honors research.

Honors candidates in geology must do the following:

1. Satisfy departmental and college requirements for a bachelor’s degree with honors,
2. Become a candidate no later than the second semester of their junior year,
3. Enroll in six hours of honors research GEOL 3901, GEOL 3911, GEOL 4922, GEOL 4932,
4. Take 12 hours in Honors Studies, which may include 6 hours of thesis,
5. Complete junior and senior honors courses GEOL 3901, GEOL 3911, GEOL 4922, GEOL 4932, and
6. Achieve a cumulative grade-point average of 3.30 in geology courses.

**Geology (B.S.) Teacher Licensure in Life/Earth Science or Physical/Earth Science Requirements:**

Students wanting to teach science in middle or secondary school should consult with an adviser in the College of Education and Health Professions.

For requirements for the M.S. degree in geology, see the *Graduate School Catalog*.

See Page 356 for Geology (GEOL) courses

**HISTORY (HIST)**

Lynda Coon  
 Chair of the Department  
 416 Old Main  
 479-575-3001  
<http://history.uark.edu>  
[history@uark.edu](mailto:history@uark.edu)

**FACULTY**

- Distinguished Professors Sutherland, West, Woods
- Professors Brogi, Coon, Finlay, Gordon, Markham, McMath, Robinson, Sonn, Whayne, Wolpert
- Professors Emeriti Brown, Bukey, Chase, Engels, Kennedy, Tsai
- Associate Professors Grob-Fitzgibbon, Pierce, Schweiger, Sloan (K.), Starks, Williams

- Associate Professors Emeriti Edwards, Sloan (D.), Tucker
- Assistant Professors Antov, Arrington, Cai, Gigantino, Hare, White

**Requirements for a Major in History:** Minimum of 45 semester hours to include:

Any World Language at the Intermediate II 2013 level. (This is usually accomplished through completion of a sequence of three language courses: 1013, 2003 and 2013. NOTE: 1003 usually will not count towards the 124 hours required for degree credit; see Fulbright College Admission Requirements on page 129 for further details.)

3 hours from the following list of introductory courses in area studies programs:

- AAST 1003, Introduction to African American Studies
- AMST 2003, Introduction to American Studies
- CLST 1003, Introduction to Classical Studies (Greece)
- CLST 1013, Introduction to Classical Studies (Rome)
- EUST 2013, Introduction to European Studies
- IREL 2813, Introduction to International Relations
- LAST 2013, Introduction to Latin American Studies
- MEST 2013, Introduction to Middle East Studies

HIST 1113 or HIST 1113H

HIST 1123 or HIST 1123H (4-year honors scholars must take 1113H and 1123H)

HIST 2003

HIST 2013

27 additional hours in history courses numbered 3000 or above to include

HIST 4893. At least 15 of these hours must be 4000 or above. Students may not receive credit for both HIST 3383 and HIST 4583.

Students must select 3 hours from each of the following groups:

**Group 1: Europe, including Britain and Russia**

- HIST 3003, HIST 3063, HIST 3083, HIST 3443, HIST 3453, HIST 3533, HIST 3543, HIST 3553, HIST 3683, HIST 3693, HIST 4003, HIST 4013, HIST 4023, HIST 4043, HIST 4053, HIST 4073, HIST 4083, HIST 4133, HIST 4143, HIST 4153, HIST 4163, HIST 4183, HIST 4193, HIST 4213, HIST 4223, HIST 4243, HIST 4253, HIST 4793

**Group 2: Africa, Asia, Latin America, Middle East, Near East, Russia**

- HIST 3023, HIST 3033, HIST 3043, HIST 3203, HIST 3213, HIST 3253, HIST 3453, HIST 3473, HIST 3513, HIST 3523, HIST 3543, HIST 3553, HIST 4123, HIST 4173, HIST 4263, HIST 4313, HIST 4333, HIST 4353, HIST 4363, HIST 4373, HIST 4393, HIST 4413, HIST 4433, HIST 4553, HIST 4633, HIST 4633H, HIST 4783, HIST 4793

**Group 3: United States**

- HIST 3063, HIST 3233, HIST 3243, HIST 3263, HIST 3293, HIST 3323, HIST 3383, HIST 3453, HIST 3583, HIST 3593, HIST 4093, HIST 4383, HIST 4463, HIST 4483, HIST 4493, HIST 4503, HIST 4513, HIST 4543, HIST 4563, HIST 4573, HIST 4583, HIST 4603, HIST 4613, HIST 4623, HIST 4643, HIST 4653, HIST 4663, HIST 4673, HIST 4703, HIST 4723, HIST 4733, HIST 4753, HIST 4763, HIST 4773, HIST 4943

Courses listed in more than one group may fill only one group requirement. In consultation with an adviser, students who are history majors are encouraged to design a program of study with both breadth and depth.

History majors are strongly encouraged, but not required, to take a minor or combined major in one of the following:

- African and African American Studies
- American Studies
- Art History
- Asian Studies
- Classical Studies
- European Studies
- Gender Studies
- International Relations
- Latin American and Latino Studies

Medieval and Renaissance Studies

Middle East Studies

Religious Studies

World Languages, Literatures, and Culture

**Writing Requirement:** To fulfill the Fulbright College writing requirement, each history major will submit, prior to graduation, a substantial research or analytical paper, with a grade of "A" or "B" from an upper-division history course (3000, 4000, 5000 level) to his or her departmental adviser. The required senior capstone seminar, HIST 4893, is designed to give history majors the opportunity and guidance to produce a paper to meet the Fulbright College requirement, but students may also submit a paper from another course. Satisfactory completion of a thesis may also fulfill this requirement.

**Requirements for Departmental Honors in History:** Admission to the Departmental Honors Program in History is open to history majors with a minimum grade-point average of 3.5 in all their work. Prospective Departmental Honors students must take 12 hours in Honors Studies, of which 6 hours must include HIST 3973H Honors Methods (Spring semester, junior year) and HIST 399VH, Honors History Thesis (Fall or Spring semester, senior year). During the senior year, the honors candidate will complete the program by writing and defending an honors thesis. Successful completion of the program will be recognized by the award of the distinction "History Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based on the candidate's entire program of honors studies.

**History B.A.**

**Eight-Semester Degree Program**

Students who elect to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. State/University Core and world language requirement hours may vary by individual, based on placement and previous credit granted. Once all state/university core requirements and the world language 2013 requirement are met, students may substitute a three-hour (or more) general elective in place of a core or world language area.

**Fall Semester Year 1**

- 3 ENGL 1013 English Composition I
- 3 MATH 1203 (depending on placement) or †MATH 2033 (or higher-level math, recommended)
- 3 HIST 1113 Institutions and Ideas of World Civilizations I
- 3 1013 Elementary II world language course (depending on placement in sequence)
- 3 Non-HIST Social sciences state/university core course

**15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 English Composition II
- 3 HIST 1123 Institutions and Ideas of World Civilizations II
- 3 Fine Arts, Humanities state/university core course
- 3 2003 Intermediate I world language course (depending on placement and sequence)
- 4 Science state/university core lecture and corequisite lab

**16 Semester Hours**

**Fall Semester Year 2**

- 3 HIST 2003 History of the American People to 1877
- 3 Introduction to Area Studies Majors (AAST 1003, AMST 2003, CLST 1003, CLST 1013, EUST 2013, HUMN 2003, IREL/PLSC 2813, LAST 2013, MEST 2013)
- 3 2013 Intermediate II World Language Course (depending on placement/sequence)
- 3 Fine Arts, Humanities state/university core course (as needed)
- 4 Science state/university core lecture and corequisite lab

**16 Semester Hours**

**Spring Semester Year 2**

- 3 HIST 2013 History of the American People, 1877 to Present
- 3 ††HIST 3000 or 4000 level (from Groups 1, 2, or 3 as needed\*)
- 3 ††Area Studies course 3000 or 4000-level (recommended) or ††3000+ Fulbright elective
- 3 †Advanced Level Elective
- 4 General Elective

**16 Semester Hours**

**Fall Semester Year 3**

- 6 ††HIST 3000 or 4000 level (from Groups 1, 2, or 3 as needed\*)
- 6 †Advanced Level Electives
- 3 ††Area Studies course 3000 or 4000 level (recommended) or ††3000+ Fulbright elective
- 1 General Electives
- 16 Semester Hours**

**Spring Semester Year 3**

- 3 ††HIST 3000 or 4000 level (from Groups 1, 2, or 3 as needed\*)
- 3 ††HIST 4000 level (from Groups 1, 2, or 3 as needed\*)
- 3 ††Area Studies course 3000 or 4000 level (recommended) or ††3000+ Fulbright elective
- 6 †Advanced Level Electives
- 15 Semester Hours**

**Fall Semester Year 4**

- 3 ††HIST 4893 Senior Capstone Seminar or ††HIST 4000 level (from Groups 1, 2, or 3 as needed\*)
- 3 ††HIST 4000 level (from Groups 1, 2, or 3 as needed\*)
- 3 Area studies course 3000-4000 level (recommended) or general elective
- 6 †Advanced Level Electives (as needed) or General Electives
- 15 Semester Hours**

**Spring Semester Year 4**

- 3 ††HIST 4000 level (from Groups 1, 2, or 3 as needed\*) or HIST 4893 Senior Capstone Seminar (if not taken)
- 3 ††HIST 4000 level (from Groups 1, 2, or 3 as needed\*)
- 3 ††Area Studies course 3000-4000 level (recommended) or General Elective
- 3 †Advanced Level Electives (as needed) or General Electives
- 15 Semester Hours**
- 124 Total Hours**

- \* See the department requirements above for courses in each Group.
- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in History:** 21 semester hours to include the following:

- HIST 1113 or HIST 1123 (or HUMN 1114H or HUMN 1124H)
  - HIST 2003 or HIST 2013
  - 15 hours of upper-level credit, at least 6 hours of which are at the 4000-level. A student must notify the department of his or her intent to minor.
- For the combined major in history and African and African American studies, see page 135.

For freshman history, see HIST 1113 and 1123.

**History (B.A.) Social Studies Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students who desire to teach social studies in middle school should consult with a middle-level adviser in the College of Education and Health Professions.

For requirements for advanced degrees in history, see the *Graduate School Catalog*.

For information regarding departmental scholarships, visit the Web at [http://history.uark.edu/index.php/ugrd\\_scholarships](http://history.uark.edu/index.php/ugrd_scholarships).

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See Page 362 for History (HIST) courses

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**HONORS STUDIES**

Sidney Burris  
 Director of Honors Studies  
 517 Old Main  
 479-575-2509  
<http://fulbrighthonors.uark.edu>

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See Page 131 for Fulbright College honors information and requirements

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**HUMANITIES (HUMN)**

David Fredrick  
 Chair of Studies  
 425 Kimpel Hall  
 479-575-6776

- Distinguished Professor West
- Professors Burris, Cochran, Goodstein, Quinn, Stephens
- Adjunct Professor Vitali
- Associate Professors Adams, Coon, Davidson, Fredrick, Gordon, Jacobs, McCray, Robinson, Scheide, Sexton
- Assistant Professor Arrington
- Adjunct Assistant Professor Del Gesso

The Humanities Program supports the Honors Humanities Project (H2P) as well as interdisciplinary coursework in Gender Studies, Medieval and Renaissance Studies, and Arts and Aesthetics. The Humanities Program also sponsors courses in Classics, Medieval, and Renaissance cultures taught every semester and every other summer (during even years) at the Rome Study Center.

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See Page 367 for Humanities (HUMN) courses

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**INTERNATIONAL RELATIONS (IREL)**

Benjamin Grob-Fitzgibbon  
 Chair of Studies

Hoyt H. Purvis  
 Associate Chair of Studies  
 416 Old Main  
 479-575-5893  
<http://ir.uark.edu>

The J. William Fulbright College of Arts and Sciences is strongly committed to the study of international relations and this program offers students a strong foundation for more advanced study as well as preparation for careers in an increasingly global economy and society. The degree offers a broad interdisciplinary course of study with a strong intercultural and international focus. Intensive language study and study abroad are especially encouraged.

**Requirements for a Major in International Relations:** In addition to the University/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

- A minimum of 45 credit hours to include:
- 3 – IREL/PLSC 2813 Intro to International Relations
- 3-6 – **ECON 2143 Basic Economics** or **ECON 2013 Macroeconomics** and **ECON 2023 Microeconomics**
- 3 – **HIST 1123 World Civilization, 1500 – Present**
- 3 – **GEOG 2003 World Geography**
- 3 – IREL 4003 International Relations Seminar
- 6 – Six credit hours of 3000-level or higher world language courses in the same language. (This requirement cannot be satisfied with 3 credits in one language and 3 credits in a second language.) Students may need to fulfill prerequisites in a world language at the 1003, 1013, 2003 or 2013 level, depending on placement level in that language.

Area Studies Requirement:  
 Select one (1) area studies focus, and complete the two required courses for that area (6 credit hours).



## African and African American Studies

AAST 1003 Introduction to African and African American Studies  
One 3000- or 4000-level AAST course specific to the countries, politics, cultures, people or geography of the continent of Africa, or as approved by the director of the international relations program.

## Asian Studies

One course cross-listed with AIST or as approved by adviser  
AIST 4003 Asian Studies Colloquium

## European Studies

EUST 2013 Introduction to Europe  
EUST 4003 European Studies Colloquium

## Latin American and Latino Studies

LAST 2013 Latin American Studies  
LAST 4003 Latin American Studies Colloquium

## Middle East Studies

MEST 2013 Introduction to Middle East Studies  
MEST 4003 Middle East Studies Colloquium

## International Relations Tracks (15-18 credit hours):

Select one (1) of the following tracks, and within the desired track, select five (5) courses if taking ECON 2013/2023 or six (6) courses if taking ECON 2143.

No more than three (3) courses can be from any one department.

At least three (3) courses must be at the 3000- or 4000-level, at least one (1) of which must be at the 4000-level.

One course from the selected track must be applicable to the selected area studies focus. (See the specified area studies program in the catalog for a complete list of courses which are considered applicable to the area studies focus. Other courses may be approved with consent of the International Relations program chair or designee.)

**Track One: Generalist**

From the following International Security courses, select one:

HIST 3063 Military History  
HIST 3453, Modern Terrorism  
HIST 3473 Palestine and Israel in Modern Times  
HIST 3533 World War II  
HIST 3583 The United States and Vietnam  
HIST 4363 Middle East since 1914  
PLSC 4813 Politics of the Cold War  
PLSC 4843 The Middle East in World Affairs

From the following International Economics courses, select one:

ECON 3843 Economic Development, Poverty, & the Role of the World Bank and IMF in Low-Income Countries  
ECON 4633 International Trade Policy  
ECON 4643 International Macroeconomics and Finance

From the following Political Science courses, select one:

PLSC 3503 Governments and Politics of East Asia  
PLSC 3523 Politics of the Middle East  
PLSC 3573 Governments and Politics of Latin America  
PLSC 3803 International Organization  
PLSC 3813 International Law  
PLSC 3823 Theories of International Relations  
PLSC 3853 American Foreign Policy  
PLSC 4513 Creating Democracies  
PLSC 4563 Government and Politics of Russia  
PLSC 4593 Islam and Politics  
PLSC 4803 Foreign Policy Analysis  
PLSC 4813 Politics of the Cold War  
PLSC 4823 Foreign Policy of East Asia  
PLSC 4833 International Political Economy  
PLSC 4843 The Middle East in World Affairs  
PLSC 4853 International Norms and Corporate Social Responsibility  
PLSC 4873 Inter-American Politics

From the following History courses, select one:

HIST 3043 History of the Modern Middle East

HIST 3213 Modern Latin America  
HIST 3253 The History of Sub-Saharan Africa  
HIST 3443 Modern Imperialism  
HIST 3473 Palestine and Israel in Modern Times  
HIST 3523 Modern China  
HIST 3553 Russia Since 1861  
HIST 3583 The United States and Vietnam  
HIST 3683 Europe in the 19th Century  
HIST 3693 Europe in the 20th Century  
HIST 4123 Africa and the Trans-Atlantic Slave Trade  
HIST 4153 Modern Ireland, 1798-1948  
HIST 4183 Great Britain, 1707-1901  
HIST 4193 Great Britain, 1901-2001  
HIST 4213 The Era of the French Revolution  
HIST 4223 France Since 1815  
HIST 4243 Germany, 1789-1918  
HIST 4253 Germany, 1918-1945  
HIST 4263 Independence and Africa Today  
HIST 4333 Modern Islamic Thought  
HIST 4363 Middle East since 1914  
HIST 4413 New Women in the Middle East  
HIST 4433 Social and Cultural History of the Modern Middle East  
HIST 4753 Diplomatic History of the United States, 1776-1900  
HIST 4763 Diplomatic History of the United States, 1900-1945  
HIST 4773 Diplomatic History of the United States, 1945 to Present  
HIST 4783 History of Modern Mexico  
HIST 4793 History of Colonial India, 1758-1948

Select one additional course from any of the above categories if taking ECON 2013/2023. If taking ECON 2143, select two additional courses from any of the above categories.

**Track Two: International Security**

HIST 3043 History of the Modern Middle East  
HIST 3063 Military History  
HIST 3443 Modern Imperialism  
HIST 3453 Modern Terrorism  
HIST 3473 Palestine and Israel in Modern Times  
HIST 3533 World War II  
HIST 3583 The United States and Vietnam  
HIST 4183 Great Britain, 1707-1901  
HIST 4193 Great Britain, 1901-2001  
HIST 4243 Germany, 1789-1918  
HIST 4253 Germany, 1918-1945  
HIST 4363 Middle East since 1914  
HIST 4753 Diplomatic History of the United States, 1776-1900  
HIST 4763 Diplomatic History of the United States, 1900-1945  
HIST 4773 Diplomatic History of the United States, 1945 to Present  
PLSC 3813 International Law  
PLSC 3823 Theories of International Relations  
PLSC 3853 American Foreign Policy  
PLSC 4803 Foreign Policy Analysis  
PLSC 4813 Politics of the Cold War  
PLSC 4833 International Political Economy  
PLSC 4843 The Middle East in World Affairs  
PLSC 4853 International Norms and Corporate Responsibility

**Track Three: International Economics and Development**

Note: At least two of the chosen courses in this track must be from ECON  
ECON 3843 Economic Development, Poverty, & the Role of the World Bank and IMF in Low-Income Countries  
ECON 3853 Emerging Markets  
ECON 3933 The Japanese Economic System  
ECON 4633 International Trade Policy  
ECON 4643 International Macroeconomics and Finance  
GEOG 3353 Economic Geography of NAFTA  
HIST 3443 Modern Imperialism

- HIST 3473 Palestine and Israel in Modern Times
- HIST 4123 Africa and the Trans-Atlantic Slave Trade
- HIST 4183 Great Britain, 1707-1901
- HIST 4193 Great Britain, 1901-2001
- HIST 4263 Independence and Africa Today
- PLSC 3803 International Organization
- PLSC 3813 International Law
- PLSC 3823 Theories of International Relations
- PLSC 3853 American Foreign Policy
- PLSC 4513 Creating Democracies
- PLSC 4803 Foreign Policy Analysis
- PLSC 4813 Politics of the Cold War
- PLSC 4833 International Political Economy
- PLSC 4843 The Middle East in World Affairs
- PLSC 4853 International Norms and Corporate Social Responsibility
- PLSC 4873 Inter-American Politics

**Track Four: Food, the Environment, and Geography in International Relations**

- AFLS 2003 Introduction to Global Agricultural, Food and Life Sciences
- GEOG 3353 Economic Geography of NAFTA
- GEOG 4033 Geography of the Middle East
- GEOG 4243 Political Geography
- GEOG 4783 Geography of Europe
- PLSC 3803 International Organization
- PLSC 3813 International Law
- PLSC 3823 Theories of International Relations
- PLSC 4833 International Political Economy
- PLSC 4853 International Norms and Corporate Responsibility
- PLSC 4873 Inter-American Politics

**Track Five: Peoples, Cultures, and Identities in Global Context**

- ANTH 2013/LAST 2013 Introduction to Latin American Studies
- ANTH 3503 Power and Popular Protest in Latin America
- ANTH 3523 Gender and Politics in Latin America
- ANTH 4063 Women in Africa
- ANTH 4533 Middle East Cultures
- ANTH 4583 Peoples and Cultures of Sub-Saharan Africa
- ENGL 2323 Survey of Modern British, Irish, and Postcolonial Literature
- ENGL 3763 Topics in Postcolonial Literature and Culture
- EUST 2013 Introduction to Europe
- GEOG 1123 Human Geography
- HIST 3033 Islamic Civilization
- HIST 3043 History of the Modern Middle East
- HIST 3213 Modern Latin America
- HIST 3253 The History of Sub-Saharan Africa
- HIST 3443 Modern Imperialism
- HIST 3473 Palestine and Israel in Modern Times
- HIST 3523 Modern China
- HIST 3553 Russia Since 1861
- HIST 3683 Europe in the 19th Century
- HIST 3693 Europe in the 20th Century
- HIST 4123 Africa and the Trans-Atlantic Slave Trade
- HIST 4153 Modern Ireland, 1798-1948
- HIST 4183 Great Britain, 1707-1901
- HIST 4193 Great Britain, 1901-2001
- HIST 4213 The Era of the French Revolution
- HIST 4223 France Since 1815
- HIST 4243 Germany, 1789-1918
- HIST 4253 Germany, 1918-1945
- HIST 4263 Independence and Africa Today
- HIST 4333 Modern Islamic Thought
- HIST 4363 Middle East since 1914
- HIST 4413 New Women in the Middle East
- HIST 4433 Social and Cultural History of the Modern Middle East
- HIST 4783 History of Modern Mexico

- HIST 4793 Colonial India, 1758-1948
- MEST 2003 Islam in History, Practice and Experience
- MEST 2013 Introduction to Middle East Studies
- PLSC 3503 Governments and Politics of East Asia
- PLSC 3523 Politics of the Middle East
- PLSC 3573 Governments and Politics of Latin America
- PLSC 4563 Government and Politics of Russia
- PLSC 4593 Islam and Politics
- PLSC 4823 Foreign Policy of East Asia
- PLSC 4843 The Middle East in World Affairs
- PLSC 4853 International Norms and Corporate Responsibility
- PLSC 4873 Inter-American Politics

**Track Six: The United States in the World**

- HIST 2003 History of the American People to 1877
- HIST 2013 History of the American People, 1877 to Present
- HIST 3443 Modern Imperialism
- HIST 3533 World War II
- HIST 3583 The United States and Vietnam
- HIST 4753 Diplomatic History of the United States, 1776-1900
- HIST 4763 Diplomatic History of the United States, 1900-1945
- HIST 4773 Diplomatic History of the United States, 1945 to Present
- PLSC 3803 International Organization
- PLSC 3813 International Law
- PLSC 3823 Theories of International Relations
- PLSC 3853 American Foreign Policy
- PLSC 4513 Creating Democracies
- PLSC 4803 Foreign Policy Analysis
- PLSC 4813 Politics of the Cold War
- PLSC 4833 International Political Economy
- PLSC 4853 International Norms and Corporate Responsibility
- PLSC 4873 Inter-American Politics

**Study Abroad:** All International Relations majors are strongly encouraged to study abroad. With prior approval from the International Relations chair or designee, up to six credits of related and appropriate study abroad coursework can be used to fulfill part of the thematic track requirement. Advanced (3000-level equivalent) study abroad coursework in languages may also be used to fulfill the language requirement.

**Internships:** All International Relations majors are strongly encouraged to seek out an IR-related internship. With prior approval from the International Relations chair or designee, up to six credits of internship credits (IREL 300V) from a related and appropriate internship can be used to fulfill part of the thematic track requirement.

**Independent Study:** With prior approval from the International Relations chair or designee, up to six credits of independent study (IREL 406V) can be used to fulfill part of the thematic track requirement.

**Honors:** Honors students may take up to 12 credit hours of International Relations Honors Thesis (IREL 399VH). Up to six hours of these credits may be used to fulfill part of the thematic track requirement, the remainder going toward general university electives. Select Honors Colloquia may also be substituted for up to six hours of the thematic track requirement, with permission of the Director of the Program.

**International Relations B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203
- 3 PLSC 2003 American National Government
- 3 1013 Elementary II world language course (depending on placement in sequence)

3	IREL 2813 Intro. to International Relations or HIST 1123 World Civilization II, 1500-Present
<b>15-16 Semester Hours</b>	
<b>Spring Semester Year 1</b>	
3	ENGL 1023 Composition II
3	GEOG 2003 World Geography
3	HIST 1123 World Civilization II, 1500 – present or IREL 2813 Intro. to International Relations
3	2003 Intermediate I world language course (depending on placement in sequence)
4	Science university/state core lecture with corequisite lab requirement
<b>16 Semester Hours</b>	
<b>Fall Semester Year 2</b>	
3	†ECON 2143 Basic Economics or †ECON 2013 Principles of Macroeconomics
3	2013 Intermediate II world language course
3	Introductory area studies course
3	Selected Track 1st course*
4	General elective
<b>16 Semester Hours</b>	
<b>Spring Semester Year 2</b>	
3	Selected Track 2nd course*
3	†‡Upper-level world language course
3	University/state core fine arts or humanities course
3	†ECON 2023 Microeconomics (if ECON 2013 completed in fall 2) or General Elective
4	Science university/state core lecture with corequisite lab requirement
<b>16 Semester Hours</b>	
<b>Fall Semester Year 3</b>	
3	†‡Upper-level world language course
3	Selected Track 3rd course*
3	University/state core humanities or fine arts course (as needed)
3	†3000-4000 Level Electives
3	General Electives
<b>15 Semester Hours</b>	
<b>Spring Semester Year 3</b>	
3	Selected Track 4th course*
6	†3000-4000 Level Electives
6	General Electives
<b>15 Semester Hours</b>	
<b>Fall Semester Year 4</b>	
3	†‡IREL 4003 International Relations Seminar (Completes Senior Writing Requirement) or †‡Area Studies Colloquium Requirement
3	Selected Track 5th course*
7	†Advanced Level Electives
3	General Electives
<b>16 Semester Hours</b>	
<b>Spring Semester Year 4</b>	
3	†‡Area Studies Colloquium Requirement or †‡IREL 4003 International Relations Seminar (Completes Senior Writing Requirement)
3	Selected Track 6th course* (if needed)
3	†‡Fulbright College 3000+ level electives (as needed or †Advanced Level Electives)
6	General Electives
<b>15 Semester Hours</b>	
<b>124 Total Hours</b>	
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
*	No more than 3 Track courses can be from any one department. At least 3 track courses must be at the 3000- or 4000-level. At least one track course must be at the 4000-level. At least one track course must be applicable to the selected area studies focus.

## JOURNALISM (JOUR), THE WALTER J. LEMKE DEPARTMENT OF

Dale Carpenter  
Chair of the Department  
116 Kimpel Hall  
479-575-3601  
<http://uark.edu/journalism>

### FACULTY

- Professors Carpenter, Foley, Purvis, Wicks
- Professors Emeriti Ingenthron, Reed
- Associate Professors Coustaut, Fosu, Jordan, Miller, Stockdell, Watkins
- Associate Professor Emerita Montgomery
- Assistant Professors Kirkpatrick, Schulte
- Instructors Ledbetter, Martin, Shurlds, Tuychiev
- Instructor Emerita Belzung

The purpose of the Walter J. Lemke Department of Journalism is to provide students with knowledge of the history, theory, and ethics of mass communications, to educate students in journalistic skills, including the ability to express themselves logically and clearly, and to guide them in securing specialized knowledge of society appropriate to journalistic careers.

**Requirements for a B.A. degree in Journalism:** All university students must fulfill the minimum University/state core requirements (see page 41). A minimum of 84-85 hours in non-journalism courses must be applied toward the 124 hours required by the college for a Bachelor of Arts degree.

Bolded courses from the list below may be counted toward some part of the University/state minimum core requirements, as applicable.

3 – **MATH 2033 Mathematical Thought, MATH 2043 Survey of Calculus, MATH 2053 Finite Mathematics, or MATH 2183 Mathematical Reasoning**, or higher level math

3-6 – **Intermediate I** (course number 2003) of a world language. The number of credit hours taken to complete this level of proficiency depends on placement level in the language course sequence. Elementary Language courses numbered 1003 generally do not count toward the 124 minimum credit hours required for graduation. Consult page 129 under college admission requirements for details.

3 – **WLIT 1113 World Literature I, or WLIT 1123 World Literature II**, or an advanced literature course, or a language literature course

3 – **PHIL 2003 Intro to Philosophy or PHIL 2103 Intro to Ethics** or any philosophy course at the 3000-level or higher (recommended: **PHIL 3103 Ethics and the Professions**)

6 – **PLSC 2003 American National Government** and a second PLSC course (recommended courses include: PLSC 2813 Intro to International Relations, PLSC 3233 The American Congress, and PLSC 4233 The American Chief Executive)

3-6 – **ECON 2143 Basic Economics: Theory and Practice**. A combination of ECON 2013 Principles of Macroeconomics and ECON 2023 Principles of Microeconomics will be allowed in place of ECON 2143

3 COMM 1313 Public Speaking

3 3000-4000 level HIST course

3 Cultural/Diversity Requirement: 3 hours of cultural/diversity studies to be selected from the following or as approved by the Lemke Department of Journalism:

ANTH 4533 Middle East Cultures

COMM 4343 Intercultural Communication

HIST 3233 African American History to 1877

HIST 3243 African American History Since 1877

HIST 3263 History of the American Indian

JOUR 405V Special Journalism Seminar—cultural/diversity-related topics as approved by the department

SCWK 3193 Human Diversity and Social Work

SOCI 3193 Race, Class and Gender in America (SOCI 2013 prerequisite)  
Other cultural/diversity courses as approved by the Department of Journalism

A minimum of 33 semester hours in journalism, including JOUR 1023, JOUR 1033, and JOUR 3633. A minimum grade of “C” is required in all journalism courses that serve as prerequisites for advanced journalism courses. In certain courses a minimum grade of “B” is required. Journalism majors must also fulfill the requirements for either the news/editorial option, the advertising/public relations option, or the broadcast option. Students must select a sequence when they enter the department. Specific non-journalism courses in addition to the journalism courses are required for the advertising/public relations sequence. The requirements for each sequence are as follows:

**News/Editorial:** JOUR 2013, JOUR 3013, JOUR 3123, and either JOUR 3023 or JOUR 4553 are required, plus any four additional journalism courses. It is recommended that one course choice be an internship.

**Broadcast:** JOUR 2032/2031L, JOUR 3072/3071L, JOUR 4863, and JOUR 4873 are required, plus any four additional journalism courses. It is recommended that one course choice be an internship and another choice be JOUR 4883.

**Advertising/Public Relations:** JOUR 3723, JOUR 3743, JOUR 4143, JOUR 4423, and JOUR 4453 are required, plus any three additional journalism courses. It is recommended that one course choice be an internship. Also required are MKTG 3433 and MKTG 3553. Students seeking admission to the Ad/PR Sequence must have an overall GPA of 2.5 or higher: 1) to be admitted to the Ad/PR Sequence, and 2) to enroll in JOUR 3723 and JOUR 3743. Ad/PR Sequence students are required to earn a grade of “B” or higher in both JOUR 3723 and JOUR 3743 to qualify to take all upper level Ad/PR sequence courses. Students may retake JOUR 3723 and JOUR 3743 only once to earn a grade of “B” or higher.

**Writing Requirement:** Students should consult with their faculty advisers for information on how to fulfill the college writing requirement.

**Journalism B.A., Advertising and Public Relations Sequence**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all university/state core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 English Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 JOUR 1023 Media and Society or JOUR 1033 Fundamentals of Journalism or social science state/university core requirement
- 3 PLSC 2003 American National Government
- 3 1013 Elementary II world language course

**15-16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 English Composition II
- 3-4 †MATH 2033, 2043, 2053, 2183 or 2554 (if needed) or General Elective
- 3 JOUR 1033 Fundamentals of Journalism or social science state/university core requirement or JOUR 1023 Media and Society as needed
- 4 2003 Intermediate I world language course
- 3 ECON 2143 Basic Economics or fine arts university/state core requirement

**15-16 Semester Hours**

**Fall Semester Year 2**

- 3 Fine arts university/state core requirement or ECON 2143 Basic Econ. as needed
- 3 Social science state/university core requirement or JOUR 1023 Media and Society or JOUR 1033 Fundamentals of Journalism as needed
- 4 Science university/state core lecture with corequisite lab requirement
- 3 PHIL 2003 or PHIL 2103 or PHIL 3103
- 3 †Advanced Level Elective

**16 Semester Hours**

**Spring Semester Year 2**

- 3 †Advanced Level Elective
- 3 †MKTG 3433 Introduction to Marketing Strategy
- 3 Social science state/university core requirement

- 3 WLIT 1113 or WLIT 1123
- 3 COMM 1313 Public Speaking
- 1 General Elective

**16 Semester Hours**

**Fall Semester Year 3**

- 3 †JOUR 3723 Advertising Principles or JOUR †3743 Public Relations Principles
- 3 †MKTG 3553 Consumer Behavior
- 3 Social Science university/state core requirement
- 4 Science university/state core lecture and corequisite lab
- 3 †3000-4000 HIST course or †3000-4000 non-JOUR Fulbright College Elective

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †JOUR 3723 Advertising Principles (if not taken earlier) or †JOUR 3743 Public Rel. Principles
- 3 †Advanced Level non-JOUR Elective
- 3 †JOUR 3633 Media Law
- 3 Non-JOUR Cultural/diversity studies course or PLSC course
- 3 †3000-4000 non-JOUR Fulbright College elective or †3000-4000 HIST course

**15 Semester Hours**

**Fall Semester Year 4**

- 3 JOUR Elective
- 3 †JOUR 4143 Public Relations Writing (or in Spring Semester 4)
- 3 †JOUR 4423 Creative Strategy & Execution (or in Spring Semester 4)
- 3 †JOUR 4453 Media Planning & Strategy (or in Spring Semester 4)
- 3 †Advanced Level non-JOUR Elective
- 0-1 †JOUR 4981 Journalism Writing Requirement (or in Spring Semester Year 4)

**15-16 Semester Hours**

**Spring Semester Year 4**

- 0-1 †JOUR 4981 Journalism Writing Requirement (if needed)
- 3 JOUR Elective
- 3 JOUR Elective
- 3 Non-JOUR Cultural/diversity studies course or PLSC course
- 6 Non-JOUR General Electives

**15-16 Semester Hours**

**124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Journalism B.A., Broadcast Sequence**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 English Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 JOUR 1023 Media and Society
- 3 Fine arts state/university core requirement or PLSC 2003 American National Government
- 3 Social science state/university core requirement

**15-16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 English Composition II
- 3-4 †MATH 2033, 2043, 2053, 2183 or 2544
- 3 JOUR 1033 Fundamentals of Journalism
- 4 Science university/state core lecture and corequisite lab
- 3 PLSC 2003 American National Government or fine arts state/university core requirement (as needed)

**16-17 Semester Hours**

**Fall Semester Year 2**

- 3 Non-JOUR General Elective
- 3 Social science state/university core requirement
- 3 WLIT 1113 or WLIT 1123
- 3 †Non-JOUR Advanced Level Elective

3	1013 Elementary II world language course (or 1003, depending on placement) or non-JOUR General Elective
<b>15</b>	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	†Non-JOUR Advanced Level Elective
3	‡JOUR 2032/2031L Broadcast News Reporting I with Lab
3	COMM 1313 Public Speaking
3	PHIL 2003 or PHIL 2103 or PHIL 3103
3	2003 Intermediate I world language course (or 1013, depending on placement in sequence) or non-JOUR general elective
<b>15</b>	<b>Semester Hours</b>
<b>Fall Semester Year 3</b>	
3	‡JOUR 3072/3071L Broadcast News Reporting II with Lab
3	‡JOUR 3633 Media Law
3	PLSC course or ECON 2143 Basic Economics
7	Non-JOUR general electives
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	‡JOUR 4863 Television News Reporting I with Lab
3	‡JOUR upper level elective
3	†Non-JOUR Advanced Elective
3	ECON 2143 Basic Economics (if needed) or PLSC course
4	Science university/state core lecture and corequisite lab
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	‡JOUR 4873 Television News Reporting II with Lab
3	‡JOUR upper level elective
3	‡JOUR upper level elective
3	Non-JOUR Cultural/diversity studies course or 3000-4000 ‡HIST course
3	†Non-JOUR Advanced Level Elective
<b>15</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	‡JOUR upper level elective
1	‡JOUR 4981 Journalism Writing Requirement
3	3000-4000 ‡HIST course or non-JOUR cultural/diversity studies course
3	†Advanced Level Elective
6	†Non-JOUR General Elective
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

### Journalism B.A., News/Editorial Sequence Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

- 3 ENGL 1013 English Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 JOUR 1023 Media and Society
- 3 Fine arts state/university core requirement or PLSC 2003 American National Government
- 3 Social science state/university core requirement

#### 15-16 Semester Hours

#### Spring Semester Year 1

- 3 ENGL 1023 English Composition II
- 3 †MATH 2043, 2053, 2183 or 2554 (if needed) or General Elective
- 3 JOUR 1033 Fundamentals of Journalism
- 4 Science university/state core lecture and corequisite lab
- 3 PLSC 2003 American National Government or fine arts state/university core requirement

#### 16 Semester Hours

#### Fall Semester Year 2

- 3 †JOUR 2013 News Reporting I
- 3 Social science state/university core requirement
- 3 WLIT 1113 or WLIT 1123
- 3 Non-JOUR General elective
- 3 1013 Elementary II world language course (or 1003, depending on placement) or non-JOUR General Elective

#### 15 Semester Hours

#### Spring Semester Year 2

- 3 Non-JOUR General Elective
- 3 ‡JOUR 3013 Editing
- 3 COMM 1313 Public Speaking
- 3 PHIL 2003 or PHIL 2103 or PHIL 3103
- 3 2003 Intermediate I world language course (or 1013, depending on placement in sequence) or non-JOUR General Elective, as needed

#### 15 Total Hours

#### Fall Semester Year 3

- 3 ‡JOUR 3123 Feature Writing
- 3 ‡JOUR 3633 Media Law
- 3 PLSC course or ECON 2143 Basic Economics
- 3 non-JOUR general elective
- 4 Science university/state core lecture and corequisite lab

#### 16 Semester Hours

#### Spring Semester Year 3

- 3 ‡JOUR 3023 News Reporting II or JOUR 4553 Magazine Editing and Production I
- 3 ‡JOUR upper level elective
- 3 ECON 2143 Basic Economics or PLSC course as needed
- 7 Non-JOUR General Electives

#### 16 Semester Hours

#### Fall Semester Year 4

- 3 ‡JOUR upper level elective
- 3 ‡JOUR upper level elective
- 3 Non-JOUR Cultural/diversity studies course or ‡3000-4000 HIST course
- 6 Non-JOUR General Elective

#### 15 Semester Hours

#### Spring Semester Year 4

- 3 ‡JOUR upper level elective
- 1 ‡JOUR 4981 Journalism Writing Requirement
- 3 ‡3000-4000 HIST course or non-JOUR Cultural/diversity studies course
- 3 †Advanced Level Elective
- 6 Non-JOUR General Elective

#### 16 Semester Hours

#### 124 Total Hours

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for Departmental Honors in Journalism:** The Journalism Honors Program gives upper-division undergraduates a chance to pursue journalistic research in the context of other academic disciplines. Honors candidates carry out independent study and research under the guidance of the journalism faculty and participate in honors classes in journalism and at least one other discipline. Outstanding student achievement will be recognized by the award of distinction "Journalism Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in cases of exceptional achievement and are based on the candidate's total honors studies program. To be considered for such distinctions, students must earn a minimum cumulative 3.50 grade-point average in journalism.

Journalism Departmental Honors students must satisfy the general Fulbright College honors requirements as stated elsewhere in this catalog. In addition, for journalism departmental honors, they must complete a minimum of 12 hours in honors credits, with thesis credit determined by departmental rules. These requirements are specified as follows:

Journalism Four-Year and Departmental Honors students must:

1. enter the program no later than the first semester of their junior year, and register for thesis beginning with the first semester of the junior year,
2. complete at least one journalism honors colloquium,

3. complete the journalism honors core research course JOUR 5043,
4. complete an approved honors colloquium in a second discipline,
5. complete and orally defend an honors thesis based on honors courses of study, and
6. earn a cumulative 3.50 grade-point average in journalism courses.

Four-Year Honors students who would like to major in journalism must meet all requirements for Journalism Department Honors.

More specific information on the Journalism Departmental Honors program, including the requirements for Four-Year Honors students, is available from the Journalism Department Honors adviser.

### Combined Majors

**Combined Major in Journalism and Political Science:** The combined major in journalism and political science has been developed for students who wish to combine their strong interests in both journalism and political science. There are two journalism options available: Public Affairs Reporting and Political Advertising and Promotion.

**Requirements for the Combined Major in Journalism and Political Science:** All university students must fulfill the minimum University/state core requirements (see page 41). A minimum of 84-85 hours in non-journalism courses must be applied toward the 124 hours required by the college for a Bachelor of Arts degree. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

- 3 – **MATH 2033 Mathematical Thought**, **MATH 2043 Survey of Calculus**, **MATH 2053 Finite Mathematics**, or **MATH 2183 Mathematical Reasoning**, or higher level math
- 3-6 – **Intermediate I (course number 2003)** of a world language. The number of credit hours taken to complete this level of proficiency depends on placement level in the language course sequence. Elementary Language courses numbered 1003 generally do not count toward the 124 minimum credit hours required for graduation. Consult page 129 under college admission requirements for details.
- 3 – **WLIT 1113 World Literature I**, or **WLIT 1123 World Literature II**, or an advanced literature course, or a language literature course;
- 3 – **PHIL 2003 Intro to Philosophy** or **PHIL 2103 Intro to Ethics** or any philosophy course at the 3000-level or higher (recommended: PHIL 3103 Ethics and the Professions);
- 6 – **PLSC 2003 American National Government** and a second PLSC course (recommended courses include: PLSC 2813 Intro to International Relations, PLSC 3233 The American Congress, and PLSC 4233 The American Chief Executive);
- 3-6 – **ECON 2143 Basic Economics: Theory and Practice**. A combination of **ECON 2013 Principles of Macroeconomics** and **ECON 2023 Principles of Microeconomics** will be allowed in place of ECON 2143;
- 3 – COMM 1313 Public Speaking;
- 3 – 3000-4000 level HIST course;
- 3 – Cultural/Diversity Requirement: 3 hours of cultural/diversity studies to be selected from the following or as approved by the Lemke Department of Journalism:
  - ANTH 4533 Middle East Cultures
  - COMM 4343 Intercultural Communication
  - HIST 3233 African American History to 1877
  - HIST 3243 African American History Since 1877
  - HIST 3263 History of the American Indian
  - JOUR 405V Special Journalism Seminar — cultural/diversity-related topics as approved by the department
  - SCWK 3193 Human Diversity and Social Work
  - SOCI 3193 Race, Class and Gender in America (SOCI 2013 prerequisite)
  - Other cultural/diversity-related topics as approved by the Department of Journalism

The journalism requirement may be satisfied by 24 semester hours of courses, including JOUR 1023, JOUR 1033, and JOUR 3633. The remaining hours are filled from the following options.

Those wishing to emphasize Public Affairs Reporting can choose from either print or broadcast news:

Print News: JOUR 2013, JOUR 3013, JOUR 3023, JOUR 4043, and one additional journalism course.

Broadcast News: JOUR 2032/2031L, JOUR 3072/3071L, JOUR 4043, JOUR 4863, and JOUR 4873.

Those wishing to emphasize Political Advertising and Promotion take the following courses: JOUR 3723, JOUR 3743, JOUR 4043, and 6 hours of advanced journalism courses. Students should check course prerequisites.

The political science requirement may be satisfied by 24 semester hours of courses, including PLSC 2003, PLSC 2013, PLSC 4373, and either an additional 15 hours of advanced political science courses elected entirely from American political affairs courses:

PLSC 3103	PLSC 3153	PLSC 3183	PLSC 3223
PLSC 3233	PLSC 3243	PLSC 3253	PLSC 3603
PLSC 3853	PLSC 3923H	PLSC 3913	PLSC 3933
PLSC 394V	PLSC 3983	PLSC 399VH	PLSC 4193
PLSC 4203	PLSC 4213	PLSC 4243	PLSC 4253
PLSC 4813	PLSC 4823		

Or an additional 15 hours of advanced political science courses elected entirely from foreign affairs courses:

PLSC 3503	PLSC 3523	PLSC 3573	PLSC 3603
PLSC 3803	PLSC 3813	PLSC 3823	PLSC 3853
PLSC 3923H	PLSC 394V	PLSC 399VH	PLSC 4513
PLSC 4563	PLSC 4573	PLSC 4593	PLSC 4803
PLSC 4843	PLSC 4873		

**Writing Requirement:** Students pursuing the journalism/political science combined major may satisfy the college writing requirement through either the Department of Journalism or through the Department of Political Science.

**In Journalism:** Students should consult with their Journalism faculty advisers for information on how to fulfill the college writing requirement.

**In Political Science:** The college writing requirement is fulfilled by submitting an acceptable research/analytical paper to the department for approval at least four weeks prior to graduation. The paper may be derived from completion of an honors essay (PLSC 499VH), a senior thesis (PLSC 498V), or some other advanced course in political science. The student is urged to consult with his or her faculty adviser no later than early in the first semester of the senior year.

#### Journalism/Political Science B.A. Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

##### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 JOUR 1023 Media and Society or JOUR 1033 Fundamentals of Journalism
- 3 Social science university/state core requirement (HIST recommended)
- 3 1013 Elementary II world language

##### 15-16 Total Hours

##### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2033, 2043, 2053, 2183 or 2554 (if still needed) or non-JOUR General Elective
- 3 PLSC 2003 American National Government
- 3 JOUR 1023 Media and Society or JOUR 1033 Fundamentals of Journalism (as needed)
- 3 2003 Intermediate I world language

##### 15-16 Total Hours

##### Fall Semester Year 2

- 3 PLSC 2013 Introduction to Comparative Politics (meets a requirement for core area e)
- 3 †JOUR course from selected concentration
- 4 Science university/state core lecture w/ corequisite lab requirement

3	†Advanced general elective
3	†COMM 1313 Public Speaking
<b>16</b>	<b>Total Hours</b>
<b>Spring Semester Year 2</b>	
3	†‡PLSC course from selected concentration
3	†JOUR course from selected concentration
3	WLIT 1113 or WLIT 1123
4	Science university/state core lecture w/ corequisite lab requirement
3	General Elective
<b>16</b>	<b>Total Hours</b>
<b>Fall Semester Year 3</b>	
3	†‡ JOUR course from selected concentration
3	†‡ PLSC course from selected concentration
3	PHIL 2003 Intro to Philosophy or PHIL 2013 Intro to Ethics
3	ECON 2143 Basic Economics—Theory & Practice
3	General Elective
<b>16</b>	<b>Total Hours</b>
<b>Spring Semester Year 3</b>	
3	†‡ JOUR course from selected concentration or †‡JOUR 3633 Media Law
3	†‡ PLSC 4373 Political Communication or PLSC course from selected concentration
3	†‡ 3000+ HIST course
3	†‡ Cultural/Diversity course
3	General Elective
<b>15</b>	<b>Total Hours</b>
<b>Fall Semester Year 4</b>	
3	†‡ JOUR course from selected concentration
3	†‡ PLSC course from selected concentration
3	†‡ PLSC course from selected concentration
4	General Electives
3	Non-JOUR General Electives
<b>16</b>	<b>Total Hours</b>
<b>Spring Semester Year 4</b>	
3	†‡ PLSC course from selected concentration or PLSC 4373 Political Communication (as needed)
3	†‡ JOUR course from selected concentration or †‡JOUR 3633 Media Law (as needed)
3	General Electives
7	Non-JOUR General Electives
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Combined Major in English and Journalism:** All university students must fulfill the minimum University/state core requirements (see page 41). A minimum of 84-85 hours in non-journalism courses must be applied toward the 124 hours required by the college for a Bachelor of Arts degree. Bolded courses from the list below may be counted toward some part of the University/state minimum core requirements, as applicable.

- 3 – **MATH 2033 Mathematical Thought**, **MATH 2043 Survey of Calculus**, **MATH 2053 Finite Mathematics**, or **MATH 2183 Mathematical Reasoning**, or higher level math
- 3-6 – **Intermediate I (course number 2003)** of a world language. The number of credit hours taken to complete this level of proficiency depends on placement level in the language course sequence. Elementary Language courses numbered 1003 generally do not count toward the 124 minimum credit hours required for graduation. Consult page 129 under college admission requirements for details.
- 3 – **WLIT 1113 World Literature I**, or **WLIT 1123 World Literature II**, or an advanced literature course, or a language literature course;
- 3 – **PHIL 2003 Intro to Philosophy** or **PHIL 2103 Intro to Ethics** or any philosophy course at the 3000-level or higher (recommended: PHIL 3103 Ethics and the Professions);
- 6 – **PLSC 2003 American National Government** and a second PLSC course (recommended courses include: PLSC 2813 Intro to International Rela-

tions, PLSC 3233 The American Congress, and PLSC 4233 The American Chief Executive);

3-6 – **ECON 2143 Basic Economics: Theory and Practice**. A combination of **ECON 2013 Principles of Macroeconomics** and **ECON 2023 Principles of Microeconomics** will be allowed in place of ECON 2143;

3 – COMM 1313 Public Speaking;

3 – 3000-4000 level HIST course;

3 – Cultural/Diversity Requirement: 3 hours of cultural/diversity studies to be selected from the following or as approved by the Lemke Department of Journalism:

ANTH 4533 Middle East Cultures

COMM 4343 Intercultural Communication

HIST 3233 African American History to 1877

HIST 3243 African American History Since 1877

HIST 3263 History of the American Indian

JOUR 405V Special Journalism Seminar—cultural/diversity-related topics as approved by the department

SCWK 3193 Human Diversity and Social Work

SOCI 3193 Race, Class and Gender in America (SOCI 2013 prerequisite)

Other cultural/diversity-related topics as approved by the Department of Journalism

The journalism requirement may be satisfied by 24 semester hours of courses, including JOUR 1023, JOUR 1033, and JOUR 3633. The remaining hours are filled from the following options.

Those wishing to emphasize Public Affairs Reporting can choose from either print or broadcast news:

Print News: JOUR 2013, JOUR 3013, JOUR 3023, JOUR 4043, and one additional journalism course.

Broadcast News: JOUR 2032/2031L, JOUR 3072/3071L, JOUR 4863, and JOUR 4873, and one additional journalism course.

The English requirements for this combined major are as follows: 24 hours of English courses (not counting ENGL 0003, ENGL 1013, ENGL 1023, and ENGL 2003) to include any nine hours of survey courses (chosen from ENGL 2303, ENGL 2313, ENGL 2323, ENGL 2343, and ENGL 2353), and 15 additional hours chosen from English courses numbered above 3000 and WLIT courses above 2333.

In addition, students are strongly recommended to complete up through the 2013 Intermediate II level of a world language.

**Writing Requirement:** All upper division English courses require a research or an analytical paper except ENGL 4003 and the courses in creative writing (ENGL 3013, ENGL 4013, ENGL 4023, ENGL 4073). For this reason, all students who fulfill the requirements for the combined major in Journalism and English thereby fulfill the Fulbright College writing requirement.

**Assessment Requirement:** Every senior English major must take the program assessment exam administered by the department each spring semester to graduate. Exam results will not affect GPA, although the student's score will be noted on his or her permanent academic record. This requirement may be waived in extraordinary circumstances by the department's Director of Undergraduate Studies. Contact your adviser for more information.

#### Combined Major in English and Journalism Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

3 ENGL 1013 Composition I

3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183, or 2554

3 JOUR 1023 Media and Society or JOUR 1033 Fundamentals of Journalism

3 Fine Arts university/state core requirement or PLSC 2003 American National Government

3	1013 Elementary II world language course (depending on placement in sequence)
<b>15-16 Total Hours</b>	
<b>Spring Semester Year 1</b>	
3	ENGL 1023 Composition II
3	†MATH 2033, 2043, 2053, 2183, or 2554 (as needed) or non-JOUR elective
3	JOUR 1023 Media and Society or JOUR 1033 Fundamentals of Journalism (as needed)
4	Science university/state core lecture and corequisite lab
3	2003 Intermediate I world language course (depending on placement in sequence)
<b>16 Total Hours</b>	
<b>Fall Semester Year 2</b>	
3	†ENGL from survey group (above)
3	†JOUR 2013 News Reporting 1
3	†Advanced general elective
3	2013 Intermediate II world language course (strongly recommended)
3	PLSC 2003 American National Government or Fine Arts university/state core requirement
<b>15 Total Hours</b>	
<b>Spring Semester Year 2</b>	
3	†ENGL from survey group (above)
3	†JOUR 3013 Editing (for Print) or JOUR 3023 News Reporting 2 (for Broadcast)
3	Social science University/state core requirement
3	COMM 1313 Public Speaking
3	PHIL 2003 Intro to Philosophy or PHIL 2103 Intro to Ethics
<b>15 Total Hours</b>	
<b>Fall Semester Year 3</b>	
3	†JOUR 3023 News Reporting 2 (for Print) or †3072/3071L Broadcast News Reporting 2 (for Broadcast)
3	†ENGL from survey group (above)
3	Social science University/state core requirement
3	WLIT 1113 or WLIT 1123
4	Science university/state core lecture and corequisite lab
<b>16 Total Hours</b>	
<b>Spring Semester Year 3</b>	
3	†JOUR 3633 Media Law
3	†ENGL/WLIT Upper Level Elective
3	2nd PLSC course or ECON 2143 Basic Economics
3	†Cultural/Diversity Requirement or †3000+ HIST course
4	General Electives
<b>16 Total Hours</b>	
<b>Fall Semester Year 4</b>	
3	†ENGL/WLIT Upper Level Elective
3	†ENGL/WLIT Upper Level Elective
3	†3000-plus HIST course or Cultural/Diversity Requirement
3	†JOUR 3123 Feature Writing (Print) or †JOUR 4863 Television News Reporting I (Broadcast)
3	ECON 2143 Basic Economics or 2nd PLSC course
1	General Elective
<b>16 Total Hours</b>	
<b>Spring Semester Year 4</b>	
3	†ENGL/WLIT Upper Level Elective
3	†ENGL/WLIT Upper Level Elective
3	†JOUR Upper-level Elective (Print) or †JOUR 4873 Television News Reporting II (Broadcast)
3	General Elective (Print) or †JOUR Upper-level Elective (Broadcast)
3	General Elective
<b>15 Semester Hours</b>	
<b>124 Total Hours</b>	

**Journalism (B.A.) Teacher Licensure Requirements:**

Students interested in obtaining teacher licensure may not obtain licensure in journalism alone. Licensure in another discipline must be obtained, and journalism may be added as an additional area of licensure. Please refer to the Secondary

Education Requirements for Fulbright College Students on page 125 or contact your departmental adviser or an adviser in the College of Education and Health Professions.

**Journalism for Agricultural Majors:** A list of 18 hours of journalism courses is available for students in the College of Agricultural, Food and Life Sciences. See the Bumpers College section of this catalog for these journalism courses. This program is recommended for students who plan to work in public relations in these areas. It is also recommended for students who expect to enter extension work in agriculture and home economics and who will use the mass media to promote their programs.

See Page 371 for Journalism (JOUR) courses

**LATIN AMERICAN AND LATINO STUDIES (LAST)**

Steven M. Bell  
 Chair of Studies  
 605 Kimpel Hall  
 479-575-2951  
<http://last.uark.edu/>

**FACULTY**

- Professors Britton (economics), Graff (geography), Hehr (geography), Horowitz (economics), Purvis (journalism and political science), Restrepo (world languages), Sloan (music)
- Associate Professors Bell (world languages), Erickson (anthropology), Kali (economics), Méndez (economics), Reyes (economics), Ruiz (world languages), Ryan (political science), Sloan (history), Villalobos (world languages)
- Assistant Professors Bridges (psychology), Corrigan (communications), Jimeno (political science), Puente (world languages)

Students interested in Latin America and wishing to maximize their potential for academic, business, professional, or government careers related to the area, may earn a combined major or a minor in Latin American and Latino studies together with a major in another discipline in Fulbright College. Advice on appropriate combinations of Latin American and Latino studies with other majors as well as individual approval of such combinations may be obtained from the LAST program director. New students in this program must officially declare the combined major and notify the LAST program director. Degree checks must also be cleared with the program director. Freshmen and sophomores considering this program are advised to begin their study of Spanish or Portuguese as early as possible.

**Requirements for a Combined Major in Latin American and Latino Studies:**

In addition to the requirements of a primary departmental major, students pursuing a combined major in Latin American and Latino Studies must complete the following:

**Language Competence:** The student must complete SPAN 2013 (or equivalent). Provisions are available for recognition of language skills gained by other means than formal course work taken at the University of Arkansas: See information under the entry in the department of world languages. Further functional work in Spanish or Portuguese as well as study and residence in a Latin American nation can serve to strengthen language competence and are encouraged.

**Colloquium:** The student must complete at least three hours in the interdepartmental colloquium, LAST 4003. The Colloquium may be repeated, with the adviser's approval, provided the topic is different.

**Electives:** The student must complete 18 hours, in addition to the LAST Colloquium, in courses with specific Latin American or Latino content, or individualized study options under instructors teaching Latin American or Latino studies. Students choosing to take individualized readings or directed research courses must obtain the approval of the director of the area studies program. In the selection of the electives, the following conditions apply:



1. Courses must be selected from at least three different departments,
2. A maximum of nine hours may be submitted from courses taken in any one department.

The following courses and individualized study options may be taken in fulfillment of elective requirements (for detailed descriptions please see the listings under the individual departmental headings):

#### Anthropology

- ANTH 2013 Intro to Latin American Studies
- ANTH 3213 Indians of North America
- ANTH 3503 Power and Popular Protest in Latin America
- ANTH 3523 Gender and Politics in Latin America
- ANTH 4263 Identity and Culture in the U.S.-Mexico Borderlands

#### Economics

- ECON 3843 Economic Development & the World Bank
- ECON 3853 Emerging Markets

#### Geography

- GEOG 2003 World Regional Geography

#### History

- HIST 3203 Colonial Latin America
- HIST 3213 Modern Latin America
- HIST 4783 History of Modern Mexico
- HIST 5313 Reading Seminar in Latin American History
- HIST 5323 Research Seminar in Latin American History

#### Latin American Studies

- LAST 2013 Intro. to Latin American Studies
- LAST 399VH Honors Thesis
- LAST 4003 Latin American Studies Colloquium

#### Music

- MUHS 4253 Special Topics in Music History: Latin American Music

#### Political Science

- PLSC 3263 Latino Politics
- PLSC 3573 Governments and Politics of Latin America
- PLSC 4873 Inter-American Politics

#### Social Work

- SCWK 3193 Human Diversity and Social Work

#### Spanish

- SPAN 3103 Cultural Readings
- SPAN 3113 Intro. to Literature
- SPAN 3123 Spanish for Heritage Speakers
- SPAN 4133 Survey of Spanish-American Literature I
- SPAN 4193 Survey of Spanish-American Literature II
- SPAN 4223 Latin American Civilization
- SPAN 4243 Literature and Culture in the Hispanic United States
- SPAN 4253 Latin American Cinema and Society
- SPAN 4553 Latin America Today
- SPAN 475V Special Investigations
- SPAN 4883 Indigenous Literatures of Mesoamerica, the Andes, and the Amazon
- SPAN 5253 Colonial Literature and Culture
- SPAN 5393 19th Century Spanish-American Literature
- SPAN 5403 Spanish American Theater
- SPAN 5463 20th Century Spanish-American Literature
- SPAN 5883 Indigenous Literatures

**Requirements for a Minor in Latin American and Latino Studies:** Students wishing to minor in Latin American and Latino studies must fulfill the Colloquium (LAST 4003) and the language requirements described above, and must complete at least 12 hours from among the electives listed above. Electives must include courses from at least two different academic departments. Included in the 12 hours may be 3 additional hours of LAST 4003, provided the topic is different.

**Requirements for Honors in Latin American and Latino Studies:** The Honors Program in Latin American and Latino studies gives junior and senior students of high ability the opportunity to enroll in enriched courses and conduct indepen-

dent research culminating in an honors thesis. In addition to satisfying the general Fulbright College requirements for graduation and the basic eligibility requirements for honors as established by the Honors Council, candidates for honors in Latin American and Latino studies must complete 12 hours of honors credit in partial satisfaction of requirements for the co-major. One to six of these may be thesis hours (LAST 399VH). The preferred method for satisfying the remaining hours is to enroll in the colloquium at least once for honors credit (LAST 4003H) and to take relevant honors colloquia or graduate courses (with permission) in one of the departments contributing to this interdisciplinary area study. The thesis committee shall include a representative from the major discipline (in the case of multiple majors, from the discipline contributing most significantly to the topic). Successful completion of these requirements will be recognized by the award of the distinction "Latin American and Latino Studies Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in exceptional cases and are based upon the whole of the candidate's program of honors studies.

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See Page 375 for Latin American and Latino Studies (LAST) courses

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## MATHEMATICAL SCIENCES (MASC)

Chaim Goodman-Strauss  
 Chair of the Department  
 301 Science and Engineering  
 479-575-3351  
<http://math.uark.edu>

#### FACULTY

- Distinguished Professor Schein
- Professors Akeroyd, Brewer, Capogna, Cochran, Feldman, Goodman-Strauss, Lanzani, Luecking, Madison, Rieck, Ryan
- Professors Emeriti Duncan, Dunn, Kimura, Long, Scroggs, Summers
- Associate Professors Arnold, Harrington, Johnson, Meaux, Meek, Petris, Song
- Associate Professor Emeritus Monroe
- Assistant Professors Day, Dingman, Han, Raich, Tjani
- Clinical Associate Professor Korth
- Clinical Assistant Professors Harris, Woodland
- Visiting Assistant Professor Rutherford
- Instructors Cleaveland, Crisel, Fincher, Gastineau, Keiffer, Kennedy, Li, Morris, Nitschke, Nobles, Rosell, Sullivan, Zhang (C.), Zhang (L.)
- Instructor Emeriti Lieber, Mackey, Wickliff, Ziegler

The Department of Mathematical Sciences is committed to high level mathematics instruction, preparing students for careers in secondary education, actuarial science and industry, and for entrance into graduate studies in mathematics and statistics. The Bachelor of Arts degree is often sought by future secondary education majors or by students wishing a broader exposure to the humanities. The Bachelor of Science degree is sought by students who intend to go on to graduate studies or who would like a deeper and broader understanding of higher mathematics. Enrollment in or completion of any course at the level of MATH 2554 or higher is required to enter into the mathematics program.

**Requirements for a Major in Mathematics, B.A. Degree:** Students must complete 124 degree credit hours to include the minimum University/state core requirements (see page 41), the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), and the following liberal arts and major course requirements. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 63 hours:

12 – Twelve total hours from the following science courses, at least 4 hours from each of the following two areas:

Biological Sciences – **ANTH 1013/1011L, BIOL 1543/1541L, BIOL**

**1603/1601L, BIOL 1613/1611L, BIOL 2013/2011L**

Physical Sciences – **ASTR 2003/2001L, CHEM 1103/1101L, CHEM 1123/1121L, GEOL 1113/1111L, GEOL 1133/1131L, PHYS 2054, PHYS 2074**

3 – Philosophy course to be selected from: **PHIL 2003, PHIL 2103** or **PHIL 3103**

3-6 – Any world language at the Intermediate I 2003 level. (This is usually accomplished through completion of a sequence of three language courses: 1013, 2003 and 2013. NOTE: 1003 usually will not count towards the 124 hours required for degree credit; see the Fulbright College Admission Requirements on page 129 for further details.)

3 – One additional University/state core humanities course (not to include PHIL and not to include world language at the Intermediate I 2003 level)

3-4 – Computer Science course CSCE 1953 or CSCE 2004

**Major Course Requirements:** MATH 2574 (*MATH 2554* and *MATH 2564* are prerequisites), MATH 2701, MATH 2803, MATH 3093, MATH 3113, MATH 3513, and MATH 4933 and 12 semester hours of courses in mathematics selected from MATH 2584 or MATH and STAT courses numbered at the 3000-level or higher; and the completion of a senior writing project under the direction of a faculty member; this is typically carried out in MATH 4933. An honors senior thesis will satisfy this requirement. It is recommended that MATH 2701 and MATH 2803 be taken as early as possible in the program.

**Mathematics B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 3 Fine arts, philosophy or world literature requirement
- 3 Social science university/state core requirement
- 3 1013 Elementary II world language course
- 16 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 3 †MATH 2803 Introduction to Mathematical Proof
- 1 †MATH 2701 Survey of Higher Mathematics
- 3 2003 Intermediate I world language course
- 14 Total Hours**

**Fall Semester Year 2**

- 4 †MATH 2574 Calculus III
- 3 †MATH 3093 Abstract Linear Algebra
- 3 Philosophy, fine arts or non-PHIL humanities requirement (as needed)
- 3 U.S. History university/state core requirement
- 3 General Electives
- 16 Total Hours**

**Spring Semester Year 2**

- 3-4 CSCE 1013 Explorations in Computing or CSCE 2004 Programming Foundations (recommended)
- 3 †MATH/STAT Elective above 3000 level
- 3 Social science university/state core requirement
- 4 Science university/state core lecture with corequisite lab requirement
- 3 Non-PHIL humanities, fine arts or PHIL requirement (as needed)
- 16-17 Total Hours**

**Fall Semester Year 3**

- 3 †MATH 3113 Introduction to Abstract Algebra I
- 3 Social science university/state core requirement
- 4 Science university/state core lecture with corequisite lab requirement
- 6 General Electives
- 16 Total Hours**

**Spring Semester Year 3**

- 3 †MATH 3513 Elementary Analysis

- 3 †MATH/STAT Elective above 3000 Level
- 4 Biological or physical science lecture w/ corequisite lab as needed
- 6 General Electives
- 16 Total Hours**

**Fall Semester Year 4**

- 3 †MATH/STAT Elective above 3000 level
- 3 General electives
- 9 †3000-4000 Level Electives
- 15 Total Hours**

**Spring Semester Year 4**

- 3 †MATH 4933 Math Major Seminar
- 3 †MATH/STAT Elective above 3000 Level
- 8-9 General Electives as needed
- 14-15 Semester Hours
- 124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Major in Mathematics, B.S. Degree:** Students must complete 124 degree credit hours to include the minimum University/state core requirements (see page 41), the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), and the following liberal arts and major course requirements. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

15-20 – Two of the following sequences of science courses and one advanced-level course from BIOL, CHEM, CSCE, GEOL or PHYS:

- BIOL 1543/1541L** and one of **BIOL 1603/1601L, BIOL 1613/1611L, BIOL 2013/2011L, or BIOL 2533/2531L**
- CHEM 1103/1101L** and **CHEM 1123/1121L**
- CSCE 2014
- GEOL 1113/1111L** and **GEOL 1133/1131L**
- PHYS 2054** and **PHYS 2074**

3 – Philosophy course to be selected from: **PHIL 2003, PHIL 2103, or PHIL 3103**

3 – One additional non-PHIL University/state core humanities course  
 3 – Any world language at the Elementary II 1013 level. NOTE: If 1003 is taken as a prerequisite for 1013, 1003 usually will not count towards the 124 hours required for college degree credit; see Fulbright College Admission Requirements on page 129 for further details.

As a part of the requirements for a B.S. degree with a major in mathematics, the student must also complete the following 28 hours: MATH 2574, MATH 2584, MATH 2701, MATH 2803, MATH 3093, MATH 3113, MATH 4513, MATH 4933, CSCE 2004, and the completion of a senior writing project under the direction of a faculty member; this is typically carried out in MATH 4933. An honors senior thesis will satisfy this requirement. It is recommended that MATH 2701 and MATH 2803 be taken as early as possible in the program. In addition, for the B.S. degree in mathematics, the student is required to complete one of the following three options:

Option 1 (Applied): A program for the student who wishes to prepare for either applied work in mathematics or graduate work in some field other than mathematics or statistics. Requirements: 18-19 hours to include STAT 3013 or STAT 5103; MATH 3423, CSCE 3313, MATH 4353, MATH 4363, and one of MATH 4443, MATH 4523, or STAT 4003/4001L.

Option 2 (Pure). A program for the student who is seeking a broad background in mathematics or who wishes to study mathematics at the graduate level. Requirements: 18 hours to include MATH 4113, MATH 4443, MATH 4523, and 9 hours of electives from CSCE 3313 or mathematics and statistics courses numbered above 3000.

Option 3 (Statistics). A program for the student who wishes to emphasize statistics or who intends to study statistics at the graduate level. Requirements: 19 hours of MATH or STAT courses at the 3000-level or higher to include MATH 4353, STAT 3013 or STAT 5103, STAT 4003, STAT 4001L, STAT

4033, and STAT 4043. Strongly recommended electives in this program are STAT 5103 and STAT 5113.

All of the mathematics and statistics electives used in fulfilling the requirements for the bachelor of science in mathematics must be approved by the student's adviser.

A 2.00 cumulative grade-point average on all work completed in the department of mathematical sciences will be required for graduation with a B.A. or B.S. degree.

**Mathematics, B.S., Option 1 (Applied)**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 3 US History requirement
- 3 Social science university/state core requirement
- 3 1013 Elementary II world language course

**16 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 1 MATH 2701 Survey of Higher Mathematics
- 3 CSCE 2004 Programming Foundations
- 4 Science Sequence 1 (continued)

**15 Total Hours**

**Fall Semester Year 2**

- 4 †MATH 2574 Calculus III
- 4 † CSCE 2004 Programming Foundations
- 3 Social Science university/state core requirement
- 4 Science Sequence 1 (continued)

**15 Total Hours**

**Spring Semester Year 2**

- 4 †‡MATH 2584 Differential Equations
- 3 †‡MATH 3093 Abstract Linear Algebra
- 3 Social science university/state core requirement
- 3 Fine arts, PHIL requirement, or non-PHIL humanities requirement (as needed)
- 3 General Elective

**16 Total Hours**

**Fall Semester Year 3**

- 3 †‡MATH 3113 Abstract Algebra
- 3 †‡STAT 3013 Probability and Statistics
- 4 CSCE 2014 Programming Foundations II
- 3 PHIL requirement, non-PHIL humanities, or fine arts requirement (as needed)
- 3 General Elective

**16 Total Hours**

**Spring Semester Year 3**

- 3 †‡ MATH 3423 Advanced Applied Mathematics
- 3 †‡MATH 4353 Numerical Linear Algebra
- 3 Non-PHIL humanities, fine arts or PHIL requirement (as needed)
- 6 General Electives

**15 Total Hours**

**Fall Semester Year 4**

- 3 †‡MATH 4513 Advanced Calculus
- 3 †‡MATH 4363 Numerical Methods
- 3-4 †‡MATH 4443 Complex Variable for Application or †‡STAT 4003/4001 Statistical Methods and Lab
- 3 †CSCE 3313 Algorithms
- 3 General Electives

**15-16 Total Hours**

**Spring Semester Year 4**

- 3 †‡MATH 4933 Math Major Seminar
- 12-13 General Electives (as needed to complete 124 degree credit hours)
- 15-16 Semester Hours

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Mathematics, B.S., Option 2 (Pure)**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 4 Science Sequence 1
- 3 Social science university/state core requirement
- 3 1013 Elementary II world language course

**17 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 1 MATH 2701 Survey of Higher Mathematics
- 3 †MATH 2803 Introduction to Mathematical Proof
- 4 Science Sequence 1 (continued)

**15 Semester Hours**

**Fall Semester Year 2**

- 4 †MATH 2574 Calculus III
- 3 †‡MATH 3093 Abstract Linear Algebra
- 4 Science Sequence 2
- 3 U.S. history university/state core requirement
- 3 Fine arts, PHIL requirement or non-PHIL humanities course (as needed)

**17 Semester Hours**

**Spring Semester Year 2**

- 4 †‡MATH 2584 Differential Equations
- 3 †‡MATH/STAT 3000-4000 Level Elective
- 4 CSCE 2004 Programming Foundations
- 4 Science Sequence 2 (continued)

**15 Semester Hours**

**Fall Semester Year 3**

- 3 †‡ MATH 3113 Introduction to Abstract Algebra I
- 3 †‡ MATH /STAT 3000-4000 Level Elective
- 4 Science Sequence 3 (3000+ course from Science Sequence 1 or 2)
- 3 PHIL requirement, non-PHIL humanities course, or fine arts course requirement (as needed)
- 3 General Elective

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †‡ MATH 4513 Advanced Calculus I
- 3 †‡ MATH 4113 Introduction to Abstract Algebra II
- 3 Social science university/state core requirement
- 3 non-PHIL humanities course, fine arts course or PHIL course requirement (as needed)
- 3 General Electives

**15 Semester Hours**

**Fall Semester Year 4**

- 3 †‡ MATH 4443 Complex Variable for Application
- 3 †‡MATH/STAT 3000-4000 Level Elective
- 3 Social Science university/state core requirement
- 6 General Elective

**15 Semester Hours**

**Spring Semester Year 4**

- 3 †‡ MATH 4933 Math Major Seminar
- 3 †‡MATH 4523 Advanced Calculus II
- 9 General Electives

**15 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Mathematics, B.S., Option 3 (Statistics)**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 4 Science Sequence 1
- 3 1013 Elementary II world language course
- 3 Social science university/state core requirement

**17 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 3 †MATH 2803 Introduction to Mathematical Proof
- 1 MATH 2701 Survey of Higher Mathematics
- 4 Science Sequence 1 (continued)

**15 Semester Hours**

**Fall Semester Year 2**

- 4 †MATH 2574 Calculus III
- 3 †MATH 3093 Abstract Linear Algebra
- 4 Science Sequence 2
- 4 CSCE 2004 Programming Foundations I

**15 Semester Hours**

**Spring Semester Year 2**

- 4 †MATH 2584 Differential Equations
- 3 †STAT 3013 Probability and Statistics
- 3 U.S. History university/state core requirement
- 3 Fine arts, philosophy or non-PHIL humanities course requirement
- 4 Science Sequence 2 (continued)

**17 Semester Hours**

**Fall Semester Year 3**

- 3 †MATH 3113 Abstract Algebra
- 4 †STAT 4003/4001L Statistical Methods and Lab
- 3 Science Sequence 3 (3000+ course from Science Sequence 1 or 2)
- 3 Fine arts, philosophy or non-PHIL humanities requirement (as needed)
- 3 Social science university/state core requirement

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †MATH 4353 Numerical Linear Algebra
- 3 †MATH/STAT 3000-4000 Level Elective
- 3 Social science university/state core requirement
- 6 General Electives

**15 Semester Hours**

**Fall Semester Year 4**

- 4 †MATH 4513 Advanced Calculus I
- 3 †STAT 4033 Nonparametric Stat Methods
- 3 Fine arts, philosophy or non-PHIL humanities requirement (as needed)
- 6 General Electives

**15 Semester Hours**

**Spring Semester Year 4**

- 3 †MATH 4933 Math Major Seminar
- 3 †STAT 4043 Sampling Techniques
- 8 General Electives (as needed to meet 124 hour requirement)

**14 Semester Hours**

**124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for Departmental Honors in Mathematics:** The Departmental Honors Program in Mathematics is designed for the superior student and is intended to help the student develop a more comprehensive view of the nature of mathematics. The program provides a vehicle for the recognition of the achievements of work beyond the usual course of study and earns the student the distinction “Mathematics

Scholar *Cum Laude*” at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate’s program of honors studies.

**Graduation with honors:** The candidate must satisfy the requirements set forth by the Honors Council. The candidate must also obtain at least a 3.50 grade-point average in mathematics courses numbered MATH 2554, MATH 2564, MATH 2574, MATH 2584, MATH 3093, MATH 3113, and MATH 4513, as well as in the additional mathematics courses necessary to complete the requirements for the chosen option. In addition, a grade of “D” or “F” in any other course offered by the department disqualifies a student for honors.

Candidates must take one year of honors mathematics in their senior year. This course will require an acceptable paper and will carry two hours of credit per semester. The quality of this paper, along with the execution of the rest of the student’s honors program including the overall academic performance, will be used in determining the distinction between Honors and High Honors.

**Requirements for a Minor in Mathematics:** MATH 2564; either MATH 2603 or MATH 2803; and 3 courses selected from MATH 2574, MATH 2584, or any MATH or STAT courses at the 3000-level or higher.

**Requirements for a Minor in Statistics:** MATH 2554 and 12 hours of non-cross-listed courses in the statistics section of this catalog, including 9 hours in courses numbered 3000 and above. A student must notify the department of his or her intent to minor.

**Mathematics (B.A. or B.S.) Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach mathematics in middle school should consult with a middle level adviser in the College of Education and Health Professions.

**Advising Note:** Students in Fulbright College of Arts and Sciences who, in the opinion of the department of mathematical sciences, need additional work in the fundamentals are required to take MATH 0003. Using the student’s record and their ACT or Mathematics Placement Test scores, a student’s adviser will suggest enrollment in appropriate courses (a mathematics ACT score below 19 indicates placement in MATH 0003).

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See Page 378 for Mathematics (MATH) courses

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**Statistics (STAT)**

Laurie Meaux  
 Chair of Studies  
 301 Science and Engineering  
 479-575-3351

**FACULTY**

- Associate Professors Meaux, Petris
- Assistant Professor Song

**Requirements for a Minor in Statistics:** MATH 2554 and 12 hours of non-cross-listed courses, including 9 hours in courses numbered 3000 and above. A student must notify the department of mathematical sciences of his or her intent to minor.

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See Page 405 for Statistics (STAT) courses

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**MEDICAL SCIENCES AND DENTISTRY**

See page 128, under Combined Academic and Medical or Dental Degree and also the discussion of the pre-medical programs and the pre-dental program under the section on Health Related Professions.

## MEDIEVAL AND RENAISSANCE STUDIES (MRST)

William Quinn  
 Chair of Studies  
 Jacob Lewis  
 Assistant Director  
 333 Kimpel Hall  
 479-575-4301  
<http://mrst.uark.edu>

### FACULTY

- Professors Candido, Coon, Duval, Goodstein-Murphree, Jacobs, Levine, Markham, Quinn, Spellman, Stephens, Wolpert
- Associate Professors Adler, Brock, Fredrick, Kahf, Senior, Sexton
- \* Assistant Professors Antov, Ruiz, Smith

The Medieval and Renaissance studies minor is administered by the Humanities program. This minor encourages undergraduate students to pursue an interdisciplinary study of all aspects of the Middle Ages and Renaissance as a complement to their major field of study.

**Requirements for a Minor in Medieval and Renaissance Studies (MRST):** (15 credit hours) Students must take HIST 1113H or HIST 1113, Honors World Civilization I or non-honors section, or HUMN 1124H (the Medieval segment of the Honors Humanities Project) and complete at least 12 additional credit hours selected from the courses listed below or approved by the Chair of Studies. A maximum of 6 hours may be presented from courses taken in the student's designated major.

Required Core Course (3 hours)

HUMN 1124H Honors Equilibrium of Cultures, 500-1600 CE  
 or HIST 1113H Honors World Civilization I (may also be taken as non-honors, HIST 1113 World Civilization I)

12 hours of electives to be chosen from the following (a maximum of six hours may be presented from courses taken in the student's major department):

ARHS 4843 Medieval Art  
 ARHS 4853 Italian Renaissance Art  
 ARHS 4863 Northern Renaissance Art  
 ARCH 2233 History of Architecture I  
 ARCH 4023 Advanced Architectural Studies  
 DRAM 4773 Acting Shakespeare  
 ENGL 3433 Introduction to Chaucer  
 ENGL 4303 Introduction to Shakespeare  
 LATN 5633 Medieval Latin  
 SPAN 5203 Medieval Spanish Literature  
 HIST 3033 Islamic Civilization  
 HIST 3513 History of China to 1644  
 HIST 4043 Late Antiquity and the Early Middle Ages  
 HIST 4053 Late Middle Ages  
 HIST 4073 Renaissance and Reformation, 1300-1600  
 HIST 4163 Tudor-Stuart England, 1485-1714  
 HIST 4353 Middle East, 600-1500  
 HIST 4373 Mongol and Mamluk Middle East, 1250-1520  
 HIST 4393 Early Modern Islamic Empires (1300-1750)  
 HUMN 3923H Honors Colloquium (when offered as a MRST course)  
 HUMN 425V Special Topics Colloquium  
 (when offered as a MRST course)  
 MUHS 3703 History of Music to 1750  
 PHIL 4013 Platonism and the Origin of Christian Theology  
 PHIL 4023 Medieval Philosophy

## MIDDLE EAST STUDIES (MEST)

Joel Gordon  
 Director, King Fahd Center for Middle East Studies  
 202 Old Main  
 479-575-4157  
<http://mest.uark.edu>  
[mest@uark.edu](mailto:mest@uark.edu)

### FACULTY

- Professors Farah (curriculum and instruction), Gordon (history), Haydar (A.) (world languages), Paradise (geosciences-geography), Rose (anthropology), Swedenburg (anthropology)
- Associate Professors Casana (anthropology), Ghadbian (political science), Kahf (comparative literature)
- Assistant Professor Antov (history)
- Instructor Haydar (P.)

Students interested in the Middle East and North Africa and wishing to maximize their potential for academic, business, professional, or government careers related to the area, may earn a major in Middle East studies with a required primary major in an approved area such as anthropology, economics, world languages, geography, history, journalism, and political science. New students entering the program are required to notify both the major adviser and the MEST director of their intention to participate. Freshmen and sophomores considering this program are advised to begin their study of a Middle East language as early as possible. Students may also earn a minor in Middle East studies.

**Requirements for a Combined Major in MEST:** To attain a major in MEST, the student is required to have a primary major in one of the following approved areas: anthropology, communication, economics (BA), French, geography, history, international relations, journalism, political science, sociology, or Spanish. Up to nine hours of courses in the primary major with Middle East content may be counted toward the MEST combined major with the permission of the MEST director.

**Total Hours Required:** (30 semester hours) Students must complete 3 hours in Introduction to Middle East Studies (MEST 2013), 3 hours in the MEST Colloquium (MEST 4003), 6 hours of Arabic language beyond ARAB 2016, and 18 hours in additional MEST or MEST-approved core courses. MEST courses must be in at least two disciplines, with no fewer than 9 hours of MEST core courses in one discipline.

**Introduction to Middle East Studies:** (3 hours) Students must complete 3 hours of Introduction to Middle East Studies (MEST 2013).

**Middle East Studies Colloquium:** (3 hours) Students must complete at least 3 hours in the Middle East Studies Colloquium (MEST 4003). The Colloquium may be repeated with a change of subject for a maximum of 6 credits.

**Arabic Requirement:** (6 hours of MEST credit) Students must complete 6 hours of Arabic language beyond the Fulbright College language proficiency requirement (ARAB 2013). Courses approved by the MEST director and completed in a summer intensive Arabic program or study-abroad program in an Arabic speaking country may substitute for all or part of this requirement.

**MEST Core Courses:** To count for MEST credit, courses not on the following list must be approved by the student's MEST major adviser and the MEST director. Individualized readings, directed research courses, or courses in a second Middle Eastern language may count as MEST core courses with the approval of the MEST major adviser and MEST director.

### MEST Core Courses:

ANTH 3123 Anthropology of Religion  
 ANTH 3033 Egyptology  
 ANTH 4123 Ancient Middle East  
 ANTH 4256 Archeological Field Session

ANTH 4513 African Religions  
 ANTH 4533 Middle East Cultures  
 ANTH 4913 Topics in the Middle East  
 GEOG 2003 World Regional Geography  
 GEOG 4033 Geography of the Middle East  
 GEOG 410V Special Problems in Geography: Middle East/North Africa  
 HIST 3033 Islamic Civilization  
 HIST 3043 History of the Modern Middle East  
 HIST 3473 Palestine and Israel in Modern Times  
 HIST 3923H Honors Colloquium (approved selected topics)  
 HIST 4353 Middle East 600-1250  
 HIST 4373 Mongol and Mamluk 1250-1520  
 HIST 4393 Early Modern Islamic Empires, 1300-1750  
 HIST 4413 New Women in the Middle East  
 HIST 4433 Social and Cultural History of the Modern Middle East  
 HUMN 2213 Introduction to World Religions  
 HUMN 425V Colloquium (approved selected topics)  
 MEST 2003 Islam: History and Practice  
 MEST 2013 Introduction to Middle East Studies  
 MEST 4003 Middle East Studies Colloquium  
 MEST 4003H Honors Middle East Studies Colloquium  
 PLSC 3523 Politics of the Middle East  
 PLSC 3813 International Law  
 PLSC 4593 Islam and Politics  
 PLSC 4843 The Middle East in World Affairs  
 WLIT 3983/603V Special Studies: (approved selected topics)

**Requirements for a Minor in Middle East Studies:**

Total Hours Required: (18 semester hours)

Students must complete MEST 2013 Introduction to Middle East Studies (3 hours), MEST 4003 MEST Colloquium, 6 hours of Arabic beyond ARAB 2016, and a minimum of 6 additional hours of MEST core courses.

Introduction to Middle East Studies: (3 hrs) Students must complete three hours in the MEST 2013 Introduction to Middle East Studies.

Middle East Studies Colloquium: (3 hours) Students must complete three hours in the Middle East Studies Colloquium (MEST 4003)

Arabic Requirement: (6 hours of MEST credit) Students must complete 6 hours of Arabic language beyond the Fulbright College language proficiency requirement (ARAB 2013). Courses approved by the MEST director and completed in a summer intensive Arabic program or study-abroad program in an Arabic speaking country may substitute for all or part of this requirement.

MEST Core Courses: (6 hours) Students must complete an additional 6 hours of MEST core courses supervised by faculty participating in the program. Students choosing to take individualized reading or directed research courses as a part of the minor must obtain the approval of the MEST director and their major adviser.

**Requirements for Honors in MEST:** The Honors Program in Middle East Studies gives junior and senior students of high ability the opportunity to enroll in enriched courses and conduct independent research culminating in an honors thesis. In addition to satisfying the general Fulbright College requirements for graduation and the basic eligibility requirements for honors as established by the Honors Council, candidates for honors in Middle East Studies must complete 12 hours of honors credit in partial satisfaction of requirements for the co-major. One to 6 of these hours may be thesis hours (MEST 399VH).

The preferred method for satisfying the remaining hours is to enroll in the colloquium at least once for honors credit (MEST 4003H) and to take relevant honors colloquia or graduate courses (with permission) in one of the departments contributing to this interdisciplinary area study. The thesis committee shall include a representative from the major discipline (in the case of multiple majors, from the discipline contributing most significantly to the topic). Successful completion of these requirements will be recognized by the award of the distinction "Middle East Studies Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in exceptional cases and are based upon the whole of the candidate's program of honors studies.

**MUSIC (MUSC)**

Ronda Mains  
 Chair of the Department  
 201 Music Building  
 479-575-4701  
<http://music.uark.edu>  
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**FACULTY**

- Professors Cencel, Gates, Greeson, Mains, Margulis (J.), Mueller, Ragsdale, Ramey, Sloan, Thompson, Warren
- Professors Emeriti Ballenger, Bright, Brothers, Detels, Groh, Jackson, Janzen, Umiker, Widder, Worthley
- Associate Professors Choltchichanta, Jones, Knighten (C.), Margulis (E.), Misenhelter, Pierce, Rulli, Yoes
- Associate Professors Emeriti Colber, Johnson
- Assistant Professors Kahng, Nedbal
- Visiting Assistant Professors Chamberlain, Delaplain, Knighten (J.), Morris
- Instructors Mahalka, Runkles, Salonen

The music department strives to enrich and inspire the human mind and spirit through the pursuit of excellence in creative activity, research, teaching, and service. The Department of Music is an accredited institutional member of the National Association of Schools of Music. The requirements for entrance and for graduation as set forth in this catalog are in accordance with the published regulations of that Association.

**Degrees in Music**

Two baccalaureate degrees in music are available: the Bachelor of Music and the Bachelor of Arts with a Major in Music. To achieve junior standing in the curriculum leading to the Bachelor of Arts degree with a major in music and the Bachelor of Music degree, the student must have completed 56 hours and must have maintained a cumulative grade average of "C" in all music courses, with the exception of ensemble, by the end of the fourth semester. The student must also have earned a grade average of not less than "B" in the major applied field of study during the sophomore year. This standing is prerequisite to all 3000-level courses and above in music.

Pursuant to enrolling in music courses, all music majors must audition for the music department faculty. Private study of the primary voice/instrument for music majors requires the successful completion of an audition for the instructor and consent of the Department of Music. Music majors are expected to own their own instruments. Some instruments are provided for student use only in certain circumstances and at the discretion of the music department.

All music majors are required to enroll in an ensemble in each semester of residence appropriate to their major applied area and with the consent of their adviser.

All music majors, with exceptions noted below, are required to enroll in MUEN 1411 Concert Choir during the first year of residence. Exceptions to the requirement would include all students pursuing the Bachelor of Music (B.M.) degree for whom voice or piano is the major applied area.

**Piano Proficiency Requirement:** Students pursuing a Bachelor of Music degree must pass a piano proficiency examination upon entering the University of Arkansas or must register in piano classes until this requirement is met. Students with previous piano training may take a piano placement exam and be advised to omit one or more semesters of Class Piano (MUAC 1221, 1231, 2221). Students will receive college credit for the omitted class piano courses if they validate their higher placement by passing an advanced piano course with a grade of "B" or better.

On the basis of prior study in music, a student may be advised to omit one or more semesters of Aural Perception (MUTH 1621, MUTH 1631, MUTH 2621). Students will receive college credit for the omitted aural perception courses when they have validated their higher placement by passing the course in which they are placed with a grade of "B" or better.

**Writing Requirement:** Students can meet the Fulbright College writing require-

ment by submission of a satisfactory term paper for MUED 4112 (music education majors) or MUHS 4253 (all other music majors).

**Requirements for a Major in Music leading to a Bachelor of Music Degree:**

In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

Students must complete:

A world language course at the 1013 Elementary II level. NOTE: 1003

Elementary I, if taken prior to 1013 Elementary II, usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.

**HIST 1113 World Civilization I and HIST 1123 World Civilization II**

And all of the following specific requirements for one of the following major areas of emphasis. All students must complete two semesters of MUAP

110V with a grade of "A" or "B" and two semesters of MUAP 210V with a grade of "A" or "B" before enrolling in MUAP 310V.

**Piano Performance Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613, MUTH 4703, MUTH 4322; MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253, MUHS 4803, MUHS 4813;

Applied Piano 28 hours: MUAP 110V (6 hours), MUAP 210V (6 hours), MUAP 310V (7 hours), MUAP 3201, MUAP 410V (7 hours), MUAP 4201;

Applied Secondary MUAP or MUAC (2 hours)

MUPD 3801, and MUPD 3811 or MUPD 3861; MUPD 4863; MUEN 1411/2411/3411/4411 Concert Choir (2 hours), MUEN 1541/2541/3541/4541/4841 Accompanying (6 hours).

**Voice Performance Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613, MUTH 4703; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253, MUHS 4763, MUHS 4773;

Applied Voice 24 hours: MUAP 110V (6 hours), MUAP 210V (6 hours), MUAP 310V (5 hours), MUAP 3201, MUAP 410V (5 hours), MUAP 4201;

MUAC 1121, MUAC 1141, MUAC 1151; MUPD 3801, MUPD 3861;

Ensemble (8 hours; see adviser for ensemble selection).

9 hours additional world language is also required: World language study must include French, German, and Italian.

**String Performance Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613, MUTH 4703; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253, MUHS 4703; MUPD 3801;

Applied String 28 hours: MUAP 110V (6 hours), MUAP 210V (6 hours), MUAP 310V (7 hours), MUAP 3201, MUAP 410V (7 hours), MUAP 4201;

MUEN 1411 Concert Choir (1 hour), Symphony Orchestra MUEN 1431/2431/3431/4431 or 4631 (8 hours), Chamber Music MUEN 1501/2501/3501/4501 or 4801 (4 hours).

**Woodwind, Brass, or Percussion Performance Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613, MUTH 4612, MUTH 4703; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253, MUHS 4773; MUPD 3801;

Applied Instrument 24 hours: MUAP 110V (6 hours), MUAP 210V (6 hours), MUAP 310V (5 hours), MUAP 3201, MUAP 410V (5 hours), MUAP 4201; MUEN 1411 Concert Choir (1 hour); Large Ensembles (8 hours); Small Ensembles (4 hours).

**Guitar Performance Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613, MUTH 4612, MUTH 4703; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253, MUHS 4703; MUPD 3801;

Applied Guitar 28 hours: MUAP 110V (6 hours), MUAP 210V (6 hours),

MUAP 310V (7 hours), MUAP 3201, MUAP 410V (7 hours), MUAP 4201; MUEN 1411 Concert Choir (1 hour); Ensemble (8 hours, see adviser for ensemble selections)

**Composition Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613, MUTH 4612, MUTH 4703 (Students majoring in Composition must receive a grade of "B" or higher in MUTH 1603, MUTH 2603, MUTH 3603, and MUTH 3613.); MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231 (Demonstration of piano skills appropriate for a composer; see Piano Proficiency Requirement above); MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253; MUPD 3801, and MUPD 3811 or MUPD 3861;

Composition courses 14 hours: MUTH 164V, 264V, 364V or 464V

Applied major-level courses 16 hours: MUAP 110V/130V/210V/230V/310V/330V/410V or 415V; MUAP 4201 Composition Recital; MUEN 1411 Concert Choir (1 hour); Ensemble (8 hours; see adviser for ensemble selections).

**Theory Major:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613 (Students majoring in Theory must receive a grade of "B" or higher in MUTH 1603, MUTH 2603, MUTH 3603, and MUTH 3613), MUTH 4612, MUTH 4703, and MUTH 498V (3 hours);

Composition courses 6 hours: MUTH 164V, 264V, 364V or 464V;

MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231 (Demonstration of piano skills appropriate for a composer; see Piano Proficiency Requirement above); MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253; MUPD 3801, and MUPD 3811 or MUPD 3861;

Applied major-level courses 16 hours: (MUAP 110V/130V/210V/230V/310V/330V/410V or 415V);

MUEN 1411 Concert Choir (1 hour); Ensemble (8 hours; see adviser for ensemble selections).

**Music Education, Instrumental/Woodwind/Brass/Percussion:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3613, MUTH 4612; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; 7 additional MUAC to consist of MUAC 1331, MUAC 1341, MUAC 1351, MUAC 1361, MUAC 1371, MUAC 2141, and either MUAC 1301 or MUAC 1311; MUHS 3703, MUHS 3713;

Applied Instrument 14 hours: MUAP 110V (4 hours), 210V (4 hours), MUAP 310V (4 hours), MUAP 410V (1 hour), MUAP 3201; MUEN 1411 Concert Choir (1 hour); Marching Band MUEN 1441/2441/3441/4441 or 4941 (2 hours); and 6 MUEN selected from Symphony Orchestra (MUEN 1431/2431/3431/4431/4631), Marching Band (MUEN 1441/2441/3441/4441/4941), Wind Symphony (MUEN 1461/2461/3461/4461/4661), Campus Band (MUEN 1481/2481/3481/4481/4681), Symphonic Band (MUEN 1511/2511/3511/4511/4811);

MUED 2012, MUED 3021, MUED 3833, MUED 4112, MUED 4293; MUPD 3801, MUPD 3811.

**Music Education, Instrumental/Strings:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3613, MUTH 4612; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; 7 additional MUAC to consist of MUAC 1301, MUAC 1311, MUAC 1351, MUAC 1361, MUAC 1371, and two additional courses chosen from MUAC 1331, MUAC 1341, and MUAC 2141; MUHS 3703, MUHS 3713;

Applied Strings 14 hours: MUAP 110V (4 hours), MUAP 210V (4 hours), MUAP 310V (4 hours), MUAP 410V (1 hour), and MUAP 3201;

MUEN 1411 Concert Choir (1 hour), 8 hours from Symphony Orchestra (MUEN 1431/2431/3431/4431/4631);

MUED 2012, MUED 3021, MUED 3833, MUED 4112, MUED 4273; MUPD 3801, MUPD 3811

**Music Education, Choral/Voice:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3613, MUTH 4612; MUAC 1121, MUAC 1141, MUAC 1151; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; 3 additional MUAC to include MUAC 1371, 1 of MUAC 1301 or MUAC 1311, and 1 of MUAC 1331, MUAC 1341, MUAC 1351, MUAC 1361, or MUAC 2141; MUHS 3703, MUHS 3713;

Applied Voice: MUAP 110V (2 hours), MUAP 210V (3 hours), MUAP 310V

(4 hours), MUAP 410V (1 hour), and MUAP 3201;

8 MUEN selected from Concert Choir (MUEN 1411/2411/3411/4411/4611) or Schola Cantorum (MUEN 1451/2451/3451/4451/4651);

2 MUAP 1001 Piano, 1 MUAP/MUAC by advisement; MUPD 3801, MUPD 3861; MUED 2012, MUED 3021, MUED 3833, MUED 4112, MUED 4283

**Music Education, Choral/Piano:** MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3613, MUTH 4612; MUAC 1121, MUAC 1141, MUAC 1151; MUAC 2111, MUAC 2121; 3 additional MUAC to include MUAC 1371, 1 of MUAC 1301 or MUAC 1311, and 1 of MUAC 1331, MUAC 1341, MUAC 1351, MUAC 1361, or MUAC 2141; MUHS 3703, MUHS 3713;

Applied Piano: MUAP 110V (4 hours), MUAP 210V (4 hours), MUAP 310V (4 hours) and MUAP 410V (1 hour), MUAP 3201; 4 MUAP from 1001/2001/3001 or 4001 Voice; MUPD 3801, MUPD 3861; 8 MUEN selected from Concert Choir (MUEN 1411/2411/3411/4411/4611) or Schola Cantorum (MUEN 1451/2451/3451/4451/4651); MUED 2012, MUED 3021, MUED 3833, MUED 4112, MUED 4283.

Students who wish to apply for admission to the internship program in music education must complete the following stages.

**Stage I: Complete an Evaluation for Internship**

Students must meet the following criteria to be cleared for the internship:

1. Declare the major in music education in the Fulbright Advising Center, 518 Old Main.
2. Successful completion of the PRAXIS I test by meeting or exceeding the Arkansas Department of Education cut-off scores. This test should be taken after the student has completed 30 credit hours and upon completion of ENGL 1013, ENGL 1023, and MATH 1203.
3. Obtain a “C” or better in the following pre-education core courses: CIED 3023, CIED 3033. (*PSYC 2003* is a prerequisite.)
4. Obtain a “C” or better in MUED 2012, MUED 3021, MUED 3833, MUED 4112, and one of MUED 4273, or 4283, or 4293.
5. Satisfactory completion of the Evaluation for Internship form. The evaluation form must be completed by October 1 prior to doing a fall internship or March 1 prior to doing a spring internship. The completed form must be returned to the Coordinator of Teacher Education, 8 Peabody Hall, no later than the stated deadline.
6. Complete the B.M. degree with a cumulative GPA of 2.50 or higher. The degree must be eligible to be posted to your University of Arkansas transcript at the Registrar’s Office prior to internship.
7. Obtain departmental clearance for internship based on successful completion of portfolios, evaluation for internship, GPA requirements, course work requirements, selected written recommendations, an interview, and/or other requirements specified by your program.

All requirements in Stage I must be met to be cleared for the internship. Please contact the Coordinator of Teacher Education, 8 Peabody Hall, College of Education and Health Professions for more information.

**Stage II: Internship**

1. Complete the one-semester internship at an approved site in Washington or Benton counties.
2. Complete PRAXIS II requirements if planning to apply for Arkansas Licensure (recommended, but not required for degree completion). See your adviser for completion dates.

NOTE: Students should always consult the Coordinator of Teacher Education for any licensure requirement changes. Students will not be licensed to teach in Arkansas until they have met all requirements for licensure as set forth by the Arkansas Department of Education.

Usually licensure in another state is facilitated by acquiring a license in Arkansas. An application in another state must be made on the application form of that state, which can be obtained by request from the State Teacher Licensure office in the capital city. An official transcript should accompany the application. In many instances the applications are referred to the Coordinator of Teacher Education to verify program completion in teacher education.

**Requirements for a Major in Music leading to a Bachelor of Music Degree**

**with Elective Studies in Business:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met.

Students must complete a world language course at the 1013 Elementary II level. NOTE: 1003 Elementary I, if taken prior to 1013 Elementary II, usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.

And all of the following:

MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3613; MUAC 1221, MUAC 1231, MUAC 2221, MUAC 2231; MUAC 2111, MUAC 2121; MUHS 3703, MUHS 3713, MUHS 4253; Applied instrument/voice 14 hours: MUAP 110V (4 hours), MUAP 210V (4 hours), MUAP 310V (4 hours), MUAP 410V (1 hour), and MUAP 3201; MUPD 3801; MUEN 1411 Concert Choir (1 hour); 7 MUEN to be selected with the consent of the student’s adviser; plus the student must declare one concentration for a Business Administration Minor for Non-Business Students and fulfill all requirements for that declared minor.

**Requirements for a Major in Music leading to a Bachelor of Arts Degree:**

This program is for undergraduates who wish to major in music as part of a liberal arts program. In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

3-9 – Completion of 2013 Intermediate II of any world language. (This is usually accomplished through completion of a sequence of three language courses: 1013, 2003 and 2013. NOTE: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

- 6 – **HIST 1113 World Civilization I** and **HIST 1123 World Civilization II**
- 3 – **PHIL 2003 Introduction to Philosophy**
- 3 – **WLIT 1113 World Literature I**

A minimum of 43 semester hours in music to include: MLIT 1013, MUTH 1603, MUTH 1621, MUTH 1631, MUTH 2603, MUTH 2621, MUTH 2631, MUTH 3603, MUTH 3613; MUAC 1221, MUAC 1231; MUHS 3703, MUHS 3713, MUHS 4253; 8 hours of applied study on voice or on one instrument MUAP 110V (4 hours), MUAP 210V (4 hours); MUEN 1411 Concert Choir (1 hour); and 4 hours (4 semesters) of ensemble to be selected with the consent of their advisers.

**Requirements for Departmental Honors in Music:** The Departmental Honors Program in Music provides upper-division undergraduate students an opportunity to participate formally in scholarly, creative, or performance music activities. Honors candidates carry out independent study, research and performance under the guidance of the music faculty and participate in special honors classes and seminars. They must take 12 hours (which may include 6 hours of thesis) in Honors Studies.

Each honors student will be required to select an honors committee. The committee will be comprised of the honors thesis adviser (a Music Department faculty member and major teacher in the area of the honors project), a second faculty member from the Music Department chosen by the student, a member from outside the music department chosen by the student, and a member of the Honors Council appointed by the Honors College. This committee is responsible for hearing and seeing the work of the student in the area of the honors project and will administer the oral examination to the candidate at the end of the last semester of the student’s work. The committee then recommends to the Honors Council whether or not the student receives honors in music. Outstanding student achievement will be recognized by awarding the distinction “Music Scholar *Cum Laude*” at graduation. The award of higher degree distinctions is recommended only in truly exceptional cases and is based upon the whole of the candidate’s program of honors studies.

The student may elect to do the honors project in one of six areas: performance, music history and literature, theory, composition, music education, or ethnomusicol-



ogy. Honors work may be done in an area other than the student's major area that is, a student majoring in voice performance may elect to do honors work in music history, theory, or composition, etc.

If a student wishes to devise his or her own honors project in consultation with a supervising professor and with the permission of the department chair, he or she may be granted honors. If a student wishes to combine work in more than one field and if the committee approves, he or she may be granted honors in more than one area, although the designation on the diploma will read "in music."

**The requirements for work in each area are as follows:**

1. Performance
  - a. 2 semesters of MUAP 310VH or MUAP 410VH, with concurrent registration in MUAP 3201H and MUAP 4201H
  - b. Other music department honors courses are recommended, see honors adviser. (A program file representing the student's range of performance activities during the junior and senior years will be maintained for the department file and for the Honors Council. Compact discs of the junior and senior recitals will be filed with the Honors Office.)
2. History and Literature
  - a. Junior year: MUHS 5973 Seminar in Bibliography and Methods of Research
  - b. Senior year: MUSC 490VH Honors Essay
3. Theory
  - a. Junior year: MUHS 5973 Seminar in Bibliography and Methods of Research
  - b. Senior year: MUSC 490VH Honors Essay
4. Composition
  - a. At least six hours of MUTH 364VH Honors Composition III or MUTH 464VH Honors Composition IV
  - b. A full program of original compositions or equivalent.
5. Music Education
  - a. Junior year: MUED 5513 Seminar: Resources in Music Education
  - b. Senior year: MUSC 490VH Honors Essay
6. Ethnomusicology
  - a. Junior year: MUHS 5973 Seminar in Bibliography and Methods of Research
  - b. Senior year: MUSC 490VH Honors Essay

**Sample Music B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program, and should consult their music adviser for an eight-semester plan that is specific to their vocal, instrumental or theoretical emphasis area in music. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra or any higher level math
- 3 MUTH 1003 Basic Musicianship (if required) or 1013 Elementary II language course (or higher, depending on placement in sequence)
- 1 MUAC 1221 Piano for Music Majors I (fall only)
- 2 MUAP 110V Applied Major Voice/Instrument I (usually 2 hours)
- 1 MUEN Music Ensemble I (see adviser)
- 3 MLIT 1013 Music Lecture for Music Majors or HIST 1113 or HIST 1123

**16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 2003 Intermediate I world language course (or begin with 1013 Elementary II language course, as needed)
- 3 MUTH 1603 Music Theory I (spring only)
- 1 MUTH 1621 Aural Perception I
- 1 MUAC 1231 Piano for Music Majors II (spring only)
- 2 MUAP 110V Applied Major Voice/Instrument I (usually 2 hours)
- 1 MUEN 1411 Concert Choir I (required for freshmen)

- 3 MLIT 1013 Music Lecture for Music Majors or HIST 1113 or HIST 1123 (as needed)

**17 Semester Hours**

**Fall Semester Year 2**

- 3 †MUTH 2603 Music Theory II
- 1 MUTH 1631 Aural Perception II
- 2 MUAP 210V Applied Major Voice/Instrument II (usually 2 hours)
- 1 MUEN Music Ensemble II (see adviser)
- 3 MLIT 1013 Music Lecture for Music Majors or HIST 1113 or HIST 1123 (as needed)
- 3 2013 Intermediate II world language course (or 2003 Intermediate I as needed)
- 3 PHIL 2003 Intro to Philosophy or University/state core US history requirement

**16 Semester Hours**

**Spring Semester Year 2**

- 3 †Advanced Level Elective
- 3 †#MUTH 3603 Music Theory III
- 1 †MUTH 2621 Aural Perception III
- 2 MUAP 210V Applied Major Voice/Instrument II (usually 2 hours)
- 1 MUEN Music Ensemble II (see adviser)
- 3 2013 Intermediate II world language course (as needed) or General Elective
- 3 University/state core U.S. history requirement or PHIL 2003 Intro to Philosophy (as needed)

**16 Semester Hours**

**Fall Semester Year 3**

- 3 †#MUTH 3613 Music Theory IV
- 1 †MUTH 2631 Aural Perception IV
- 3 †#MUHS 3703 History of Music to 1800
- 3 †Advanced Level Elective
- 4 Science University/state core lecture with corequisite lab requirement

**14 Semester Hours**

**Spring Semester Year 3**

- 3 †#MUHS 3713 History of Music from 1800
- 3 WLIT 1113 World Literature I
- 3 University/state core social science requirement (non-HIST)
- 4 Science University/state core lecture with corequisite lab requirement
- 3 †Upper Level Elective

**16 Semester Hours**

**Fall Semester Year 4**

- 3 †#MUHS 4253 Special Topics in Music History
- 3 †#Upper-Level Elective from Fulbright College
- 3 Upper-Level Elective from Fulbright College
- 5 General Electives

**14 Semester Hours**

**Spring Semester Year 4**

- 3 †#Upper-Level Elective from Fulbright College
- 3 †#Upper-Level Elective from Fulbright College
- 3 †Upper-Level Elective
- 6 General Electives

**15 Semester Hours**

**124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Sample Music B.M., Music Education**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program, and should consult their music adviser for an eight-semester plan that is specific to their vocal, instrumental or theoretical emphasis area in music. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

For this sample, the Music Activity Course Group requires seven 1-hour classes: MUAC 1331, 1341, 1351, 1361, 1371, 2141, and either 1301 or 1311.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MUTH 1003 Basic Musicianship (if required) or General Elective

1	MUAC 1221 Piano for Music Majors I (fall only)
2	MUAP 110V Applied Major Voice/Instrument I
1	MUEN 1411 Concert Choir I
1	MUEN 1441 Marching Band I
3	MLIT 1013 Music Lecture for Music Majors or 1013 Elementary II world language course
1	One course from Music Activity Group (see below)
<b>15</b>	<b>Total Hours</b>
<b>Spring Semester Year 1</b>	
3	ENGL 1023 Composition II
3	MUTH 1603 Music Theory I (spring only)
1	MUTH 1621 Aural Perception I
1	MUAC 1231 Piano for Music Majors II (spring only)
2	MUAP 110V Applied Major Voice/Instrument I
1	MUEN Music Ensemble I (see adviser)
3	1013 Elementary II world language course or MLIT 1013 Music Lecture for Music Majors as needed
1	One course from Music Activity Group (see below)
<b>15</b>	<b>Total Hours</b>
<b>Fall Semester Year 2</b>	
3	†MUTH 2603 Music Theory II
1	MUTH 1631 Aural Perception II
1	†MUAC 2221 Piano for Music Majors III (fall only)
2	†MUAC 2111/2121 Music Technology I/II
2	MUAP 210V Applied Major Voice/Instrument II
1	MUEN 2441 Marching Band II
3	HIST 1113 World Civilization I
1	One course from Music Activity Group (see below)
<b>14</b>	<b>Total Hours</b>
<b>Spring Semester Year 2</b>	
1	†MUTH 2621 Aural Perception III
1	†MUAC 2231 Piano for Music Majors IV (spring only)
2	MUAP 210V Applied Major Voice/Instrument II
1	MUEN Music Ensemble II (see adviser)
1	One course from Music Activity Group (see below)
3	HIST 1123 World Civilization II
3	PSYC 2003 General Psychology (prereq for CIED courses)
3	General Elective
2	MUED 2012 Introduction to Music Education
<b>17</b>	<b>Total Hours</b>
<b>Fall Semester Year 3</b>	
3	†MUTH 3613 Music Theory IV
1	†MUTH 2631 Aural Perception IV
3	†MUHS 3703 History of Music to 1800
2	†MUAP 310V Applied Major Voice/Instrument III
1	†MUEN Music Ensemble III (see adviser)
1	†MUPD 3801 Conducting I
3	†CIED 3023 or †CIED 3033 (PSYC 2003) or †MUED 3833
1	One course from Music Activity Group (see below)
<b>15</b>	<b>Total Hours</b>
<b>Spring Semester Year 3</b>	
2	†MUTH 4612 Orchestration
3	†MUHS 3713 History of Music 1800-present (MUHS 3703)
2	†MUAP 310V Applied Major Voice/Instrument III
1	†MUEN Music Ensemble III (see adviser)
1	†MUPD 3811 Conducting II: Instrumental Music
1	†MUED 3021 Supervised Practicum in Teaching Musical Skills
1	One course from Music Activity Group (see below)
3	†CIED 3023 or †CIED 3033 (PSYC 2003) or †MUED 3833 (as needed)
3	MATH 1203 College Algebra or higher-level math
<b>17</b>	<b>Total Hours</b>
<b>Fall Semester Year 4</b>	
1-2	†MUAP 410V/MUAP 3201 Applied Major Voice/Instrument IV/Recital I (or in Spring Semester 4)
2	†MUED 4112 Pedagogy in Music Education
3	†MUED 4293 Instrumental Methods
1	†MUEN Music Ensemble IV (see adviser)
4	Science university/state core lecture with corequisite lab requirement
3	University/state core US history or humanities requirement
1	One course from Music Activity Group (see below)
<b>15-16</b>	<b>Total Hours</b>
<b>Spring Semester Year 4</b>	
2	†MUAP 410V Applied Major Voice/Instrument IV

1	†MUEN Music Ensemble IV (see adviser)
3	†CIED 3023 or †CIED 3033 (PSYC 2003) or †MUED 3833 (as needed)
4	Science university/state core lecture with corequisite lab requirement
3	University/state core US history or humanities requirement
3	General Elective
16	Semester Hours
<b>124</b>	<b>Total Hours</b>
<p>Note: Licensure for teaching in the state of Arkansas requires one additional semester of internship beyond and after the completion of degree requirements. The courses required during the semester of internship are MUED 4301 Seminar for Professional Entry into Music Education, MUED 451V (4 or 8 hours) Student Teaching: Elementary Music, and MUED 452V (4 or 8 hours) Student Teaching: Secondary Music.</p>	
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

<b>Sample Music B.M., Music Performance</b>	
<b>Eight-Semester Degree Program</b>	
<p>Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program, and should consult their music adviser for an eight-semester plan that is specific to their vocal, instrumental or theoretical emphasis area in music. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.</p> <p>Students in the Voice Performance major are required to take 9 hours of world language in addition to the major requirement of completion of a world language at the 1013 Elementary II level so that at least 3 hours each of French, German, and Italian are taken.</p>	
<b>Fall Semester Year 1</b>	
3	ENGL 1013 Composition I
0-3	MUTH 1003 Basic Musicianship (if required)
1	MUAC 1221 Piano for Music Majors I (fall only)
3	MUAP 110V Applied Major Voice/Instrument I
1	MUAC 1121 Italian for Singers
1	MUEN Music Ensemble I (see adviser)
3	MLIT 1013 Music Lecture for Music Majors or HIST 1113 or HIST 1123
3	1013 Elementary II world language course
<b>15-18</b>	<b>Semester Hours</b>
<b>Spring Semester Year 1</b>	
3	ENGL 1023 Composition II
3	MUTH 1603 Music Theory I (spring only)
1	MUTH 1621 Aural Perception I
1	MUAC 1231 Piano for Music Majors II (spring only)
3	MUAP 110V Applied Major Voice/Instrument I
1	MUAC 1141 or 1151 German for Singers or French for Singers
1	MUEN Music Ensemble I (see adviser)
3	World Language (French, German or Italian)
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 2</b>	
3	†MUTH 2603 Music Theory II (MUTH 1603)
1	MUTH 1631 Aural Perception II
1	†MUAC 2221 Piano for Music Majors III (fall only)
2	†MUAC 2111/2121 Music Technology I/II
3	MUAP 210V Applied Major Voice/Instrument II
1	MUEN Music Ensemble II (see adviser)
3	MLIT 1013 Music Lecture for Music Majors or HIST 1113 or HIST 1123 (as needed)
3	World Language (French, German or Italian as needed)
<b>17</b>	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	MLIT 1013 Music Lecture for Music Majors or HIST 1113 or HIST 1123 (as needed)
3	†MUTH 3603 Music Theory III
1	†MUTH 2621 Aural Perception III
1	†MUAC 2231 Piano for Music Majors IV (spring only)
3	MUAP 210V Applied Major Voice/Instrument II
1	MUAC 1141 or 1151 German for Singers or French for Singers (as needed)

1	MUEN Music Ensemble II (see adviser)
3	MATH 1203 College Algebra (or higher-level math)
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 3</b>	
3	†#MUTH 3613 Music Theory IV
1	†MUTH 2631 Aural Perception IV
3	†#MUHS 3703 History of Music to 1800 ( <i>MLIT 1013, HIST 1113 and HIST 1123</i> )
3	†#MUHS 4763 Survey of Vocal Literature I or University/state core humanities, US history, or social science requirement (non-HIST)
3	†#MUAP 310V Applied Major Voice/Instrument III
1	†#MUEN Music Ensemble III (see adviser)
1	†#MUPD 3801 Conducting I
<b>15</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	†#MUTH 4703 Form and Analysis (MUTH 2603)
3	†#MUHS 3713 History of Music 1800-present (MUHS 3703)
3	†#MUHS 4773 Survey of Vocal Literature II or University/state core humanities, US History or social science (non-HIST) requirement (as needed)
2	†#MUAP 310V Applied Major Voice/Instrument III
1	†#MUAP 3201 Recital I
1	†#MUEN Music Ensemble III (see adviser)
1	†#MUPD 3861 Conducting II: Vocal Music (MUPD 3801)
3	World Language (French, German or Italian as needed)
<b>17</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	†#MUHS 4253 Special Topics in Music History
3	†#MUHS 4763 Survey of Vocal Literature I (if needed) or University/state core humanities, U.S. History or social science (non-HIST) requirement (as needed)
3	†#MUAP 410V Applied Major Voice/Instrument IV
1	†#MUEN Music Ensemble IV (see adviser)
4	Science University/state core lecture with corequisite lab requirement
<b>14</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	†#MUHS 4773 Survey of Vocal Literature II (if needed) or University/state core humanities, U.S. History or social science (non-HIST) requirement (as needed)
2	†#MUAP 410V Applied Major Voice/Instrument IV
1	†#MUAP 4201 Recital II
1	†#MUEN Music Ensemble IV (see adviser)
4	Science University/state core lecture with corequisite lab requirement
3	University/state core social science, humanities or US history requirement (as needed)
<b>14</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Music:** A minimum of 18 semester hours in music courses to include MLIT 1013, MUTH 1603, MUTH 2603, and either MUHS 3703 or MUHS 3713; other courses to be determined by the student in consultation with a music faculty adviser. The student must notify the Department of Music of his/her intent to minor.

For requirements for advanced degrees in music, see the *Graduate School Catalog*.

See Pages 369-374 for Music (MLIT through MUTH) courses

## PHILOSOPHY (PHIL)

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### FACULTY

- Professor Spellman, Senior
- Professor Emeritus Nissen
- Associate Professors Adler, Funkhouser, Lee, Lyons, Minar, Ward
- Associate Professor Emeritus Edwards
- Assistant Professor McMullin

**Requirements for a Major in Philosophy:** Students must complete 124 degree credit hours to include the minimum University/state core requirements (see page 41), the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Program Policy), and following course requirements for the major. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

3 – from either **CLST 1003, HIST 1113** or **HIST 1123**

3-9 – 2013 Intermediate II of any world language. (World language courses taken are dependent on placement level in sequence. NOTE: 1003, if required, usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

33 semester hours in philosophy to include:

- PHIL 2003
- PHIL 2203 or PHIL 4253
- PHIL 4003
- PHIL 4033

Three hours to be chosen from PHIL 4013, PHIL 4023, PHIL 4043, PHIL 4063, PHIL 4073, and PHIL 4123; and PHIL 3983 or a successfully defended honors thesis in philosophy.

**Writing Requirement:** The writing requirement can be satisfied either by completion of an acceptable thesis or by approval of a research/analytical paper from any 4000-level course in philosophy submitted by the student to the Philosophy Department's Undergraduate Committee.

**Requirements for Departmental Honors in Philosophy:** The purpose of the honors program is to provide the honors candidate with the opportunity of achieving greater maturity in dealing with philosophical ideas through independent study. The candidate's plan of study will include the reading of significant philosophical works. Normally a candidate will complete a total of three to six hours of independent readings in philosophy during his or her junior and senior years. In addition, it is recommended that the candidate register for honors courses and colloquia. One colloquium is required.

The candidate will be expected to take 12 hours (which may include 6 hours of thesis) in Honors Studies and to write an essay during his or her senior year and give a satisfactory account of the honors readings and senior essay in an oral examination. Successful completion of the requirements will be recognized by the award of the distinction "Philosophy Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies.

**Requirements for a Combined Major in Philosophy and African and African American Studies:** 36 semester hours, consisting of 18 hours in philosophy and 18 hours in African and African American studies. The philosophy requirement is: 18 semester hours in philosophy to include either 12 hours over 3000 and PHIL 2203 or PHIL 4253, or 15 hours over 3000. The hours over the 3000-level must include at least three hours of value theory to be chosen from PHIL 4113, PHIL 4123, PHIL 4133, or PHIL 4143, and at least six hours in the history of philosophy (PHIL 4003, PHIL 4013, PHIL 4023, PHIL 4033, PHIL 4043, PHIL 4063, PHIL 4073) including PHIL 4003 or PHIL 4033. See African and African American studies on page 135 for details.

**Philosophy B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program as well as page 130 of this chapter for College requirements. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (If required) or any higher level math
- 3 PHIL 2003 Introduction to Philosophy
- 3 1013 Elementary II world language course (or higher level, depending on placement)
- 3 University/state core fine arts or U.S. history requirement

**15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 University/state core U.S. history or fine arts requirement
- 3 PHIL 2203 Logic
- 3 2003 Intermediate I world language course (or higher level)
- 3 General Elective

**15 Semester Hours**

**Fall Semester Year 2**

- 3 †‡ PHIL 4003 Ancient Greek Philosophy
- 3 CLST 1003 or HIST 1113 or HIST 1123
- 3 University/state core social science requirement
- 4 Science University/state core lecture and corequisite lab requirement
- 3 2013 Intermediate II world language course (as needed)

**16 Semester Hours**

**Spring Semester Year 2**

- 3 †‡ PHIL 4033 Modern Philosophy
- 3 †Advanced Level Elective
- 3 University/state core social science requirement
- 6 General Electives

**15 Semester Hours**

**Fall Semester Year 3**

- 3 †‡ PHIL course from Philosophy Area Group 1
- 3 †‡PHIL 3000-4000 Level Elective
- 3 University/state core social science requirement (as needed) or General Elective
- 4 Science University/state core lecture and corequisite lab requirement
- 3 †Advanced Level Elective

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †‡ PHIL course from History of Philosophy Group 2
- 3 †Advanced Level Elective
- 3 †Advanced Level Elective
- 7 General Electives

**16 Semester Hours**

**Fall Semester Year 4**

- 3 †‡ PHIL course from Philosophy Area Group 1
- 3 †‡PHIL 3000-4000 Level Elective
- 10 General Electives

**16 Semester Hours**

**Spring Semester Year 4**

- 3 †‡ PHIL 3000-4000 Level Elective
- 3 †‡PHIL 3983 Capstone Course
- 3 †3000-4000 Level Elective
- 6 General Electives

**15 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter  
 ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Philosophy Area Group 1:** Students may take any additional upper level course in philosophy, but it is recommended that philosophy majors take at least two of the following:

- PHIL 4113 Social and Political Philosophy
- PHIL 4133 Contemporary Ethical Theory
- PHIL 4143 Philosophy of Law
- PHIL 4203 Theory of Knowledge
- PHIL 4213 Philosophy of Science
- PHIL 4303 Philosophy of Religion
- PHIL 4403 Philosophy of Art
- PHIL 4423 Philosophy of Mind
- PHIL 4603 Metaphysics

**History of Philosophy Group 2** (does NOT include Ancient Greek Philosophy and Modern Philosophy which are both required):

- Philosophy majors are required to take any two of the following courses:
- PHIL 4013 Platonism and Origin of Christian Theology
  - PHIL 4023 Medieval Philosophy
  - PHIL 4043 Nineteenth Century Continental Philosophy
  - PHIL 4063 Twentieth Century Continental Philosophy
  - PHIL 4073 History of Analytic Philosophy
  - PHIL 4123 Classical Ethical Theory

**Requirements for a Minor in Philosophy:** 18 semester hours in philosophy to include PHIL 2203 or PHIL 4253, and either PHIL 4003 or PHIL 4033. A student may earn either a minor or a combined major in philosophy but not both. A student must notify the department of his or her intent to minor.

For requirements for advanced degrees in philosophy, see the *Graduate School Catalog*.

See Page 394 for Philosophy (PHIL) courses

**PHYSICS (PHYS)**

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**FACULTY**

- Distinguished Professors Salamo, Xiao
- Professors Bellaiche, Gea-Banacloche, Harter, Lacy, Pederson, Singh, Stewart (G.), Thibado, Vyas
- Research Professor Vickers
- Professors Emeriti Chan, Gupta, Hobson, Hughes, Lieber, Richardson, Zinke
- Associate Professors Fu, Li, Oliver, Tchakhalian
- Assistant Professors Barraza-Lopez, Guo, Kenefick (D.), Kenefick (J.), Rawwagah, Shew, Stewart (J.)
- Instructors Skinner, Snyder

**Requirement for B.S. Degree with a Major in Physics:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

The student must present a minimum of 40 semester hours in physics including **PHYS 2054, PHYS 2074, PHYS 2094, PHYS 3414, PHYS 3614, PHYS 4073, PHYS 4991** and courses in one of six concentrations:

**Astronomy:** PHYS 3544 plus 6 semester hours of ASTR courses numbered 3000 or above (3033, 4013, 4073).

**Biophysics:** PHYS 3113 and 13 semester hours including courses numbered 3000 and above in physics, astronomy, biology, and chemistry chosen with the adviser's permission.

**Computational:** PHYS 3113 and 13 semester hours including courses numbered 3000 and above in physics, astronomy, advanced computer science, or

mathematics chosen with the adviser's permission.

**Electronics:** PHYS 3213, PHYS 4333, and 6 semester hours numbered 3000 and above in physics or astronomy.

**Optics:** PHYS 3544, any 1 course selected from PHYS 4734 or PHYS 4774, and 8 semester hours numbered 3000 and above in physics or astronomy.

**Professional:** PHYS 3113, PHYS 4333, and 10 semester hours numbered 3000 and above in physics or astronomy.

**For all six of the possible concentrations the following mathematics courses are required:** MATH 2554, MATH 2564, MATH 2574, MATH 2584, and MATH 3423. CSCE 3513, CSCE 4423, or MEEG 2703 can be substituted for MATH 3423 with the adviser's approval. In addition, **CHEM 1103/1101L** and **CHEM 1123/1121L**, or an approved 8 hours of laboratory-based courses in CSCE 2004 and CSCE 2014 are required.

Majors must propose participation in a research experience project no later than the end of their junior year of study. A written report of the results must be submitted during Senior Seminar (PHYS 4991).

### Physics B.S.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program as well as page 130 of this chapter for College requirements.

Physics offers six concentrations: astronomy, biophysics, computational, electronics, optics and professional. The eight-semester plan for each is listed below.

Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area. Well prepared students may skip BIOL 1543/1541L, and go immediately into the biology core courses. Students should consult their advisers.

#### Physics B.S. with Astronomy Concentration

##### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 3 University/state core US History requirement
- 4 †PHYS 2054 University Physics I
- 1 General Elective

**15 Semester Hours**

##### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 3 University/state core fine arts or humanities requirement
- 2 General Electives
- 4 †PHYS 2074 University Physics II

**16 Semester Hours**

##### Fall Semester Year 2

- 4 †PHYS 2094 University Physics III
- 4 CHEM 1103/1101L University Chemistry I and Lab
- 4 †MATH 2574 Calculus III
- 3 University/state core humanities or fine arts requirement (as needed)
- 1 General Elective

**16 Semester Hours**

##### Spring Semester Year 2

- 4 ††PHYS 3614 Modern Physics
- 3 University/state core social science requirement
- 4 ††MATH 2584 Differential Equations
- 4 CHEM 1123/1121L University Chemistry II and Lab

**15 Semester Hours**

##### Fall Semester Year 3

- 4 ††PHYS/ASTR Group A
- 3 ††MATH 3423 Advanced Applied Math I
- 4 ††PHYS/ASTR Group A or General Elective
- 3 PHYS 3213 Electronics

**14 Semester Hours**

##### Spring Semester Year 3

- 4 ††PHYS 3414 Electromagnetic Theory
- 3 University/state core social science requirement
- 3 General Elective or ††PHYS/ASTR Group A (as needed)
- 3 General Elective

- 3 University/state core social science requirement

**16 Semester Hours**

##### Fall Semester Year 4

- 3 ††PHYS 4073 Introduction to Quantum Mechanics
- 4 ††PHYS 3544 Optics
- 3 ASTR 4073 Cosmology
- 6 General Electives

**16 Semester Hours**

##### Spring Semester Year 4

- 1 ††PHYS 4991 Senior Seminar
- 4 ††PHYS Optics Elective (4734 or 4774)
- 3 ASTR 4013 Astrophysics
- 8 General Electives

**16 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Group A: Any PHYS or ASTR classes numbered 3000 or above.

### Physics B.S. with Biophysics Concentration

#### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 4 BIOL 1543/1541L Principles of Biology
- 4 †MATH 2554 Calculus I
- 4 †PHYS 2054 University Physics I

**15 Semester Hours**

#### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 3 BIOL 2533 Cell Biology\*
- 4 †PHYS 2074 University Physics II
- 3 University/state core fine arts or humanities

**17 Semester Hours**

#### Fall Semester Year 2

- 4 †PHYS 2094 University Physics III
- 4 †MATH 2574 Calculus III
- 4 CHEM 1103/1101L University Chemistry I
- 3 University/state core humanities or fine arts requirement (as needed)

**15 Semester Hours**

#### Spring Semester Year 2

- 4 ††PHYS 3614 Modern Physics
- 4 CHEM 1123/1121L University Chemistry II
- 4 ††MATH 2584 Differential Equations
- 4 †BIOL 2013/2011L General Microbiology\*

**16 Semester Hours**

#### Fall Semester Year 3

- 3 ††PHYS 3113 Analytical Mechanics
- 3 ††MATH 3423 Advanced Applied Math I
- 3 University/state core social science requirement
- 4 ††CHEM 3603/3601L Organic Chemistry I
- 1 General Elective

**14 Semester Hours**

#### Spring Semester Year 3

- 4 ††PHYS 3414 Electromagnetic Theory
- 4 †CHEM 3613/3611L Organic Chemistry II
- 3 University/state core US History requirement
- 3 University/state core social science requirement
- 3 General Elective

**17 Semester Hours**

#### Fall Semester Year 4

- 3 ††PHYS 4073 Introduction to Quantum Mechanics
- 3 ††BIOL 4003 Laboratory Techniques in Microbiology\*
- 3 University/state core social science requirement
- 6 General Electives

**15 Semester Hours**

#### Spring Semester Year 4

- 3 †BIOL 3323 General Genetics

3	‡BIOL 3023 Evolutionary Biology
1	‡†PHYS 4991 Senior Seminar
9	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

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\* Or another chemistry, biology, astronomy, or physics elective from PHYS/ASTR Group A (below).

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Group A: Any PHYS or ASTR classes numbered 3000 or above.

**Physics B.S. with Computational Concentration**

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 †MATH 2554 Calculus I
- 3 University/state core fine arts or humanities requirement
- 4 †PHYS 2054 University Physics I
- 1-3 General Electives (as desired)

**14-16 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 3 University/state core humanities or fine arts requirement (as needed)
- 3 University/state core US History requirement or General Elective
- 4 †PHYS 2074 University Physics II

**17 Total Hours**

**Fall Semester Year 2**

- 4 †PHYS 2094 University Physics III
- 4 †MATH 2574 Calculus III
- 3 General Elective or University/state core US History requirement (as needed)
- 4 CSCI 2004 Programming Foundations I

**15 Total Hours**

**Spring Semester Year 2**

- 4 ‡†PHYS 3614 Modern Physics
- 3 University/state core social science requirement
- 4 ‡†MATH 2584 Differential Equations
- 4 CSCI 2014 Programming Foundations II

**15 Total Hours**

**Fall Semester Year 3**

- 3 ‡† PHYS 3113 Analytical Mechanics
- 3 ‡†MATH 3423 Advanced Applied Math
- 3 Advanced Level Elective
- 3 University/state core social science requirement
- 3 General Electives

**15 Total Hours**

**Spring Semester Year 3**

- 4 ‡† PHYS 3414 Electromagnetic Theory
- 3 ‡†CSCI 3143 Data Structures (recommended) or PHYS/ASTR Group A or advanced level electives\*
- 3 ‡†PHYS/ASTR Group A or advanced level electives\*
- 3 University/state core social science requirement
- 3 General Elective

**16 Total Hours**

**Fall Semester Year 4**

- 3 ‡†CSCI 3313 Algorithms or (recommended) PHYS/ASTR Group A or advanced level electives\*
- 4 ‡†PHYS/ASTR Group A or advanced level electives\*
- 3 ‡†PHYS 4073 Introduction to Quantum Mechanics
- 6 General Electives

**16 Total Hours**

**Spring Semester Year 4**

- 4 ‡†PHYS/ASTR Group A or ‡†3000+ level Fulbright College elective (if needed) or advanced level electives\*
- 1 ‡†PHYS 4991 Senior Seminar
- 8 †Advanced level electives
- 3 General Elective

**16 Semester Hours**

**124 Total Hours**

- \* Nine hours of upper division computer science or mathematics courses can count toward the physics major.
- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Group A: Any PHYS or ASTR classes numbered 3000 or above.

**Physics B.S. with Electronics Concentration**

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 †MATH 2554 Calculus I
- 3 University/state core social science requirement
- 4 †PHYS 2054 University Physics I
- 1 General Elective

**15 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 †MATH 2564 Calculus II
- 3 University/state core social science requirement
- 1 General Elective
- 4 †PHYS 2074 University Physics II

**15 Total Hours**

**Fall Semester Year 2**

- 4 †PHYS 2094 University Physics III
- 3 University/state core fine arts or humanities requirement
- 4 †MATH 2574 Calculus III
- 4 CHEM 1103/1101L University Chemistry I and Lab
- 1 General Elective

**16 Total Hours**

**Spring Semester Year 2**

- 4 ‡†PHYS 3614 Modern Physics
- 3 ‡†PHYS 3213 Electronics
- 4 ‡†MATH 2584 Differential Equations
- 4 CHEM 1123/1121L University Chemistry II and Lab
- 1 General Elective

**16 Total Hours**

**Fall Semester Year 3**

- 3 ‡†MATH 3423 Advanced Applied Math I
- 3 University/state core social science requirement
- 3 University/state core humanities or fine arts requirement (as needed)
- 6 General Electives

**15 Total Hours**

**Spring Semester Year 3**

- 4 ‡†PHYS 3414 Electromagnetic Theory
- 3 ‡†PHYS 4333 Thermal Physics
- 3 University/state core social science requirement
- 3 General Elective
- 3 General Elective or ‡†PHYS/ASTR Group A

**16 Total Hours**

**Fall Semester Year 4**

- 3 ‡†PHYS 4073 Introduction to Quantum Mechanics
- 3 ‡†PHYS/ASTR Group A
- 3 ‡†PHYS/ASTR Group A or General Elective (as needed)
- 6 General Electives

**15 Total Hours**

**Spring Semester Year 4**

- 3 ‡†PHYS 4713 Introduction to Solid State Physics
- 3 ‡†PHYS/ASTR Group A (as needed) or General Elective
- 1 ‡†PHYS 4991 Senior Seminar
- 9 General Electives

**16 Semester Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Group A: Any PHYS or ASTR classes numbered 3000 or above.

**Physics B.S. with Optics Concentration**

**Fall Semester Year 1**

3 ENGL 1013 Composition I  
 4 †MATH 2554 Calculus I  
 3 University/state core US History requirement  
 4 †PHYS 2054 University Physics I  
 1 General Elective  
**15 Semester Hours**

**Spring Semester Year 1**

3 ENGL 1023 Composition II  
 4 †MATH 2564 Calculus II  
 3 University/state core fine arts or humanities requirement  
 4 †PHYS 2074 University Physics II  
 2 General Electives  
**16 Semester Hours**

**Fall Semester Year 2**

4 †PHYS 2094 University Physics III  
 4 CHEM 1103/1101L University Chemistry I and Lab  
 4 †MATH 2574 Calculus III  
 3 University/state core humanities or fine arts requirement (as needed)  
 1 General Elective  
**16 Semester Hours**

**Spring Semester Year 2**

4 ‡†PHYS 3614 Modern Physics  
 3 ‡†PHYS 3213 Electronics  
 4 ‡†MATH 2584 Differential Equations  
 4 CHEM 1123/1121L University Chemistry II and Lab  
**15 Semester Hours**

**Fall Semester Year 3**

4 ‡†PHYS/ASTR Group A  
 3 ‡†MATH 3423 Advanced Applied Math I  
 4 ‡†PHYS/ASTR Group A or General Elective  
 3 University/state core social science requirement  
**14 Semester Hours**

**Spring Semester Year 3**

4 ‡†PHYS 3414 Electromagnetic Theory  
 3 University/state core social science requirement  
 3 University/state core social science requirement  
 3 General Elective or ‡†PHYS/ASTR Group A (as needed)  
 3 General Elective  
**16 Semester Hours**

**Fall Semester Year 4**

3 ‡†PHYS 4073 Introduction to Quantum Mechanics  
 4 ‡†PHYS 3544 Optics  
 9 General Electives  
**16 Semester Hours**

**Spring Semester Year 4**

1 ‡†PHYS 4991 Senior Seminar  
 4 ‡†PHYS Optics Elective (4734 or 4774)  
 11 General Electives  
**16 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

Group A: Any PHYS or ASTR classes numbered 3000 or above.

**Physics B.S. with Professional Concentration**

**Fall Semester Year 1**

3 ENGL 1013 Composition I

3 ENGL 1013 Composition I  
 4 †MATH 2554 Calculus I  
 3 University/state core U.S. History requirement  
 4 †PHYS 2054 University Physics I  
 1 General Elective  
**15 Total Hours**

**Spring Semester Year 1**

3 ENGL 1023 Composition II  
 4 †MATH 2564 Calculus II  
 3 University/state core social science requirement  
 1 General Elective  
 4 †PHYS 2074 University Physics II  
**15 Total Hours**

**Fall Semester Year 2**

4 †PHYS 2094 University Physics III  
 3 University/state core social science requirement  
 4 †MATH 2574 Calculus III  
 3 CHEM 1103 University Chem. I (if needed) or Core from areas a, b, c or e (as needed)  
 2 General Elective  
**16 Total Hours**

**Spring Semester Year 2**

4 ‡†PHYS 3614 Modern Physics  
 3 ‡†PHYS 3213 Electronics  
 4 ‡†MATH 2584 Differential Equations  
 4 CHEM 1123/1121L University Chemistry II and Lab  
**15 Total Hours**

**Fall Semester Year 3**

3 ‡†PHYS 3113 Analytical Mechanics  
 3 ‡†MATH 3423 Advanced Applied Math I  
 3 †Advanced Level Elective  
 3 University/state core fine arts or humanities requirement  
 3 University/state core social science requirement  
**15 Total Hours**

**Spring Semester Year 3**

4 ‡†PHYS 3414 Electromagnetic Theory  
 3 ‡†PHYS 4333 Thermal Physics  
 3 University/state core humanities or fine arts requirement  
 6 General Electives  
**16 Total Hours**

**Fall Semester Year 4**

3 ‡†PHYS 4073 Introduction to Quantum Mechanics  
 3 ‡†PHYS/ASTR Group A  
 1 ‡PHYS 4621L Modern Physics Lab  
 9 General Elective  
**16 Total Hours**

**Spring Semester Year 4**

3 ‡†PHYS/ASTR Group A  
 3 ‡†PHYS/ASTR Group A (as needed) or General Electives  
 1 ‡†PHYS 4991 Senior Seminar  
 9 General Electives (to total 124 hours)  
**16 Semester Hours**

**124 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**PHYS/ASTR Group A.** Any PHYS or ASTR courses numbered 3000 or above.

**Requirements for a B.A. Degree with a Major in Physics:** This track is for students desiring a broader program in the arts, sciences, and social sciences while majoring in physics. This program is recommended for pre-medical, journalism, pre-business, pre-law and other students planning careers in fields for which a physics education would be beneficial. For B.A. students seeking teaching licensure, see the Teacher Licensure Requirements below. This program requires a total of 124 semester hours. The student must present 24 semester hours in physics or astronomy, including PHYS 2013/2011L, PHYS 2033/2031L, PHYS 3603/3601L, PHYS 4991, and 11 semester hours chosen from any physics or astronomy courses at the 3000 level or above. The student must also present MATH 1284C (or MATH 1203 and MATH

1213) and MATH 2554 (or MATH 2043) as well as two additional courses at the 2000 level or above in mathematics or statistics. An additional 9 semester hours at the 3000 level or above must be taken from a single special emphasis area chosen with the adviser's approval. The special emphasis area may be chosen in any single degree-granting department at the University of Arkansas. For B.A. students seeking teacher licensure, the special emphasis area may involve courses from more than one degree-granting department at the University of Arkansas with the approval of their adviser.

**Physics B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program as well as page 130 of this chapter for College requirements. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

The Physics B.A. program includes requirements for a special emphasis area. In this case, journalism was used as an example. Courses in Boldface indicate courses recommended by the Department of Journalism as the journalism foundation needed for science reporting. It is recommended that the free electives be chosen in a second science, or in journalism.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 **JOUR 1023 Media and Society\*** (required for journalism sequence) or General Elective
- 3-4 MATH 1203 (if required) or MATH 1284C
- 3 University/state core fine arts or humanities or US History requirement
- 3 University/state core fine arts or humanities

**15-16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 **JOUR 1033 Fundamentals of Journalism\*** (required for journalism sequence) or General Elective
- 3-4 MATH 1213 (as required) or †MATH 2554 (or †MATH 2043)
- 3 University/state core humanities or US History or fine arts requirement
- 3 University/state core social science requirement

**15-16 Semester Hours**

**Fall Semester Year 2**

- 4 †PHYS 2013/2011L College Physics I
- 3 University/state core U.S. History or fine arts or humanities requirement
- 3 University/state core social science requirement
- 3-4 †MATH 2554 or †MATH 2043 (as required) or †MATH/STAT Elective
- 3 †**JOUR 2013 News Reporting I\*** (pre-req. JOUR 1023 and 1033) or General Elective

**16-17 Semester Hours**

**Spring Semester Year 2**

- 4 †PHYS 2033/2031L College Physics II
- 3 †**JOUR 3023 News Reporting II\*** or other Special Emphasis Area\*\*
- 3 †MATH or STAT elective
- 6 General Electives

**16 Semester Hours**

**Fall Semester Year 3**

- 3 †PHYS 3603 Introduction to Modern Physics
- 3 †MATH/STAT elective (as required) or General Elective
- 3 †**JOUR 3633 Media Law\*** or other Special Emphasis Area\*\*
- 6 General Electives

**15 Semester Hours**

**Spring Semester Year 3**

- 1 †PHYS 3601L Modern Physics Lab
- 3 †PHYS/ASTR Group A
- 3 †**JOUR 3013 Editing\*** or other Special Emphasis Area\*\*
- 3 †3000+ Advanced Level Elective
- 6 General Electives

**16 Semester Hours**

**Fall Semester Year 4**

- 2-4 †PHYS/ASTR Group A
- 3-4 †PHYS/ASTR Group A
- 3 †Fulbright College 3000+ Elective (as needed)
- 6 †Advanced level elective

**14-17 Semester Hours**

**Spring Semester Year 4**

- 3 †PHYS 4203 Physics of Devices, or other PHYS/ASTR Group A
- 1 †PHYS 4991 Senior Seminar
- 3 †3000+ Advanced level elective (as needed) or General Elective
- 5-10 General Electives (as needed)

**12-17 Semester Hours**

**124 Total Hours**

- \* Required for journalism emphasis.
- \*\* Additional 9 semester hours at 3000 level or above from a single emphasis area chosen with adviser approval. This requirement is automatically fulfilled by the bold-faced upper-level journalism courses.
- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Group A:** Eleven semester hours chosen from:  
Any PHYS or ASTR classes numbered 3000 or above.

**Writing Requirement:** Students majoring in physics may satisfy the Fulbright College writing requirement by means of a senior thesis (PHYS 498V), an honors thesis submitted in fulfillment of the requirements of the honors program (PHYS 399VH), or by means of a paper submitted as part of PHYS 4991 or any physics or astronomy course numbered 3000 or above. Students electing the last route must obtain approval of the instructor during the first three weeks of the semester. The research/analytical paper should demonstrate competency in the use of word processing software and also at least one computer analytical tool such as a spreadsheet, mathematical or graphics program, or an original program written by the student.

**Assessment of Student Learning:** In accordance with state, University, and college requirements, all students must have learning assessed before graduation. Students majoring in physics will be assessed in the course PHYS 4991, which must be taken in the year prior to graduation.

**Requirements for Departmental Honors in Physics:** The Departmental Honors Program in Physics provides upper-division undergraduate students with an opportunity to formally participate in scholarly physics activities. Honors candidates carry out independent study and research under the guidance of the physics faculty and participate in special honors classes, seminars, and colloquia. Outstanding student achievement will be recognized by awarding the distinction "Physics Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies. To be considered as a candidate for higher distinctions, however, a student must achieve at least a 3.50 cumulative grade-point average in physics and mathematics. In addition to satisfying the general college requirements for the bachelor's degree with honors, an honors candidate in physics must

1. become a candidate no later than the first semester of the junior year of study,
2. enroll in honors sections of physics courses when available,
3. enroll in six hours of honors research PHYS 399VH,
4. enroll in at least one physics honors colloquium PHYS 3923H,
5. complete and orally defend an honors thesis based upon the project carried out in PHYS 399VH, and
6. achieve a cumulative grade-point average of 3.125 in physics.

**Requirements for a Minor in Physics:** Students wishing to obtain a minor in physics must take either PHYS 2013/2011L, PHYS 2033/2031L or PHYS 2054/2050L, PHYS 2074/2070L, plus at least seven additional hours of physics courses numbered 3000 or above. A student must notify the department of his or her intent to minor.

**Physics (B.A. or B.S.) Physical/Earth Science Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach science in middle school should consult with a middle level adviser in the College of Education and Health Professions.

For information on advanced degrees in physics, see the *Graduate School Catalog*.

See Page 319 for Astronomy (ASTR) and Page 394 for Physics (PHYS) courses



## POLITICAL SCIENCE (PLSC)

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### FACULTY

- Professors Gaber, Kelley, Kerr, Parry, Reid, Shields, Zeng
- Professors Emeriti Neuse, Savage, Vanneman
- Associate Professors Conge, Dowdle, Ghadbian, Ryan, Schreckhise
- Associate Professor Emeritus Tweraser
- Assistant Professors Dowe, Jimeno, Maxwell, Stewart
- Assistant Professor Emeritus Elston

**Requirements for B.A. Degree with a Major in Political Science:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), the following course requirements must be met.

30 semester hours of PLSC courses, at least 21 of which must be above 3000.

1. Students are required to take both PLSC 2003 American National Government and PLSC 2013 Introduction to Comparative Politics.
2. Students must choose one of the following:  
 PLSC 2813 Introduction to International Relations  
 PLSC 3103 Introduction to Public Administration
3. Students fulfill the remaining requirements from among any of the available political science courses.

At least 21 hours must be 3000-4000 level courses. No more than 9 hours may come from PLSC 300V, 394V, 498V, or 499VH.

**Additional Course Requirements** (3-12 hours): Students must satisfy either Requirement A or Requirement B.

**Requirement A:** Students must demonstrate proficiency in a single modern or classical language other than English by completion of a world language course numbered 2013 (Intermediate II). This is usually accomplished through completion of a sequence of four language courses: 1003, 1013, 2003 and 2013. (Note: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

Students may seek credit for any omitted courses in the language sequence (based on placement at a higher level), by passing an advanced language course with a grade of "C" or above. Such credit will be awarded at the request of the student by filing application to the World Languages, Literatures, and Cultures (WLLC) Department. Students with advanced knowledge of a language may also contact the WLLC Department regarding credit by exam.

Students pursuing this track must complete an approved university/state core humanities course in addition to the world language 2003 Intermediate I course, if credit for 2003 is earned.

**Requirement B:** Students must complete these three requirements: (1) **PHIL 2003** or **2203**; (2) **STAT 2303** or **WCOB 1033**; and (3) **MATH 2033**, **2043**, **2053**, **2183**, or **2554**. Students pursuing this track must complete an approved university/state core humanities course in addition

to either the PHIL 2003 or PHIL 2203 course used to satisfy this requirement.

**Writing Requirement:** The college writing requirement is fulfilled by submitting an acceptable research/analytical paper to the department for approval at least four weeks prior to graduation. The paper may be derived from completion of an honors essay (PLSC 499VH), a senior thesis (PLSC 498V), or some other advanced course in political science. The student is urged to consult with his or her faculty adviser no later than early in the first semester of the senior year.

**Requirements for Departmental Honors in Political Science:** The Departmental Honors Program in Political Science offers junior and senior students the opportunity to enroll in enriched and advanced courses and to do independent research in their senior year. Honors candidates are eligible for honors colloquia, honors courses, some advanced seminars, and an independent studies project, usually in close collaboration with one or more members of the faculty.

In addition to satisfying the general college honors requirements for the bachelor's degree, honors candidates in political science must successfully complete a total of 36 hours of Political Science credit, including 12 hours of honors course work. Six of the 12 hours will be honors essay credit (PLSC 499VH) and will be taken during the senior year. Successful completion and defense of senior essay or thesis is a major part of the Political Science Honors Program, and students should begin discussing it with the Honors Adviser during their junior year. The preferred methods for satisfying the remaining six hours is to enroll in an honors colloquium (3923H) in political science or another department, by enrolling in a graduate-level seminar in political science, or by enrolling in PLSC 399VH (honors course).

Under exceptional circumstances, students may satisfy honors requirements by enrolling in PLSC 394V, by enrolling in honors sections in other departments, or by enrolling in colloquia or graduate seminars in other departments, each of which requires approval by the department chairperson. Successful completion of the requirements will be recognized by the award of the distinction "Political Science Scholar *Cum Laude*" at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies. For full details consult the chairperson of the political science department.

### Political Science, B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should also see page 41 in the Academic Regulations chapter for university requirements of the program as well as page 130 of this chapter for College requirements. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general or advanced elective in place of a core area.

#### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 PLSC 2003 American National Government
- 3 Fine Arts or Humanities\* core course
- 3 General Elective

#### 15-16 Semester Hours

#### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 3 PLSC 2013 Intro to Comparative Politics
- 3 Social Science core course
- 3-4 Track A – World Language 1013 Elementary II level  
 Track B – †MATH 2033, 2043, 2053, 2183 or 2554 (as needed) or †STAT 2303 or WCOB 1033
- 4 Fine Arts or Humanities\* Course (as needed)

#### 15-16 Semester Hours

#### Fall Semester Year 2

- 3 PLSC 2813 Introduction to International Relations or ††PLSC 3103 Public Administration
- 3 Non-PLSC Social Science core course
- 3 Track A – World Language 2003\* Intermediate I level  
 Track B – †STAT 2303 or WCOB 1033 (as needed) or general elective
- 4 Science university/state core lecture with corequisite lab
- 3 General Elective

#### 16 Semester Hours

#### Spring Semester Year 2

- 3 ††PLSC 3000-4000+ level elective
- 3 ††PLSC 3000-4000+ level elective
- 3 Track A – World Language 2013 Intermediate II level  
 Track B – PHIL 2003 or PHIL 2203
- 3 ††Fulbright College 3000-4000+ level elective
- 4 Science university/state core lecture with corequisite lab

#### 16 Semester Hours

#### Fall Semester Year 3

- 3 ††PLSC 3000-4000+ level elective

3	†‡PLSC 3000-4000+ level elective
3	†Advanced Level Elective
3	†Advanced Level Elective
3	†Advanced Level Elective
15	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	†‡PLSC 3000-4000+ level elective
3	†‡PLSC 3000-4000+ level elective
3	†3000-4000+ level elective
7	General Electives or Advanced Electives
16	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	†‡PLSC 3000-4000+ level elective
3	†Advanced Level Elective
3	†3000-4000+ level elective
6	General Electives
15	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
15-16 General Electives as needed to total 124 degree credits	
15-16	<b>Semester Hours</b>
124	<b>Total Hours</b>

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

\* Track A students must complete a university/state humanities course in addition to a 2003 Intermediate I world language course taken in progress to fulfill the Track A language requirement. Track B students must complete a university/state humanities core course in addition to the PHIL course used to satisfy the Track B philosophy requirement.

**Political Science (B.A.) Social Studies Teaching Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach social studies in middle school should consult with a middle level adviser in the College of Education and Health Professions.

**Combined Majors**

**Political Science and African and African American Studies:** For the requirements for a combined major in political science and African and African American studies, see page 135.

**Political Science and Journalism:** The combined major in political science and journalism is recommended for those students who have a strong interest in the reporting of public affairs as a career. For requirements, please refer to the combined major in Journalism and Political Science on page 172. Students should consult with their adviser in each department.

**Political Science and Latin American and Latino Studies:** For the requirements for a combined major in political science and Latin American studies, see page 174.

**Requirements for a Minor in Political Science:** 18 hours including PLSC 2003 or PLSC 2013. At least 9 of these hours must be in courses numbered 3000 or above, and courses must be chosen from at least two of the five political science fields. Students should consult with an adviser in the department for the selection of appropriate courses.

**Minor in Legal Studies:** This minor will introduce undergraduate students to the study and application of law by taking law-related courses in a number of disciplines. It provides a focus for students who are interested in the law, whose careers will require a measure of legal knowledge, or for those considering entering law school.

**Requirements for a Minor in Legal Studies:** 15 semester hours from the following:

AGEC 3503	BLAW 3033	CMJS 20433	CMJS 3503
COMM 4113	FDSC 3202	JOUR 3633	OMGT 4313
PHIL 4143	PLSC 3243	PLSC 3813	PLSC 4193
PLSC 4253			

Students should consult with their advisers each semester.

For requirements for the M.A. degree in political science, the M.P.A degree, or the dual J.D./M.A. and J.D./M.P.A. degrees, see the *Graduate School Catalog*.

See Page 396 for Political Science (PLSC) courses  
and Page 392 for Public Administration (PADM) courses

**PSYCHOLOGY (PSYC)**

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**FACULTY**

- University Professor Emeritus Dana
- Professors Behrend, Beike, Cavell, Lampinen, Lohr, Schroeder
- Professors Emeriti Knowles, Marr, Schuldt, Stripling, Trapp, Witte
- Associate Professors Feldner, Freund, Ham, Levine, Petretic, Williams
- Associate Professors Emeriti Bonge, Westendorf
- Assistant Professors Bridges, Eidelman, Leen-Feldner, Parks, Veilleux
- Adjunct Professors Judges, Margulis
- Adjunct Assistant Professors Bosc, Cline, Harbin, Irwin, Revelle, Scott
- Clinical Assistant Professor Perry
- Visiting Assistant Professor Zies
- Instructors Alwood, Ditzfeld, Holm

**Requirements for B.A. Degree with a Major in Psychology:** Students must complete 124 degree credit hours to include the minimum University/state core requirements (see page 41), the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), and following course requirements for the major. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 42 semester hours, including:

3-6 – 2003 Intermediate I of any world language. (This is usually accomplished through completion of a sequence of two language courses: 1013 and 2003.

NOTE: 1003 usually will not count toward the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

3 – **PHIL 2003** or **PHIL 2013**

3-4 – **MATH 2043, 2053** or **2554** with a grade of “C” or better

33 semester hours in psychology to include: **PSYC 2003**, PSYC 2013, and PSYC 3073; six hours chosen from PSYC 3013, PSYC 3023, PSYC 3093, PSYC 4053, or PSYC 4063; six hours chosen from PSYC 3103, PSYC 4073, PSYC 4123, PSYC 4143, PSYC 4183, PSYC 4193; three hours chosen from PSYC 328V or PSYC 4283; the remaining nine hours are electives and may be chosen from any psychology course in this catalog, with no more than a total of six hours in 206V, 207V and 399VH combined. A grade of “C” or better is required in all psychology courses used to satisfy the 33 hours of psychology courses. In addition, a 2.00 cumulative grade-point average is required on all work completed in the Department of Psychology.

Students who want to pursue graduate training in psychology are advised to begin preparations early in their undergraduate careers. Grade-point average, scores on the Graduate Record Examinations, effective communications skills, preparation in the natural sciences and mathematics, and research experience (e.g., honors project, directed readings, laboratory experience) are the major criteria considered by admissions committees. To gain this research experience students are strongly encouraged to take the advanced research course, PSYC 328V.

Students with applied, paraprofessional, or human-service interests who plan to enter the job market with a B.A. in psychology are strongly encouraged to take

relevant courses in other areas of interest, including, but not limited to, anthropology, sociology, social work, human development and family studies, education, and business administration.

Students interested in business applications of psychology (e.g., marketing, management) are similarly encouraged to take related courses in the Sam M. Walton College of Business; minors are also available in several areas of business. For more information concerning psychology as a major or careers in psychology and related fields, please contact the Psychology Advising Coordinator, Memorial Hall, room 203.

**Writing Requirement:** Students majoring in psychology will satisfy the Fulbright College writing requirement by successful completion (a grade of at least a “C”) in either PSYC 328V or PSYC 4283, each of which requires a final research paper written in American Psychological Association style.

**Requirements for Graduation with Honors in Psychology:** Both the four-year and the Departmental Honors Program in Psychology provide undergraduate students with an opportunity to formally participate in scholarly psychology activities. Honors candidates carry out independent study and research under the guidance of the psychology faculty and participate in special honors classes, seminars, and colloquia. In addition to satisfying the general college honors requirements, honors candidates in psychology are required to complete and orally defend an honors thesis based upon the independent study carried out in PSYC 399VH. In order to successfully complete the required thesis, students should choose an honors adviser as early as possible. An adviser should be selected, and an Honors Agreement completed, no later than the first semester in a student’s junior year. Students must register for, and complete, a minimum of 6 hours of PSYC 399VH. PSYC 399VH may be taken for 1 to 6 hours of credit each semester and repeated for a maximum of 12 hours. Nine hours are ordinarily needed to complete the research project and to prepare the honors thesis.

Honors candidates in psychology are encouraged to enroll in as many honors classes, seminars, and colloquia as possible, or as required by the honors program in which they are enrolled. Students graduating with honors typically graduate *cum laude*. Higher degree distinctions (*magna cum laude*, *summa cum laude*) are awarded by the Honors Council, recommended only in truly exceptional cases, and are based upon the whole of the candidate’s program of honors studies.

**Psychology B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university core requirements of the program. Courses in psychology groups A, B and Capstone courses are listed after the program plan.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (If required) or †MATH 2043, 2053, 2183 or 2554
- 3 PSYC 2003 General Psychology or University/state core social science course
- 3 1013 Elementary II world language course (or higher level depending on placement)
- 3 General Elective
- 15 Semester Hours

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2043, 2053 or 2554 (if still needed) or General Elective
- 3 †PSYC 2013 Introduction to Statistics for Psychologists or PSYC 2003 (if not taken earlier)
- 4 Science University/state core lecture with corequisite lab requirement
- 3 2003 Intermediate I world language course (as needed)
- 16-17 Semester Hours

**Fall Semester Year 2**

- 3 †PSYC course from Group A
- 3 †PSYC 3073 Research Methods or †PSYC 2013 (if not taken earlier)
- 3 PHIL 2003 or 2013
- 3 University/state core fine arts or US History requirement
- 3 University/state core social science requirement
- 15 Semester Hours

**Spring Semester Year 2**

- 3 †Advanced Level Elective
- 3 †PSYC 3073 Research Methods (if still needed) or University/state core social science requirement

3	†PSYC from Group A or B
3	University/state core US history or fine arts requirement (as needed)
3	General Elective
15	Semester Hours
<b>Fall Semester Year 3</b>	
3	†PSYC course from Group A or B (as needed)
3	†PSYC 328V/4283 or †PSYC 3000-4000-level Elective
4	Science University/state core lecture with corequisite lab requirement
6	General Electives
16	Semester Hours
<b>Spring Semester Year 3</b>	
3	†PSYC course from Group A or B (as needed), PSYC 3000-4000-level elective, or PSYC 328V/4283
3	†Advanced Level Elective
10	General Electives
16	Semester Hours
<b>Fall Semester Year 4</b>	
3	†PSYC course from Group A or B or †PSYC 328V/4283 (as needed)
3	†PSYC course from Group A or B (if needed)
3	†Advanced Level Elective
7	General Electives
16	Semester Hours
<b>Spring Semester Year 4</b>	
3	†PSYC 3000-4000 Level Elective or †PSYC 328V/4283 (as needed)
3	†PSYC 3000-4000 Level Elective or †PSYC 328V/4283 (as needed)
3	†3000-4000 Level Elective
6	General Electives
15	Semester Hours
124	Total Hours

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

- Group A:** Six hours required
- PSYC 3013 Social Psychology
  - PSYC 3023 Abnormal Psychology
  - PSYC 3093 Developmental Psychology
  - PSYC 4063 Psychology of Personality
  - PSYC 4053 Psychological Tests

- Group B:** Six hours required
- PSYC 3103 Cognitive Psychology
  - PSYC 4073 Psychology of Learning
  - PSYC 4123 Perception
  - PSYC 4143 History and Systems of Psychology
  - PSYC 4183 Physiological Psychology
  - PSYC 4193 Comparative Psychology

- PSYC Capstone Courses:** Three hours required with a grade of “C” or higher.
- PSYC 328V Advanced Research
  - PSYC 4283 Advanced Seminar

**Requirements for a Minor in Psychology:** Minimum of 18 hours including PSYC 2003, PSYC 1013, and PSYC 3073. A maximum of three hours of PSYC 206V and/or PSYC 207V can be counted toward meeting the minor requirement. A grade of “C” or better is required in all psychology courses used to satisfy the 18 hours of the minor. In addition, a 2.00 cumulative grade-point average is required on all work completed in the Department of Psychology. A student must notify the department of his or her intent to minor.

**Psychology (B.A.) Teacher Licensure in Social Studies Requirements:** Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach social studies in middle school should consult with a middle level adviser in the College of Education and Health Professions.

For requirements for advanced degrees in psychology, see the *Graduate School Catalog*.

See Page 399 for Psychology (PSYC) courses

## RELIGIOUS STUDIES (RLST)

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<http://rlst.uark.edu>

### FACULTY

- Professors Coon (history), Finlay (history), Gordon (history), Jacobs (art history), Levine (classics), Mainfort (anthropology), Markham (history), Sabo (anthropology), Spellman (philosophy), Swedenburg (anthropology), Wolpert (history)
- Associate Professors Adler (philosophy), D'Alisera (anthropology), Erickson (anthropology), Ghadbian (political science), Kahf (comparative literature), Schweiger (history), Senor (philosophy), Sexton (architecture), Worden (sociology)
- Assistant Professors Antov (history), Cai (history), White (history)

**Minor Program Requirements:** Students must complete 15 upper level (3000-4000) credit hours selected from the areas of emphasis listed below. Students must take at least one course in each area. A maximum of six credit hours from the student's major may be applied toward the minor. Students may petition the Director of Religious Studies to count lower level courses and courses not listed on the Religious Studies course list toward the minor.

#### Areas of Emphasis:

##### History

- ARHS 4843 Medieval Art
- HIST 3003 History of Christianity
- HIST 3023 The Islamic West, 650-1600
- HIST 3033 Islamic Civilization
- HIST 3083 Women and Christianity
- HIST 3513 History of China to 1644
- HIST 4043 Late Antiquity and the Early Middle Ages
- HIST 4053 Late Middle Ages
- HIST 4073 Renaissance and Reformation, 1300-1600
- HIST 4313 Islamic Theology and Philosophy
- HIST 4333 Modern Islamic Thought
- HIST 4353 Middle East, 600-1250
- HIST 4493 Religion in America to 1860
- HIST 4553 The Recluse in Early East Asia

##### Social Sciences

- ANTH 3123 The Anthropology of Religion
- ANTH 3213 Indians of North America
- ANTH 3263 Indians of Arkansas and the South
- ANTH 4093 The Archeology of Death
- ANTH 4513 African Religions: Gods, Witches, Ancestors
- PLSC 4593 Islam and Politics
- SOCI 3103 Religion and Society

##### Philosophy/Literature/Languages

- PHIL 3203 Philosophy and the Christian Faith
- PHIL 4013 Platonism & Origin of Christian Theology
- PHIL 4023 Medieval Philosophy
- PHIL 4303 Philosophy of Religion

**Topics Courses/Seminars/Honors Colloquia:** Students may also choose "topics/seminar" classes or an Honors colloquium in any Department or Program approved by the director as having a religious studies focus.

## SOCIAL WORK, SCHOOL OF (SCWK)

Yvette Murphy-Erby  
 Director of the School of Social Work  
 Glenda House  
 Graduate Program Director  
 Scott Burcham  
 Undergraduate Program Director  
 Sara Collie  
 Field Education Director  
 106 ASUP  
 479-575-5039  
<http://socialwork.uark.edu/>

### FACULTY

- Professors Schriver, Shobe
- Professor Emeritus King
- Associate Professors Christy, Murphy-Erby, Stauss
- Assistant Professors Ferguson, Koh
- Research Associate Professor Hurd
- Clinical Associate Professor Greer, House
- Clinical Assistant Professors Burcham, Collie

The social work program is fully accredited at the baccalaureate and master's level by the Council on Social Work Education. The principal objective of the social work program is to prepare students for beginning generalist social work practice.

### Criteria for Admission to B.S.W. Program and Professional Social Work Core

Although a student may declare social work as a major at any point, admission to the B.S.W. Program is required before a student is allowed to take the following courses that comprise the Professional Social Work Core:

- SCWK 4333 Social Work Practice I
- SCWK 4343 Social Work Practice II
- SCWK 4733 Social Work Practice III
- SCWK 4434 Field Experience/Social Work Internship I
- SCWK 4412 Field Seminar I
- SCWK 4444 Field Experience/Social Work Internship II
- SCWK 4422 Field Seminar II

Each student must meet the following minimum academic course requirements and complete the application process outlined below.

#### Minimum Academic Course Requirements:

Cumulative GPA of 2.0.

Completion of the following 9 courses, each with a grade of "C" or better.

- COMM 1313 Public Speaking
- ENGL 1013 English Composition I
- PLSC 2003 American National Government
- PSYC 2003 General Psychology
- SCWK 2133 Introduction to Social Work
- SCWK 3193 Human Diversity and Social Work
- SCWK 4093 Human Behavior and the Social Environment I
- SCWK 4153 Social Welfare Policy
- SOCI 2013 General Sociology

Completion of BIOL 1543/1541L Principles of Biology and Lab or ANTH 1013/ANTH 1011L Biological Anthropology and Lab with a grade of "D" or better.

Students must have at least a 2.5 GPA in the ten courses listed above.

**Application Process:** The application process must be completed by the announced application deadline prior to the semester in which the student will enroll in Social Work Practice I. The application packet includes the following materials:

**Application Form.** This form becomes the cover sheet for the application packet. Application forms are available from the online B.S.W. Student

Handbook (see appendices) or from the social work office.

**Volunteer Experience Form.** This form provides documentation of satisfactory completion of the volunteer experience assignment in Introduction to Social Work or equivalent and submission of a positive "Supervisor's Reference Form" from the supervisor of the experience.

**Personal Statement.** This narrative statement should include: motivation for becoming a social worker; relevant work, volunteer or life experiences; strengths and limitations for effective social work practice; personal commitment and agreement to abide by the values and ethics of the social work profession; career goals and indication of fields of practice preference or areas where you would not feel comfortable working.

#### **Ethical Principles/Guidelines for University of Arkansas Social Work**

**Students.** By signing this statement you are acknowledging that you have read, understand and agree to abide by and behave in accordance with the "Ethical Principles/Guidelines for Social Work Students." This statement is contained in the admissions packet, and is available from the online B.S.W. Student Handbook (see appendices) or from the social work office. A copy of this signed statement will be included in your advising file.

**Two reference letters.** The letters of reference will assess the applicant's academic qualification, motivation and potential for success in the professional social work core. (See Appendices for additional details).

**Copy of current transcript** documenting the minimum academic course requirements listed above.

The above materials are submitted to the B.S.W. Program Director and reviewed by the B.S.W. Admission Committee. If the Admissions Committee has any questions concerning the content of the materials, the student may be asked to interview with a faculty member to resolve any questions or to provide additional information.

Upon completion of the materials review and interview (if necessary), the student will be informed in writing by the B.S.W. Program Director of his or her admission status.

There are three possible admission decisions:

**Unconditional admission:** These students have demonstrated through their application materials (and interview, if required) that they have the motivation and potential for competent professional social work practice and that they agree to uphold and conduct themselves in accordance with the values and ethics of professional social work practice. In addition, these students have at least a 2.5 GPA in the pre-professional core courses and have an overall GPA of 2.0.

**Conditional admission:** These students may continue in the major for a given period of time (usually one to two semesters) during which certain conditions must be met. Students may be admitted conditionally with a lower GPA than 2.0 overall, but the student must attain a 2.0 overall GPA during the time period required by the University for being removed from academic probation. Conditional admission related to non-GPA issues may be granted if the student agrees in writing to correct the concern. Examples of non-GPA concerns for which corrective action may be required include writing skills, assertiveness, stress management, or working with diverse populations.

**Non-acceptance:** A decision of non-acceptance will be made when the student is found to be unsuited for professional social work practice. There are two criteria for non-acceptance: 1) the lack of acceptable academic performance necessary to successfully complete the requirements of the social work program, and/or 2) the inability to demonstrate commitment to social work values and ethics as they are reflected in the "Ethical Principles and Guidelines for UA Social Work Students" document that is available on-line in the BSW Student Handbook and included with the forms for applying to the professional social work core (see Appendices). A decision of non-acceptance will result in the student's inability to progress in the social work program. In the event of non-acceptance, assistance with a transfer to another major will be provided upon request.

**Criteria for Retention and Continuation:** In addition to the admission process, the BSW Program also has requirements for retention and continuation in the major.

#### **Retention**

Maintenance of an overall GPA of 2.0.

Maintenance of a 2.5 GPA in social work courses.

Students must abide by and behave in accordance with the "Ethical Principles/Guidelines for UA Social Work Students".

Not engaging in any activity or behavior which, according to University policy or regulations, would result in dismissal from the University community. Such activity or behavior includes, but is not limited to, sexual harassment, physical or sexual assault, and academic dishonesty. (See Undergraduate Studies Catalog for description of Academic Dishonesty, and Undergraduate Studies Catalog, Appendix C: Student Handbook for details).

**Continuation and Grading Policies.** A grade of C or better must be earned in all social work courses. If a student receives a grade of D or F in one of the professional social work core courses, the course must be retaken with a grade of C or better prior to taking the course for which that course serves as a prerequisite.

1. Once matriculated into the B.S.W. program, B.S.W. students who earn a D or F will be allowed to repeat this course one time. Students can repeat up to two different social work courses.
2. A student may repeat a course from which they earned a W no more than one time.
3. Any professional social work core course in which the student receives a grade of I (Incomplete) must be satisfactorily completed (with a grade of C or better) prior to entering the course for which the course receiving the Incomplete is a prerequisite.

**Criteria For Termination:** Students will be terminated from the B.S.W. Program for the following reasons:

1. Failure to maintain minimum GPA requirements (2.0 cumulative overall, 2.5 for all social work courses).
2. Failure to earn a C or better in a professional social work core course after the second attempt.
3. Engaging in any activity or behavior which, according to University policy or regulations, would result in dismissal from the University community. Such activity or behavior includes, but is not limited to, sexual harassment, physical or sexual assault, and academic dishonesty. (See Undergraduate Studies Catalog, description of Academic Dishonesty and, Undergraduate Studies Catalog, Appendix C: Student Handbook for details).

Students may be terminated from the B.S.W. Program for the following reasons: Engaging in any activity or behavior incompatible with the "Ethical Principles/Guidelines for UA Social Work Students" (available online in the B.S.W. Student Handbook and with the materials for application to the professional social work core; see Appendices). Such violations will initiate a review by the School of Social Work Student, Standards and Support Committee and may result in termination by the School of Social Work Director or a decision that termination is contingent upon completion of a corrective action specified by the School of Social Work Director.

**Requirements for a Major in Social Work:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Policy), the following cognate and major course requirements must be met. Bolded courses from the list below may be applied to portions of the university/state minimum core requirements.

- 4 – **BIOL 1543/1541L Principles of Biology** or **ANTH 1013/1011L Introduction to Biological Anthropology and Lab**
- 3 – COMM 1313 Public Speaking
- 3 – ENGL 2003 Advanced Composition or ENGL 2013 Essay Writing
- 6 – **HIST 1113 and HIST 1123 World Civilization I and II**
- 3 – **PHIL 2003 Intro to Philosophy** or **2013 Intro to Ethics**
- 3 – **PLSC 2003 American National Government**
- 3 – **PSYC 2003 General Psychology**
- 3 – **SOCI 2013 General Sociology**
- 3 – Statistics course
- 6 – Six hours of 3000- or 4000-level courses from AAST, ANTH, COMM, GEOS, HESC, PLSC, PSYC, SOCI and courses applicable to gender studies as approved by the School of Social Work
- 6 – Six hours of a single world language at the 1013 Elementary II level or

higher. NOTE: 1003 Elementary I in the world language sequence usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.

And 45 semester hours of social work courses including:

- SCWK 2133 Intro. to Social Work
- SCWK 3193 Human Diversity and Social Work
- SCWK 4073 Social Work Research and Technology I
- SCWK 4093 Human Behavior and the Social Environment I
- SCWK 4103 Human Behavior and the Social Environment II
- SCWK 4153 Social Welfare Policy
- SCWK 4333 Social Work Practice I
- SCWK 4343 Social Work Practice II
- SCWK 4412 Field Seminar I
- SCWK 4422 Field Seminar II
- SCWK 4434 Social Work Internship I
- SCWK 4444 Social Work Internship II
- SCWK 4733 Social Work Practice III
- Social Work electives – 6 hours

Students must adhere to requirements cited for each social work course. A grade of “C” or better must be earned in all core social work courses. If a student receives a grade of “D” in a core social work course, the course must be retaken with a grade of “C” or better prior to taking the course for which that course serves as a prerequisite.

**Writing Requirement:** Social work students complete the research/analytical writing requirement by submitting the research paper from SCWK 4073 or honors paper to the social work faculty for approval.

**Requirements for Departmental Honors in Social Work:** The Departmental Honors Program in Social Work is an upper-division course of study with an independent investigation on a topic in social work. Students work closely with an adviser of their choice to define the goals of an honors project and to develop it to completion. They must take 12 hours (which may include 6 hours of thesis) in Honors Studies. In developing the project, students are encouraged to take honors courses, participate in honors colloquia, and do extensive background reading. The honors thesis may entail a library research project, a social work intervention project to be conducted in the field, or a policy analysis project. A research study that requires original data collection and analysis is preferred. In any case, the honors work is a serious long-term undertaking that should have direct value in supplementing the student’s regular departmental academic program. Enrollment in SCWK 399VH takes place after the student has done background reading and has actually begun a project. Students normally enroll in this course for three hours of credit. The course may be repeated for an additional 3 hours of credit if the student’s project is an extensive one. Regardless of the type of project, it is presented in written form and defended at an oral examination before an Honors Council Committee. Projects of extraordinarily high quality may be designated High Honors by the Committee. Successful completion of the requirements will be recognized by the award of the distinction “Social Work Scholar *Cum Laude*” at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate’s program of honors studies.

**Social Work B.S.W.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 (or higher level math)
- 3 PLSC 2003 or PSYC 2003 or SOCI 2013
- 3 University/state core fine arts course
- 3 1013 Elementary II world language course (or higher level, depending on placement)

**15 Total Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 4 BIOL 1543/1541L or ANTH 1013/1011L
- 3 PSYC 2003 or SOCI 2013 or PLSC 2003 (as needed)
- 3 COMM 1313 Public Speaking
- 3 2003 Intermediate I world language course (or higher level)

**16 Total Hours**

**Fall Semester Year 2**

- 3 SOCI 2013 or PLSC 2003 or PSYC 2003 (as needed)
- 3 SCWK 2133 Introduction to Social Work
- 3 ENGL 2003 or ENGL 2013 (as needed)
- 3 HIST 1113 World Civ I
- 3 University/state core social science requirement

**15 Total Hours**

**Spring Semester Year 2**

- 3 †Advanced Level Elective
- 4 Science University/state core lecture with corequisite lab requirement
- 3 ††SCWK 3193 Human Diversity
- 3-4 Statistics (SOCI, PSYC, STAT, etc) (4 Hours if SOCI)
- 3 HIST 1123 World Civilization II

**16-17 Total Hours**

**Fall Semester Year 3**

- 3 ††SCWK 4093 Human Behavior and Social Environment I
- 3 ††SCWK 4153 Social Welfare Policy
- 3 ††SCWK Elective
- 3 PHIL 2003 or PHIL 2013
- 3 ††Upper level social science\*

**15 Total Hours**

**Spring Semester Year 3**

- 3 ††SCWK 4073 Social Work Research and Technology
- 3 ††SCWK 4333 Social Work Practice I
- 3 ††SCWK 4103 Human Behavior and Social Environment II
- 3 ††SCWK Elective
- 4 General Elective

**15 Total Hours**

**Fall Semester Year 4**

- 3 SCWK 4343 Social Work Practice II
- 3 ††SCWK 4733 Social Work Practice III
- 4 ††SCWK 4434 Field Experience / Social Work Internship I
- 2 ††SCWK 4412 Field Seminar I
- 3 General Electives

**15 Total Hours**

**Spring Semester Year 4**

- 4 ††SCWK 4444 Field Experience / Social Work Internship II
- 2 ††SCWK 4422 Field Seminar II
- 3 ††Upper level social science\*
- 7-9 General Electives (as needed to total 124 degree credit hours)

**16-18 Semester Hours**

**124 Total Hours**

\* 3000-4000 level social science electives to be selected from Sociology, Psychology, Anthropology, Gender Studies, Political Science, Communications, Geosciences, African and African American Studies, or Human Environmental Sciences.

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Social Work:** 18 hours including SCWK 2133, SCWK 3193, and SCWK 4153 (required) and any other nine hours of social work electives. A student must notify the department of his or her intent to minor. The social work minor is not preparation for social work practice and is not recognized by CSWE.

See Page 402 for **Social Work (SCWK)** courses.

## SOCIOLOGY AND CRIMINAL JUSTICE (SOCI)

Brent L. Smith  
 Chair of the Department  
 211 Old Main  
 479-575-3205  
<http://sociology.uark.edu>

### FACULTY

- Distinguished Professor Smith
- University Professors Morgan, Schwab
- University Professor Emeritus Ferritor
- Professors Fitzpatrick, Gaber (S.), Holyfield, Zajicek
- Professors Emeriti Mangold, Prassel, Rice
- Associate Professors Adams, Bradley, Engen, Koski, Worden, Yang
- Associate Professor Emeriti Patnoe, Sieger
- Assistant Professors Bustamante, Gruenewald, Harris, Morimoto
- Visiting Assistant Professors Nalley, Shields
- Instructors Newman, Thompson

### Sociology (SOCI)

A Bachelor of Arts (B.A.) degree in sociology is useful preparation not only for graduate work in sociology, but also for pre-professional training in other fields, such as medicine, law, human services, or related work in the government.

**Requirements for B.A. Degree with a Major in Sociology:** In addition to the University/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

3-4 – **MATH 2033, 2043, 2053, 2183** or **2554**

3 – ENGL 2003 (see course description for exemption requirements)

3 – Completion of a world language course at the 1013 Elementary II level or higher. NOTE: If a world language 1003 Elementary I course is taken prior to 1013, it usually does not count toward the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.

31 semester hours in SOCI courses, to include **SOCI 2013**, SOCI 3193, SOCI 3223, SOCI 3301L, SOCI 3303, SOCI 3313, SOCI 4023, SOCI 4043, and 9 hours from sociology 3000- and 4000-level electives.

**Writing Requirement:** To fulfill the Fulbright College writing requirement, each sociology major will submit, prior to graduation, a substantial research or analytical paper, with a grade of "A" or "B" from an upper-division sociology course (3000-, 4000-, or 5000-level) to their departmental adviser. Satisfactory completion of an honors project or a senior thesis may fulfill this requirement.

**Requirements for Departmental Honors in Sociology:** The Departmental Honors Program in Sociology is an upper-division course of study based on independent investigation on a scholarly topic of sociological interest. To be eligible for sociology honors candidacy, students normally will have completed 28 semester hours and not more than 85 semester hours with a minimum cumulative grade-point average of 3.5. They must take 12 hours in Honors Studies, which may include 6 hours of thesis. In the junior year, three hours of directed reading, planning, or other work on a research problem should be selected from the following courses:

SOCI 399VH Honors Course

SOCI 403V Individual Study in Sociology

SOCI 4043 Seminar in Sociology.

In the senior year, the student will complete an honors project for up to six hours of credit in SOCI 399VH Honors Course. This honors research project will normally consist of an empirical investigation but may, with the approval of the honors director and the other departmental representatives, be intensive library research on a topic. All candidates must pass an oral examination given by an Honors Council Committee. Successful completion of the requirements will be recognized by the award of the distinction "Sociology Scholar *Cum Laude*" at graduation. Higher degree distinctions

are recommended only in truly exceptional cases and are based upon the whole of the candidate's program of honors studies.

### Sociology B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 SOCI 2013 General Sociology or University/state core social science course
- 3 1013 Elementary II world language course (or higher level, depending on placement)
- 3 University/state core fine arts, humanities or US history requirement

#### 15-16 Total Hours

#### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2043, 2053, 2183, 2554 or General Elective
- 3 SOCI 2013 General Sociology (if still needed) or University/state core social science course
- 4 Science University/state core lecture with corequisite lab requirement
- 3 General Elective

#### 16-17 Total Hours

#### Fall Semester Year 2

- 3 ENGL 2003 Advanced Composition (as needed)
- 3 University/state core social science requirement (as needed)
- 3 University state core humanities, U.S. history or fine arts requirement (as needed)
- 6 General Electives

#### 15 Total Hours

#### Spring Semester Year 2

- 3 †Advanced Level Elective
- 3 ††SOCI 3313 Social Research
- 4 Science University/state core lecture with corequisite lab requirement
- 3 University state core U.S. history, fine arts, or humanities requirement (as needed)
- 3 General Elective

#### 16 Total Hours

#### Fall Semester Year 3

- 3 ††SOCI 3193 Race, Class, & Gender
- 3 ††SOCI 3223 Social Psychology
- 10 General Electives

#### 16 Total Hours

#### Spring Semester Year 3

- 4 ††SOCI 3303 & 3301L Social Data Analysis and Lab
- 3 ††SOCI Upper Level Elective
- 3 †Advanced Level Elective
- 6 General Electives

#### 16 Total Hours

#### Fall Semester Year 4

- 3 ††SOCI 4023 Social Theory
- 6 ††SOCI Upper Level Electives
- 6 General Electives

#### 15 Total Hours

#### Spring Semester Year 4

- 3 ††SOCI 4043 Seminar in Sociology
- 3 †3000+ Advanced Level Elective (if needed) or †Advanced Level Elective
- 3 †Advanced Level Elective
- 6 General Electives

#### 15 Semester Hours

#### 124 Total Hours

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a Minor in Sociology:** 19 semester hours in sociology to include SOCI 2013, SOCI 3301L, SOCI 3303, SOCI 3313, and at least nine hours of 3000-level classes or above. A student must notify the department of her or his intent to minor.

**Sociology (B.A.) Teacher Licensure in Social Studies Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

Students wanting to teach social studies in middle school should consult with a middle level adviser in the College of Education and Health Professions.

**Combined Majors:**

For a combined major in sociology and African and African American studies, see page 135.

For a major in criminal justice, see below.

For a major in social work, see page 194.

For requirements for an M.A. degree in sociology, see the *Graduate School Catalog*.

See Page 403 for Sociology (SOCI) courses  
and Page 335 for Criminal Justice (CMJS) courses

**Criminal Justice (CMJS)**

Brent L. Smith  
Chair of Studies  
211 Old Main  
479-575-3205  
<http://sociology.uark.edu>

The program in criminal justice is designed to prepare candidates for a variety of entry-level positions in criminal justice and to enable experienced personnel to expand their knowledge and skills. Drawing on a strong interdisciplinary base in the social sciences, the program provides education in the complexities of human behavior and problems of interpersonal relations in an increasingly urbanized America. The overall goal of the program is to enable men and women to contribute to the development and implementation of a fair and effective system of criminal justice.

**Requirements for the B.A. Degree with Major in Criminal Justice:** Students must complete 124 degree credit hours to include the minimum University/state core requirements (see page 41), the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), and the following major course requirements. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

3-4 – **MATH 2033, 2043, 2053, 2183 or 2554**

3 – ENGL 2003 (see course description for exemption requirements)

3 – 3 hours of a world language at the 1013 Elementary II level or higher.

(World language courses taken are dependent on placement level in sequence. NOTE: 1003, if required, usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.)

And a minimum of 37 semester hours to include CMJS 2003, CMJS 2023, CMJS 2043, CMJS/SOCI 3023, SOCI/CMJS 3043, CMJS/SOCI 3203, SOCI 3301L, SOCI 3303, SOCI 3313, and 12 hours of 3000- and 4000-level criminal justice or sociology courses not taken above.

For transfer students, a minimum of 18 hours of coursework in the major at the University of Arkansas is required.

**Writing Requirement:** To fulfill the Fulbright College writing requirement, each criminal justice major will submit, prior to graduation, a substantial research or analytical paper, with a grade of “A” or “B” from an upper-division criminal justice course (3000-, 4000-, or 5000-level) to their departmental adviser. Satisfactory completion of an honors project or a senior thesis may fulfill this requirement.

**Requirements for Departmental Honors in Criminal Justice:** The Departmental Honors Program in Criminal Justice is an upper-division course of study based on a topic in the area of criminal justice. To be eligible for criminal justice honors candidacy, students normally will have completed 28 semester hours and not more than 85 semester

hours with a minimum cumulative grade-point average of 3.5. They must take 12 hours (which may include 6 hours of thesis) in Honors Studies. The honors project may be an intensive study of a topic in criminal justice or an empirical research investigation. The candidate is expected to pass an oral examination given by an Honors Council Committee. Projects of extraordinarily high quality may be designated High Honors by the Committee. Successful completion of the requirements will be recognized by the award of the distinction “Criminal Justice Scholar *Cum Laude*” at graduation. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate’s program of honors studies.

**Criminal Justice B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 SOCI 2013 General Sociology or University/state core social science requirement
- 3 1013 Elementary II world language course (or higher level, depending on placement)
- 3 University/state core fine arts, humanities or US history requirement

**15-16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 †MATH 2033, 2043, 2053, 2183 or 2554 or General Elective
- 3 SOCI 2013 General Sociology (if still needed) or University/state core social science requirement
- 4 University/state core science requirement with corequisite lab
- 3 General Elective

**16-17 Semester Hours**

**Fall Semester Year 2**

- 3 ENGL 2003 Advanced Composition
- 3 University/state core social science requirement
- 3 University/state core humanities, U.S. history, or fine arts requirement (as needed)
- 3 CMJS 2003 Intro to CMJS
- 3 General Elective

**15 Semester Hours**

**Spring Semester Year 2**

- 3 †Advanced Level Elective
- 3 †CMJS 2023 Intro to Criminology
- 3 †CMJS 2043 Criminal Law and Society
- 3 University/state core U.S. history, fine arts, or humanities requirement (as needed)
- 4 Science University/state core lecture with corequisite lab requirement

**16 Semester Hours**

**Fall Semester Year 3**

- 4 ††SOCI 3303/3301L Social Data and Analysis/Lab
- 3 ††CMJS/SOCI 3023 Criminology
- 3 ††CMJS/SOCI 3203 Corrections
- 3 †Advanced Level Elective
- 3 General Elective

**16 Semester Hours**

**Spring Semester Year 3**

- 3 †† SOCI 3313 Social Research
- 3 ††CMJS 3000-4000 elective
- 3 ††CMJS 3043 The Police and Society
- 3 †Advanced Level Elective
- 4 General Electives

**16 Semester Hours**

**Fall Semester Year 4**

- 3 ††CMJS/SOCI 3000-4000 elective
- 3 †3000-plus Advanced Level Elective (as needed) or †Advanced Level Elective
- 9 General Electives

**15 Semester Hours**



**Spring Semester Year 4**

3	††CMJS/SOCI 3000-4000 elective
3	††CMJS/SOCI 3000-4000 elective
9	General Electives
<b>15</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

See Page 335 for Criminal Justice (CMJS) courses.

## WORLD LANGUAGES, LITERATURES, AND CULTURES (WLLC)

Joan F. Turner  
 Chair of Department  
 425 Kimpel Hall  
 479-575-2951  
<http://www.uark.edu/depts/flaninfo/>

### FACULTY

- Professors Haydar (A.), Levine, Pritchett, Restrepo
- Associate Professors Arenberg, Bell, Christiansen, Comfort, Condray, Fredrick, Fukushima, Jones, Rozier, Ruiz, Turner, Villalobos
- Assistant Professors Billings, Hoyer, Puente
- Clinical Associate Professor Xu

The world languages requirement among the basic courses is satisfied based on each separate department's undergraduate degree program. Students should consult their adviser to confirm the total number of courses needed to satisfy their departmental world language requirement. Students who, on the basis of prior knowledge of language, omit one or more courses in the basic language sequence (1013-2013) may receive college credit for omitted courses if they validate their higher placement by passing an advanced course with a grade of "C" or above. Credit will be awarded at the request of the student when filed by application to the World Languages, Literatures and Cultures Department office.

**Restrictions:** (a) Conversation courses (3033, 4033) and correspondence courses may not be used to validate such prior knowledge, (b) No degree credit (graduation credit) is awarded for a world language 1003 Elementary I course to students in Fulbright College continuing the language begun in high school, either by validation or regular registration. Also, for Fulbright College students who do not present the Fulbright College admission requirement of two units (years) of a single modern foreign or classical language, the first semester of language study will be considered remedial and will not count towards the 124 hours required for graduation (although the course will appear as University credit and the grade received will be computed in the grade-point average). Students transferring from other institutions are expected to meet the same entrance standard.

### French

**Requirements for a Major in French:** In addition to the state/university core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Program Policy), the following departmental and major course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

- 3 – COMM 1313 Public Speaking
- 3 – ENGL 2003 Advanced Composition (see catalog course description for exemption requirements) or ENGL 2013 Essay Writing
- 6 – Six hours of language-related courses to be fulfilled by completing six hours of a single world language different than the major, or six hours from any

combination of department-approved WLLC courses (such as WLLC 2413, WLLC 3173, WLLC 4023, WLLC 4033), classical studies (CLST) courses, or language-related area/ethnic or gender studies courses.

- 6 – Humanities, 3 of which must come from either **PHIL 2003** or **WLIT 1113**; the remaining 3 hours may be fulfilled by any other state/university humanities core course. (Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization **HIST 1113** and **1123** requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).
  - 6 – World Civilization (Social Sciences) to be fulfilled by HIST 1113 and 1123 (This fulfills 6 hours of social science university/state core; the remaining 3 hours in the social science core must be fulfilled by a non-HIST social science university/state core course. (Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).
- 24 hours in French in courses numbered 3000 or above with a minimum grade of "C" in each course. Specific courses required are FREN 3003 (*FREN 1013, 2003, and 2013* or equivalent are prerequisites), FREN 3113, FREN 4003, FREN 4033, FREN 4213, and any two French literature courses at the 4000-level.

### French B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. The following eight-semester plan refers to both University Core and additional departmental requirements as presented above. Hours may vary by individual, based on placement and previous credit granted. Once all core and departmental requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

3	ENGL 1013 Composition I
3-4	MATH 1203 (if required) or †MATH 2033, 2043, 2053, 2183 or 2554
3	1013 Elementary French II or 2003 Intermediate French I, depending on placement in sequence
3	U.S. History university/state core requirement
3	Fine Arts or non-HIST Social Science university/state core requirement

#### 15-16 Semester Hours

#### Spring Semester Year 1

3	ENGL 1023 Composition II
3	COMM 1313 Public Speaking
3	2003 Intermediate I or 2013 Intermediate II, depending on placement in sequence
3	Fine Arts or non-HIST Social Science university/state core requirement
4	Science university/state core lecture with corequisite lab requirement

#### 16 Semester Hours

#### Fall Semester Year 2

3	2013 Intermediate II or FREN 3003, depending on placement in sequence
3	PHIL 2003 or WLIT 1113
3	ENGL 2003 or 2013
4	Science university/state core lecture with corequisite lab requirement
3	General Elective

#### 16 Semester Hours

#### Spring Semester Year 2

3	††FREN 3003 (if needed) or ††FREN 3113
3	†Advanced Level Elective
3	HIST 1113
6	General Electives

#### 15 Semester Hours

#### Fall Semester Year 3

3	††FREN 4003
3	††4000+ FREN literature course (if prereq FREN 3113 is met) or 3000+ FREN elective
3	Humanities from university/state core requirements (if FREN 2003 not taken) or General Elective
3	An additional world language or WLLC 2413, WLLC 3173, WLLC 4023 or an area studies course (approved by adviser)

3	†Advanced Level Elective
1	General Electives
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	‡FREN 3113 (as needed) or 4000+ FREN literature course (if prereq FREN 3113 is met)
3	‡FREN 4033 or ‡FREN 4213
3	†Advanced Level Elective
3	HIST 1123
3	An additional world language or WLLC 2413, WLLC 3173, WLLC 4023 or an area studies course (approved by adviser)
<b>15</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	‡4000+ FREN literature course (as needed) or 3000+ FREN elective
3	‡3000+ FREN elective (Recommended) or †Advanced Level Elective
3	†3000-plus Level Elective
6	General Electives
<b>15</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	‡FREN 4213 or FREN 4033 (as needed)
3	‡4000+ FREN literature course (as needed) or ‡FREN 3000+ elective (as needed) or General Elective
3	†3000-plus Level Elective
3	†Advanced Level Electives
3-4	General Electives (as needed to total 124 degree credits)
<b>15-16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.
<b>Group A:</b> Courses to complete the basic language requirement, as needed. FREN 1003 Elementary French I FREN 1013 Elementary French II FREN 2003 Intermediate French I FREN 2013 Intermediate French II	
<b>Group B:</b> Minimum 9 hours Required courses: FREN 3003 Advanced French FREN 3113 Introduction to Literature FREN 4003 Advanced Grammar Electives: FREN 3103 Cultural Readings FREN 3033 French Conversation	
<b>Group C:</b> Minimum 12 hours Required courses: FREN 4033 Oral Proficiency FREN 4213 French Civilization Two French Literature courses chosen from the following: FREN 4113 Special Themes in French FREN 4223 Survey of French Literature I FREN 4233 Survey of French Literature II Electives: FREN 4333 Business French FREN 4113 Special Themes in French FREN 475V Special Investigations FREN 4203 Quebec Studies	

### German

**Requirements for a Major in German:** In addition to the state/university core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Program Policy), the following departmental and major course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

- 3 – COMM 1313 Public Speaking
- 3 – ENGL 2003 Advanced Composition (see catalog course description for exemption requirements) or ENGL 2013 Essay Writing
- 6 – Six hours of language-related courses to be fulfilled by completing six hours

of a single world language different than the major, or six hours from any combination of department- approved WLLC courses (such as WLLC 2413, WLLC 3173, WLLC 4023, WLLC 4033), classical studies (CLST) courses, or language-related area/ethnic or gender studies courses.

- 6 – Humanities, 3 of which must come from either **PHIL 2003** or **WLIT 1113**; the remaining 3 hours may be fulfilled by any other state/university humanities core course.

Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).

- 6 – World Civilization (Social Sciences) to be fulfilled by **HIST 1113** and **1123**

This fulfills 6 hours of social science university/state core; the remaining 3 hours in the social science core must be fulfilled by a non-HIST social science university/state core course.

Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).

- 24 hours in German in courses numbered 3000 or above with a minimum grade of "C" in each course. Specific courses required are GERM 3003 (GERM 1003\*, GERM 1013, 2003, and 2013 or equivalent are prereq-uisites), GERM 3013, GERM 4003, GERM 4213, and three hours of conversation (GERM 3033 or GERM 4033).

\*NOTE: 1003 usually will not count towards the 124 hours required for degree credit; see College Admission Requirements on page 129 for further details.

- GERM 5000-level classes such as GERM 5223 (Early German Literature), GERM 5273 (Enlightenment through Classicism), and GERM 5363 (Literature after 1945) may be taken by undergraduates with exceptional language skills after approval by the undergraduate advisor and a petition to the graduate school.

### German B.A.

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. The following eight-semester plan refers to both University and major requirements as presented above. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 (If required) or †MATH 2033, 2043, 2053, 2183 or 2554
- 3 GERM 1013 Elementary German II or higher-level GERM course, depending on placement in sequence
- 3 U.S. History university/state core requirement
- 3 Fine Arts or non-HIST Social Science state/university core requirement

#### 15-16 Total Hours

#### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 3 COMM 1313 Public Speaking
- 3 2003 Intermediate German I or higher-level GERM course, depending on placement in sequence
- 3 Fine Arts or non-HIST Social Science state/university core requirement (as needed)
- 4 Science university/state core lecture with corequisite lab requirement

#### 16 Total Hours

#### Fall Semester Year 2

- 3 GERM 2013 Intermediate II or ‡GERM 3000+ course as needed in sequence
- 3 PHIL 2003 or WLIT 1113
- 3 HIST 1113
- 4 Science university/state core lecture with corequisite lab requirement
- 3 General Elective

#### 16 Total Hours

#### Spring Semester Year 2

- 3 †Advanced Level Elective

3	††GERM 3033 (as needed) or ††GERM 3000+ course as needed in sequence
3	ENGL 2003 or ENGL 2013
3	HIST 1123
3	General Elective
<b>15</b>	<b>Total Hours</b>
<b>Fall Semester Year 3</b>	
3	††GERM 3003 (as needed) or ††GERM 3000+ elective
3	††GERM 3013 (as needed) or ††GERM 3000+ elective
3	Humanities course from university/state core requirements (if GERM 2003 not taken) or General Elective
3	An additional world language or WLLC 2413, WLLC 3173, WLLC 4023 or an area studies course (approved by advisor)
4	General Electives
<b>16</b>	<b>Total Hours</b>
<b>Spring Semester Year 3</b>	
<b>3</b>	<b>††GERM 4003 (as needed) or ††GERM 3000+ elective</b>
3	††GERM 4213 (as needed) or ††GERM 3000+ elective
3	An additional world language or WLLC 2413, ††WLLC 3173, ††WLLC 4023 or an area studies course (approved by advisor)
3	†3000-plus Level Elective
3	General Elective
<b>15</b>	<b>Total Hours</b>
<b>Fall Semester Year 4</b>	
3	††GERM 3000+ elective or †Advanced Level Elective as needed
3	††3000+ elective or †Advanced Level Elective as needed
3	†Advanced Level Elective
7	General Electives
<b>16</b>	<b>Total Hours</b>
<b>Spring Semester Year 4</b>	
3	††GERM 3000+ elective or ††GERM 4003 (as needed)
3	††GERM 3000+ elective or ††GERM 4213 (as needed)
3	†Advanced Level Elective
3	†Advanced Level Elective
3	†3000-plus Level Elective
<b>15</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>
†	Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
‡	Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for an Additional Major in German for Non-Arts and Science Students:** Students in colleges other than the Fulbright College of Arts and Sciences can complete an additional major in German by completing 24 hours in German: GERM 3003, 3013, 3033, 4003, 4213 and 9 hours of upper-level electives. As this is a combined major, students must also fulfill their home college's core and the degree requirements for the major in their college to be eligible.

## Spanish

**Requirements for a Major in Spanish:** In addition to the state/university core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under College Academic Regulations and Degree Completion Program Policy), the following departmental and major course require

ments must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

- 3 – COMM 1313 Public Speaking
- 3 – ENGL 2003 Advanced Composition (see catalog course description for exemption requirements) or ENGL 2013 Essay Writing
- 6 – Six hours of language-related courses to be fulfilled by completing six hours of a single world language different than the major, or six hours from any combination of department-approved WLLC courses (such as WLLC 2413, WLLC 3173, WLLC 4023, WLLC 4033), classical studies (CLST) courses, or language-related area/ethnic or gender studies courses.
- 6 – Humanities, 3 of which must come from either **PHIL 2003** or **WLIT 1113**; the remaining 3 hours may be fulfilled by any other state/university humanities core course.

Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).

### 6 – World Civilization (Social Sciences) to be fulfilled by **HIST 1113** and **1123**

(This fulfills 6 hours of social science university/state core; the remaining 3 hours in the social science core must be fulfilled by a non-HIST social science university/state core course.)

Honors students who complete the HUMN 1114, 1124, 2114, 2124 (H2P) sequence will have fulfilled the World Civilization HIST 1113 and 1123 requirement for this major as well as the major's 6-hour Humanities requirement (equivalent of WLIT 1113 and 1123).

27 hours in Spanish in courses numbered 3000 or above with a minimum grade of "C" in each course. Specific courses required are SPAN 3003 (*SPAN 1013, 2003, and 2013* or equivalent may be required prior to taking SPAN 3003), SPAN 3033, SPAN 3103, SPAN 3113, and SPAN 4003. The remaining 12 hours are to be selected from among other 3000-4000-level offerings, in consultation with the major adviser. Students considering future graduate work in Spanish are strongly advised to take both the Spanish and Latin American literature surveys (SPAN 4103 or 4113 and 4133 or 4193).

## Spanish B.A.

### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. The following eight-semester plan refers to both University Core and additional departmental requirements as presented above. Hours may vary by individual, based on placement and previous credit granted. Once all core and departmental requirements are met, students may substitute a three-hour (or more) general elective in place of a core requirement.

### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 3-4 MATH 1203 or any higher-level MATH approved for university/state core
- 3 SPAN 1013 Elementary Spanish II or higher-level SPAN course, depending on placement in sequence
- 3 U.S. History university/state core requirement
- 3 Non-HIST Social Science university/state core requirement

### 15-16 Total Hours

### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 3 COMM 1313 Public Speaking
- 3 SPAN 2003 Intermediate Spanish I or higher-level SPAN course, depending on placement in sequence
- 3 PHIL 2003 or WLIT 1113
- 4 Science university/state core lecture with corequisite lab requirement

### 16 Total Hours

### Fall Semester Year 2

- 3 SPAN 2013 Intermediate Spanish II (as needed) or ††SPAN 3003 (as needed) or higher-level SPAN course
- 3 HIST 1113
- 4 Science university/state core lecture with corequisite lab requirement
- 6 General Electives

### 16 Total Hours

### Spring Semester Year 2

- 3 ††SPAN 3103 (as needed) or higher-level SPAN course
- 3 ††SPAN 3003 (as needed) or †Advanced Level Elective
- 3 HIST 1123
- 3 Humanities course from university/state core requirements (if SPAN 2003 not taken), or General Elective
- 3 General Elective

### 15 Total Hours

### Fall Semester Year 3

- 3 ††SPAN 3033 (as needed) or higher-level SPAN class
- 3 ††SPAN 3113 (as needed) or higher-level SPAN class
- 3 Fine arts university/state core requirement
- 3 An additional world language or WLLC 2413, ††WLLC 3173, ††WLLC 4023 or an area studies course (approved by adviser)
- 4 General Electives

### 16 Total Hours

**Spring Semester Year 3**

- 3 †SPAN 4003
- 3 An additional world language or WLLC 2413, †WLLC 3173, †WLLC 4023 or an area studies course (approved by advisor)
- 3 ENGL 2003 or ENGL 2013
- 3 †Advanced Level Elective
- 4 General Electives
- 16 Total Hours**

**Fall Semester Year 4**

- 3 †SPAN 3000-4000 level elective
- 3 †SPAN 3000-4000 level elective
- 3 †Advanced Level Elective
- 6 General Electives
- 15 Total Hours**

**Spring Semester Year 4**

- 3 †SPAN 3000-4000 level elective
- 3 †SPAN 3000-4000 level elective
- 3 †3000+ Advanced Level Elective (as needed to meet residency requirement)
- 6 †Advanced Level Electives (as needed) or General Electives if 40-hour rule met
- 15 Semester Hours**
- 124 Total Hours**

- † Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter
- ‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Writing Requirement:** The college writing requirement may be satisfied by a term paper or other written work submitted for an upper-division world language literature class approved by the chair of the department.

For majors in Greek and Latin, see Classical Studies.

**Requirements for a Minor in World Languages:**

**Arabic:** 15 hours in courses numbered 3000 or above. Specific courses required are ARAB 3016, ARAB 4016, and ARAB 4023 or ARAB 4053.

**French:** 15 hours in courses numbered 3000 or above. Specific courses required are FREN 3003, FREN 3113, FREN 4003, and FREN 4033. In some cases, specific course requirements may be adjusted to the individual needs of the candidate with the permission of the French adviser.

**German:** 15 hours in courses numbered 3000 or above. Specific courses required are GERM 3003, GERM 4003, GERM 4213 and three hours of literature.

**Spanish:** 15 hours in courses numbered 3000 or above. Specific courses required are SPAN 3003, SPAN 3103, and SPAN 4003 with six additional hours selected in consultation with the Spanish adviser.

**Requirements for a Minor in World Languages with a Business Orientation:**

**Chinese:** Students in the Minor program in Chinese with a Business Orientation must complete 15 credit hours of upper-level Chinese courses. Required courses are CHIN 3003, CHIN 3033, CHIN 3103, and CHIN4333; in addition to these four courses, students must choose one of the following elective courses: CHIN 3983 or CHIN 4313. In some cases, elective courses may be adjusted to the individual needs of the candidate with the permission of the Chinese adviser.

**French:** Courses required are FREN 3003, FREN 3103, FREN 4003, FREN 4033, and FREN 4333.

**Spanish:** Courses required are SPAN 3003, SPAN 3033, SPAN 3103, SPAN 4003, and SPAN 4333. In some cases, specific course requirements may be adjusted to the individual needs of the candidate with the permission of the Spanish adviser.

**Japanese:** Students in the Minor program in Japanese with a Business Orientation must complete 15 credit hours of upper-level Japanese courses. Required courses are:

- Advanced Japanese (6 credit hours): JAPN 3116 (or equivalent)
- Core Requirements: (6 credit hours): JAPN 3033, and JAPN 4333
- Electives (3 credit hours): JAPN 3983, JAPN 4033, JAPN 4213 or JAPN 4313

In some cases, elective courses may be adjusted to the individual needs of the candidate with the permission of the Japanese adviser.

For information on advanced degrees in foreign languages, see the *Graduate School Catalog*.

**Requirements for Honors in Foreign Languages:** The Honors Program in Foreign Languages gives students of high ability the opportunity to conduct independent research culminating in an honors thesis. In addition to satisfying general graduation requirements and all requirements for honors separately established by the Honors Council, candidates for honors in Foreign Languages must:

1. complete 12 hours of honors credit. One to six of these may be honors thesis hours; the remaining hours should be taken in disciplines chosen in consultation with the adviser;
2. complete an honors thesis in the major field, and pass an oral examination on the thesis conducted by an honors committee, as evidence of substantial individual research skills;
3. demonstrate superior competence in language, culture, and literature by achieving a GPA. of 3.5 in all upper-division courses submitted for the major.

Successful completion of these requirements will be recognized by the award of the distinction “Language Scholar Cum Laude.” Higher degree distinctions are recommended only in truly exceptional cases and are based upon the whole of the candidate’s program of honors studies.

**Foreign Language (B.A.) Teacher Licensure Requirements:**

Please refer to the Secondary Education Requirements for Fulbright College Students on page 125.

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See Page 408 for **World Languages, Literatures and Cultures (WLLC)** courses;  
Check Page 409 for alphabetical listings of specific languages.

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# Sam M. Walton College of Business

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## Office of the Dean of the College

301 Business Building, 479-575-5949

### Dean

Eli Jones

### Assistant Dean for Finance and Administration

Jamie K. Loftin

### Assistant Dean for Undergraduate Programs

Karen M. Boston

### Assistant Dean for Graduate Programs

Marion M. Dunagan

### Undergraduate Programs Office

328 Business Building, 479-575-4622

### Graduate School of Business

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### World Wide Web

<http://waltoncollege.uark.edu/>

### E-mail

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## MISSION AND OBJECTIVES

### Vision Statement

The Sam M. Walton College of Business is a nationally competitive business school that connects people with organizations and scholarship with practice by combining excellent student learning experiences with quality research serving Arkansas and the world.

### Core Values

**Excellence:** We strive for excellence in all we do.

**Professionalism:** We believe organizational practices must be built on an ethical foundation and high standards of professional behavior.

**Innovation:** We value creativity, innovation, and entrepreneurial spirit.

**Collegiality:** We believe in working together to examine situations and ideas from diverse perspectives.

### Mission Statement

The Walton College, the flagship business school of the state of Arkansas, has a three-fold mission:

**Teaching** Educate a diverse population of students in bachelor's, master's, and doctoral programs to be tomorrow's business, community, and academic leaders;

**Research** Discover and disseminate knowledge through our research to support excellence and innovation in organizations; and

**Service** Share our business expertise in support of our state, our professions, and the academic community.

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## FACILITIES AND RESOURCES

The Walton College offers degree programs for undergraduate students and for graduate students at both the master's and doctoral levels.

The Walton College is housed in four modern buildings supporting on-campus programs. These attractive facilities provide technology-equipped classrooms and eight state-of-the-art computer laboratories for both for business classes and individual use. The buildings also house faculty and administrative offices, an honors program study area with computer access, the Walton College Career Center, and large study areas equipped for individual as well as group studying.

The library of the college is part of the general University Libraries and is housed in Mullins Library. The business and economics collection comprises approximately 55,000 volumes and makes this library one of the best in the region.

Walton College also operates centers for research, outreach, and public service. Information about these centers may be found in the University Centers and Research Units section of this catalog. Walton College centers include the following:

- Arkansas Household Research Panel
- Applied Sustainability Center
- Bessie B. Moore Center for Economic Education
- Center for Business and Economic Research
- Center for Management and Executive Education
- Center for Retailing Excellence
- Garrison Financial Institute
- Information Technology Research Center
- Supply Chain Management Research Center
- Small Business Development Center

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## DEGREES OFFERED

Undergraduate students may pursue curricula leading to one of the following degrees: Bachelor of Science in Business Administration (B.S.B.A.), Bachelor of Science in International Business (B.S.I.B.). In each of these degree programs, the pre-business requirements must be completed before students may enroll in upper division business courses. Students in Walton College may pursue an academic minor in business or in the J. William Fulbright College of Arts and Sciences. Walton College also offers business minors for non-business students. Degree programs and minors are outlined on subsequent pages.

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## MAJORS, CONCENTRATIONS, AND MINORS

### Majors with Concentrations

Accounting  
 Economics  
     Business Economics  
     International Economics and Business  
 Finance  
     Banking  
     Financial Management/Investment  
     Insurance  
     Real Estate  
     Personal Financial Management  
 General Business  
 Information Systems  
     Enterprise Systems  
     IT Applications Management  
     Resource Planning  
 Management  
     Human Resource Management  
     Small Business and Entrepreneurship  
     Organizational Leadership  
 Marketing  
 Retail  
 Supply Chain Management

### Minors

Accounting  
 Business Economics  
 Enterprise Resource Planning  
 Finance  
 Financial Economics  
 Information Systems  
 International Business  
 Management  
 Marketing  
 Retail  
 Supply Chain Management

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## OTHER PROGRAMS

### Cooperative Education

Cooperative education (co-op) is an academic program that enables students to gain degree-related experience prior to graduation. It is a planned, progressive educational strategy in which the student obtains work experience related to his or her academic major and career goals. Participating students earn academic credit for their work experiences and are always paid by their employers. Co-op students can maintain their status as full-time students while participating in the program, even if their co-op experience requires they spend a semester working full-time.

Walton College students are eligible for co-op credit if they have 1) completed the pre-business core and have obtained at least 60 hours of credit, 2) a cumulative grade-point average of 2.5 or better, and 3) a grade-point average of 2.5 or better for the last full-time term completed. Students may receive one hour of credit per semester for a job that requires 12-19 hours of work per week or two hours of credit per semester for a job that requires 20 or more hours per week. A maximum of six hours of degree credit may be awarded as a junior- senior-level business elective. Students may not utilize cooperative education credit toward major course requirements unless approved by department chair. Full-time students who work 40 hours or more per week in internships approved by the co-op education academic coordinator are eligible for three hours of academic credit per semester, or per full summer, provided they have a minimum GPA of 2.75, as well as having received a GPA of at least 2.75 in the prior full-time semester.

Students may seek either to qualify a job they have found themselves for co-op credit, or they may seek an employment opportunity through the Walton College Career Center, WJWH 226. The employment opportunity may be either a full-time, off-campus work assignment that alternates with semesters spent on campus taking courses (an alternating co-op), or it may be a part-time job undertaken concurrently with course work (a parallel co-op). Once a student has been matched with an approved job, the co-op coordinator, the faculty co-op adviser, the student's work place supervisor, and the student work together to formulate career-related learning objectives for the coming semester of work. These objectives must be in writing and in to the cooperative education coordinator in order for a student to be registered for co-op. At the end of each semester of work, the student is required to submit a three- to ten-page paper (depending on credit hours to be received) that re-states the student's learning objectives for the semester and discusses how the job experience fulfilled the objectives. The student is also required to submit an employer evaluation form, and the work supervisor is asked to submit an evaluation of the student's work.

For information on participating in Walton College co-op program, a current listing of co-op opportunities, and phone numbers of people with whom you may discuss these opportunities, visit the Cooperative Education home page on the Web at <http://waltoncollege.uark.edu/coop/>.

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## COLLEGE ADMISSION REQUIREMENTS

All students admitted to the University of Arkansas, Fayetteville, are eligible for admission to the Sam M. Walton College of Business. Students will be required to follow the degree program requirements set forth in the catalog corresponding to the student's first semester in Walton College, not the first semester of enrollment at the University of Arkansas.

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## COLLEGE SCHOLARSHIPS

High school graduates who expect to enroll in Walton College are encouraged to apply for scholarships made available to freshmen by individuals, business firms, and organizations. Also available to freshmen, regardless of degree program, are freshmen academic scholarships. Current Walton College students may apply for both college and departmental scholarships beginning in January of each year for the following academic year. Information on these financial awards may be secured from the University Scholarship Office and the Walton College Undergraduate Programs Office.

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## STUDENT ORGANIZATIONS

In addition to the general university student organizations, Walton College Student Ambassadors, Study Abroad Ambassadors, Leadership Walton and a Business Dean's Student Advisory Board, there are several college societies open to Walton College students. These include the following:

- Alpha Kappa Psi (business professional)
- American Marketing Association
- Association of Information Technology Professionals
- Beta Alpha Psi (accounting honorary and professional)
- Beta Gamma Sigma (business honorary)
- Economics Club
- Capital Markets Group (Finance Club)
- Council of Supply Chain Management Professionals
- National Association of Black Accountants
- Omicron Delta Epsilon (economics honorary)
- Human Resource Management Association
- S.I.F.E. (Students in Free Enterprise)
- Transportation and Logistics Association
- Women in Logistics

## COLLEGE ACADEMIC REGULATIONS

### Pre-Business Requirements

Students pursuing a degree in Walton College are classified as pre-business with an intended major until all pre-business requirements are fulfilled. The following policies apply to the pre-business program:

To be eligible to enroll in upper-division business courses in Walton College, a student must complete the Walton College computer competency requirement (WCOB 1120) and maintain at least a 2.50 (on a 4.00 scale) overall grade-point average (GPA) in addition to completing the 36 credit hours listed below of pre-business core courses (or their equivalents), also with at least a 2.50 GPA. Further, a student must complete all courses offered to meet this requirement with a grade of "C" or better or the requirement for graduation. The pre-business core courses are as follows:

COMM 1313 Public Speaking  
 ECON 2013 Principles of Macroeconomics  
 ECON 2023 Principles of Microeconomics  
 MATH 2043 Survey of Calculus  
 MATH 2053 Finite Mathematics  
 WCOB 1111 Freshman Business Connections  
 WCOB 1012 Legal Environment of Business  
 WCOB 1023 Business Foundations  
 WCOB 1033 Data Analysis and Interpretation  
 WCOB 2013 Markets and Consumers  
 WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital  
 WCOB 2043 Acquiring and Managing Financial Resources

Students' records will be evaluated each semester to determine whether a student should be moved to a major and have pre-business classification removed. After receiving notification that a student has been admitted into his or her major, the student is expected to arrange for a degree check by the Undergraduate Programs Office to ascertain remaining degree requirements.

### Registration in Junior/Senior-Level Walton College Courses

Walton College students must complete the pre-business requirements prior to enrollment in junior- or senior-level courses in Walton College.

Non-degree seeking students and students enrolled in other colleges are subject to the same course prerequisites as students within Walton College. Specific exceptions to this policy must be addressed to the associate dean for academic affairs in Walton College or his designee.

**Restrictions on General Education Electives:** Only six hours total of general education electives will be allowed in Physical Education Activity (PEAC) or Dance Education Activity (DEAC) courses.

### Transfer of Credit Policies

In addition to the University policies controlling the granting of credit for course work taken at other institutions, the following policies apply to transfer work applied to any undergraduate business program:

1. Transfer students considering admission to pursue a major in Walton College must have completed the pre-business courses and requirements listed above and have a 2.50 (on a 4.00 scale) cumulative grade-point average in the pre-business courses and in his or her overall grade-point average. Transfer students will be classified as pre-business students until pre-business core requirements have been completed.
2. A pre-business and overall grade-point average for courses accepted for transfer by the University of Arkansas will be calculated and used to evaluate the completion of the pre-business requirements by students transferring courses from other institutions.
3. Unless exceptions are granted at the time of admission to the University of Arkansas, transfer courses accepted by the University will not be accepted by Walton College for degree purposes unless a grade of "C" or better has been earned in each of these courses. (See the Academic Regulations chapter.)
4. A transferred course cannot carry more degree hours than are available in a

similar University of Arkansas course. For example, a four-hour principles of economics course transfers as three degree hours.

5. Business courses completed at the freshman or sophomore level at another institution will not count as equivalents of junior- or senior-level courses offered in Walton College (University of Arkansas), and no transfer credit shall be granted for any such course(s) in Walton College.
6. All upper division courses within a student's major and Business Strategy and Planning (WCOB 3016) must be taken in residence at the University of Arkansas, Fayetteville.
7. Junior- or senior-level core courses in business and economics may be transferred from a school accredited by AACSB International.
8. Junior- or senior-level core courses taken at a non-AACSB International-accredited, four-year institution must either be repeated or validated by procedures specified and approved by the assistant dean for undergraduate programs.
9. Junior- or senior-level electives in business and economics taken at a non-AACSB International-accredited, four-year institution may be accepted in transfer as junior/senior business electives.
10. Junior- or senior-level courses in business taken by correspondence at AACSB International or non-AACSB International institutions may not be accepted and transferred for degree credit unless the course is approved by the student's department chair and the associate dean.
11. If a student takes courses with different names but with similar content at different institutions or in different colleges within the University of Arkansas, degree credit will be allowed for only one of the courses, for example, principles of economics and agricultural economics.
12. Courses taken at any higher education institution where the course content is remedial are not acceptable for degree credit.
13. The student should be prepared to submit course descriptions, syllabi, or other course-related information for transfer course work if there is any question as to whether Walton College will grant degree credit for such work.
14. Exceptions: All requests for, exceptions to, and variations from the rules, regulations, and requirements of Walton College and the university should be made in writing to the assistant dean for undergraduate programs of Walton College. Consult the Undergraduate Programs Office in Walton College for these requests.

### Course Loads

The normal course load in Walton College is 15 to 17 hours per semester (and six hours per summer term). Students with a 2.75 grade-point average the previous semester may take a maximum of 18 hours. Seniors may take 18 to 19 hours, if required for graduation, during their final semester. Students on academic warning are limited to a maximum course load of 12 hours. University regulations on the number of hours allowed per semester are found in the Orientation and Registration section of this catalog.

### Foreign Language Concentration

An undergraduate B.S.B.A. degree-seeking student may elect to substitute 12 hours in a single upper-level foreign language for 12 to 15 of the 12-15 hours required in the junior-senior business elective block of courses for the degree requirements.

### Double Major

A student may elect to obtain a double major by completing all required courses for two majors in Walton College (but not in two concentrations within a single major). The minimum hour requirement for a double major is 138 degree credit hours to include all requirements for both majors. If there are courses common to both majors, the department chairs involved will agree upon and specify additional requirements in lieu of the common courses. The junior/senior business elective block is reduced by three hours; however, choice of the junior/senior business electives is restricted to no more than three total hours from each department that offers the two majors. Students who have elected to substitute a foreign language course of study for junior/senior business electives must complete 12 hours of junior/senior language courses.

The student must notify the Undergraduate Programs Office in Walton Col-

lege of intent to pursue a double major. All requirements for double majors must be completed prior to awarding of a degree.

### Business Minors

Students may elect to obtain a business major and a business minor by completing all required courses for both the major and the minor in the Walton College (but not a major and minor within the same discipline). Students must complete all requirements for both the major and the minor and may not use more than six hours of major courses toward minor requirements. However, if there are common courses to both, the department chairs involved will agree upon and specify additional requirements.

### Additional Bachelor's Degrees

Students seeking a second bachelor's degree must contact the Undergraduate Programs Office to ascertain specific requirements. Degree candidates must meet the university's general graduation requirements. The university requires that 1) the student take a minimum of 30 semester hours over the requirements for the first degree, and 2) the 30 hours cover a minimum of 36 weeks in residency at the Fayetteville campus. Walton College also requires that the student complete all courses in the pre-business and business core and the major and any additional business requirements (if some of these have been completed on the first degree, they are waived). It is recommended that any additional courses needed to finish the University's 30-hour requirement be junior or senior business electives. The second degree may be taken after the first is awarded, or both degrees may be awarded simultaneously after completion of all requirements for both.

### College Graduation Requirements

- University Requirements.** Degree candidates must meet the following: the University's general entrance requirements, number of credit hours required in residence, and the "requirements for graduation," including the University Core American history.
- Hour Requirements.** Degree candidates must satisfactorily complete the total number of semester hours specified for the curriculum in courses approved for one of the majors outlined in the succeeding pages. No less than 50 percent of the total credits must be in approved subjects other than business.  
**NOTE:** Not all courses offered by the University will be accepted for degree credit by Walton College. Courses falling into this category are ANTH 0003, PHSC 0003, ARSC 0013, ENGL 0003, and MATH 0003. Developmental courses are defined as 1) any course so designated by the university, and 2) any lower-division course taken after a higher-level course is taken. Credit will not be given for duplicate course work.
- Grade Requirements.** Students must earn a grade of "C" or better in all pre-business core course requirements. Each student must have a 2.00 cumulative GPA in each of the following areas:
  - All work completed at the University of Arkansas.
  - All courses specifically designated for the major.
  - All required business core courses and required economics courses.
- General Education Course Work.** A student's general education course work must satisfy University Core Requirements, additional college/program course-specific requirements, as well as these two area requirements:
  - Social Issues, Multicultural Environment, and Demographic Diversity, and
  - Micro and Macroeconomics. If a student has not satisfied these area requirements within the fine arts and/or social sciences areas of the university core, these area requirements must be satisfied through general education electives to allow students to complete degree requirements within the hours indicated above.

Courses that satisfy these area requirements are listed below. NOTE that many of these courses will also satisfy University Core Requirements. Where possible, a student should select courses that satisfy both requirements.

- Social Issues, Multicultural Environment, and Demographic Diversity

- ANTH 1023 Intro. to Cultural Anthropology (Univ. core)
- SOCI 2013 General Sociology (Univ. core)
- SOCI 2033 Social Problems (Univ. core)
- HIST 1113 Institutions and Ideas of World Civilization (Univ. core)
- HIST 1123 Institutions and Ideas of World Civilization II (Univ. core)
- GEOG 1123 Human Geography (Univ. core)
- Any Foreign Language (Univ. core, if 2000-level or above, general education elective otherwise)
- b. Micro/Macro Economics
  - ECON 2013 Principles of Macroeconomics (business core)
  - ECON 2023 Principles of Microeconomics (business core)

- Enrollment Requirement:** Students must earn a minimum of 30 semester hours on the Fayetteville campus – this includes study abroad classes, on-line and Global Campus courses. Other courses paid toward Fayetteville campus tuition and fees may be used with the approval of the student's Dean's Office. These 30 semester hours must include WCOB 3016 and 24 hours of upper division courses required for the completion of the major and/or degree program.
- Correspondence Course Rules.** No more than 18 hours of course work taken by correspondence may apply toward a degree. These 18 hours may not include more than 12 hours of courses in economics or business.
- Catalog/Curriculum Changes.** Business is a dynamic profession, and the college and department curricula are updated continuously to keep pace with changes in the business world. Students entering under this catalog will be required to comply with such curricular changes to earn their degree. The total number of hours required for the degree, however, may not be increased, and all work completed in accordance with this catalog prior to the curriculum change will be applied toward the student's degree requirements. Furthermore, courses incorporated into the curriculum at a level lower than the one the student has completed are not required for that student unless there are specific prerequisites. Students entering under earlier catalogs are responsible for completing the graduation requirements as published in the catalog in effect when they entered the program. Students having interruptions of their academic programs that exceed two calendar years must complete the requirements published in the catalog in effect when they re-enter the program. Exceptions to the graduation requirements must be approved by the senior associate dean for academic programs and research or his designee and the appropriate department chair.

### Graduation with Honors

The bachelor's degree *Summa Cum Laude* (with highest honors), *Magna Cum Laude* (with high honors), or *Cum Laude* (with honors) may be conferred only upon those students who have successfully completed the Walton College Honors Program. Both Walton Scholars and Departmental Scholars are eligible for these designations. Students whose cumulative grade-point average place them in the top 10 percent of their graduating class but who have not completed the Honors Program are eligible for the designation "With Distinction" on their official transcript. Among those students completing the Honors Program, the designations *Summa Cum Laude*, *Magna Cum Laude* and *Cum Laude* shall be determined as follows:

- Top 20 percent of students completing the Honors Program:  
*Summa Cum Laude*
- Next 30 percent of students completing the Honors Program:  
*Magna Cum Laude*
- Next 50 percent of students completing the Honors Program:  
*Cum Laude*

No honors degree will be conferred upon a candidate who has not completed at least 50 percent of his or her degree work at the University of Arkansas or who, in the last four semesters of attendance, has a cumulative grade-point average of less than 3.00 or has received a "D" or "F" in any course in the last semester. Certain other requirements will be outlined on request by the dean of the College.



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## EIGHT-SEMESTER DEGREE PROGRAM POLICY

The Walton College offers an eight-semester degree-completion program. In each of the majors listed in this chapter, at least one eight-semester schedule is shown. Some majors offer several concentrations, and eight-semester programs are available for each of the concentrations in Section Two of the Catalog of Studies, online at <http://catalogofstudies.uark.edu>.

See also page 42 in the Academic Regulations chapter for information about the University's degree-completion program.

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## HONORS PROGRAM

Walton College honors program consists of two components: the four-year Walton Scholars Program and the Departmental Scholars Program. Students participating in the honors program will be eligible to graduate Cum Laude, Magna Cum Laude, or Summa Cum Laude. Students who do not participate in the honors program are eligible to graduate with distinction, a classification separate from the Cum Laude awards. Honors program students will receive priority for participation in the Arkansas Cooperative Education Program, SAKE, the portfolio management class, and financial support for study-abroad programs. They also have access to an honors study area.

### Eligibility for the Honors Program

Admission will be offered to incoming freshmen with a minimum ACT/SAT score of 28/1240 or higher and a high school GPA of 3.75. Honors students are required to maintain a cumulative GPA of 3.50 with no grades of "D" or "F" in any course to remain in the program. All honors students are re-quired to meet with the Assistant Director for Honors Programs each semester to monitor progress of honors requirements. Students who maintain a GPA of 3.50 but do not complete honors requirements in a timely manner are subject to removal from the Honors Program at the discretion of the Director of the Honors Program.

### Requirements for Walton Scholars Program:

1. Complete 17 hours in honors courses with a minimum of 8 hours completed from the following honors business courses ECON 2013H, 2023H, WCOB 1012H, 1023H, 1033H, 2013H, or 2033H (excluding WCOB 1111H). The remaining honors hours may be selected from the University Core. MATH 2564 may be used as honors credit towards completion of the 17 required honors hours. Students must complete a minimum of 12 honors hours within the first 30 hours at the Fayetteville campus.
2. Demonstrate proficiency in a foreign language. This requires 0 to 12 hours of course work. Students may demonstrate proficiency by completing the 2013-level course in any foreign language. Students whose native language is not English must complete a 2013-level course other than their native language from Arabic, Chinese, French, German, Italian, Japanese, or Spanish or COMM 2303 and 2323. Students must complete a foreign language or communications course within the first 90 hours at the Fayetteville campus.
3. Students must also complete MATH 2554 with a grade of "C" within the first 45 hours at the Fayetteville campus prior to taking upper level business classes.
4. Complete the following honors courses in Walton College:
  - a. Two three-hour colloquium courses chosen from the following: WCOB 3003H (may be repeated for up to 6 hours of credit) ACCT 4003H, ECON 4003H, FINN 4003H, MGMT 4003H, ISYS 4003H, MKTG 4003H, SPCM 4003H or other business honors colloquium courses offered irregularly. One three-hour colloquium must be completed within the first 90 hours at the Fayetteville campus.
  - b. A three-hour thesis (WCOB 4993H): The thesis is a major independent writing project under the leadership of a Walton College or University of Arkansas faculty member and arises from a research project, business plan, business competition, or internship.
4. Complete an alternate honors capstone course WCOB 3016H, Business

Strategy and Planning, which should be completed within the first 90 hours at the Fayetteville campus.

### Requirements for the Departmental Scholars program:

Admission to the Honors Program as a departmental scholar will only be offered to current University of Arkansas students who have established a cumulative GPA of 3.75 upon completion of their freshmen year at the University of Arkansas. Transfer students may also apply upon completion of one semester at the University of Arkansas with a GPA of 3.75. All students must complete an application to be considered for acceptance into the departmental scholars program.

Honors students are required to maintain a cumulative GPA of 3.50 with no grades of "D" or "F" in any course to remain in the program. All honors students are required to meet with the Assistant Director for Honors Programs each semester to monitor progress of honors requirements. Students who maintain a GPA of 3.50 but do not complete honors requirements in a timely manner are subject to removal from the Honors Program at the discretion of the Director of the Honors Program.

1. Complete nine hours of honors courses to be selected from pre-business core or University Core. MATH 2564 may be used as honors credit towards completion of the 9 required honors hours.
2. Students must demonstrate proficiency in a foreign language by completing a 2003 course in any foreign language. Students whose native language is not English must complete a 2003-level course other than their native language or a third language from Arabic, Chinese, French, German, Italian, Japanese, or Spanish or COMM 2303.
3. Students must also complete MATH 2554 with a grade of "C" or better within the first 60 hours at the Fayetteville campus and prior to taking upper level business courses.
4. Complete the following courses in Walton College::
  - a. Two three-hour colloquium courses chosen from the following: WCOB 3003H (May be repeated for up to 6 hours of credit) ACCT 4003H, ECON 4003H, FINN 4003H, MGMT 4003H, ISYS 4003H, MKTG 4003H, SPCM 4003H or other business honors colloquium courses offered irregularly. One three hour honors colloquium must be completed within the first 90 hours at the Fayetteville campus.
  - b. A three-hour thesis (WCOB 4993H): The thesis is a major independent writing project under the leadership of a Walton College or University of Arkansas faculty member and arises from a research project, business plan, business competition, or internship.

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## DEGREE REQUIREMENTS

### Bachelor of Science in Business Administration (B.S.B.A.)

The Bachelor of Science in Business Administration degree is offered through an educational program in the business and organizational disciplines intended to prepare individuals to make sustained contributions to organizations and society in a global, diverse, and dynamic environment. To achieve this objective the curriculum focuses on developing an individual's interdisciplinary problem-solving skills, interpersonal and communication skills, ability to adapt to changing technology, spirit of entrepreneurial innovation, and ethical and professional values.

Walton College offers work in the following eight majors for the B.S.B.A. degree. Some majors have concentrations to allow additional specialization.

1. Accounting (ACCT)
2. Business Economics (BECO)
  - a. Concentration I – Business Economics
  - b. Concentration II – International Economics and Business
3. Finance (FINN)
  - a. Concentration I – Banking
  - b. Concentration II – Financial Management/Investment
  - c. Concentration III – Insurance
  - d. Concentration IV – Real Estate
  - e. Concentration V – Personal Financial Management
4. General Business (GBUS)
5. Information Systems (ISYS)

- a. Concentration I – Enterprise Resource Planning
- b. Concentration II – Enterprise Systems
- c. Concentration III – IT Applications Management
- 6. Management (MGMT)
  - a. Concentration I – Human Resource Management
  - b. Concentration II – Small Business and Entrepreneurship
  - c. Concentration III – Organizational Leadership
- 7. Marketing (MKTG)
- 8. Retail (RETL)
- 9. Supply Chain Management (SPCM)

**Requirements for B.S.B.A. Degree**

Students pursuing a degree in Walton College are classified as pre-business with an intended major until all pre-business requirements are fulfilled. To enroll in upper-division courses, a student must obtain at least a 2.50 (on a 4.00 scale) overall grade-point average in addition to the completion of all pre-business core courses (or equivalents), also with a minimum 2.50 GPA. Further, a student must earn a grade of “C” or better in each pre-business core course for admission into the major or for the graduation requirement.

	Hours
<b>A. University Core Requirements</b>	<b>35</b>
English Composition (two courses)	6
Finite Mathematics**	3
American History or Government	3
Laboratory Science (two courses with labs)	8
Social Science (three courses)	9
Fine Arts & Humanities (two courses)	6
<b>B. Additional Requirements for Business Students</b>	<b>9</b>
Public Speaking*	3
Survey of Calculus*	3
Business Social Science (one of the following)	3
PSYC 2003 General Psychology	
PSYC 3013 Social Psychology	
PSYC 3023 Abnormal Psychology	
PSYC 3103 Cognitive Psychology	
PSYC 4063 Psychology of Personality	
PSYC 4073 Psychology of Learning	
PSYC 4123 Perception	
SOCI 2013 General Sociology	
SOCI 3223 Social Psychology	
SOCI 3303 Social Data and Analysis	
SOCI 4063 Organizations in Society	
PLSC 2003 American National Government	
PLSC 3103 Public Administration	
PLSC 3243 The Judicial Process	
PLSC 3803 International Organization	
PLSC/SOCI 4053 Political Sociology	
<b>C. Business Core Courses</b>	<b>33</b>
<b>Lower-Division Requirements</b>	<b>27</b>
WCOB 1120 Computer Competency Requirement*	
WCOB 1111 Freshman Business Connections*	1
WCOB 1012 Legal Environment of Business*	2
WCOB 1023 Business Foundations*	3
WCOB 1033 Data Analysis and Interpretation*	3
ECON 2013 Principles of Macroeconomics*	3
ECON 2023 Principles of Microeconomics*	3
WCOB 2013 Markets and Consumers*	3
WCOB 2023 Prod. and Delivery of Goods and Services*	3
WCOB 2033 Acquiring and Managing Human Capital*	3
WCOB 2043 Acquiring and Managing Financial Resources*	3
<b>Upper-Division Requirement</b>	<b>6</b>

WCOB 3016 Business Strategy and Planning	6
<b>D. Major Requirements</b>	<b>24</b>
<b>E. Business Electives</b>	<b>15</b>
<b>F. General Education Electives</b>	<b>16</b>
(A total of 16 hours of general education electives are required for the Bachelor of Science in Business Administration (B.S.B.A.). General education electives must be non-business courses and may include no more than six hours of PEAC or DEAC courses. Students may utilize general education electives to complete a minor outside the Walton College. In addition, these electives may fulfill requirements for Social Issues, Multicultural Environment, and Demographic Diversity if not otherwise completed in the Business Social Science requirement or by completing University Core).	
<b>TOTAL REQUIRED FOR B.S.B.A. DEGREE</b>	<b>126</b>

(Total is less than the sum of the categories because some courses count in two categories.)

\*Pre-Business requirement: These 36 hours must be completed with a GPA of 2.50, an overall GPA of 2.5, and a grade of “C” or better in each course before a student is allowed to take upper-division business courses.

In addition to the core courses, each student will complete the required major courses, junior- senior-level business electives, and electives specified by each major.

Each student must have a 2.00 cumulative grade-point average in each of the following areas: all work completed at this university, all courses specifically designated for the major, and all required Walton College core and economics courses. Students must earn a grade of “C” or better in each of the pre-business core courses.

**Bachelor of Science in International Business Degree (B.S.I.B.)**

The Bachelor of Science in International Business degree is intended for students who wish to learn more about the international aspects of business. It provides preparation for a broad range of careers in business, including accounting, management, marketing, economics, information systems, finance, and transportation and logistics. This degree is also well suited for students wishing to continue their studies in law, international affairs, or graduate education in business and economics.

This degree requires completion of the University Core and Walton College Core courses, as well as course work in international business, a single foreign language and an area of study related to that language. In addition, students must select a concentration in one of the following areas: accounting, business economics, information systems, finance, general business, management, marketing, or transportation and logistics.

Students pursuing a degree in the Sam M. Walton College of Business are classified as pre-business with an intended concentration until all pre-business requirements are fulfilled. For admission into the intended concentration, a student must obtain at least a 2.50 (on a 4.00 scale) overall grade-point average, in addition to the completion of all pre-business core courses listed elsewhere in the catalog (or equivalents), also with a minimum 2.50 grade-point average. Further, a student must earn a grade of “C” or better in each of the pre-business core courses for admission into the major or for the graduation requirement.

**Graduation Requirements for the B.S.I.B. Degree**

Each student must have a 2.00 cumulative grade-point average in each of the following areas: all work completed at this university, all courses in the business core, and all designated international business courses/functional concentration/foreign language courses. In addition, students must earn a grade of “C” or better in each of the pre-business core courses.

<b>Course Requirements for the B.S.I.B. Degree</b>	Hours
<b>A. University Core Requirements</b>	<b>35</b>
See description and listing of the university core for the B.S.B.A. degree.	
<b>B. Additional Requirements for Business Students</b>	<b>9</b>
Public Speaking*	3
Survey of Calculus*	3

Business Social Science (one of the following)	3	ECON 4333 Economics of Organizations	3
PSYC 2003 General Psychology		ECON 4743 Introduction to Econometrics	3
PSYC 3013 Social Psychology		Junior Senior ECON	3
PSYC 3023 Abnormal Psychology		Plus six hours JR/SR interdisciplinary electives	6
PSYC 3103 Cognitive Psychology		<b>Information Systems</b>	
PSYC 4063 Psychology of Personality		ISYS 2263 Intro. to Information Systems Development	3
PSYC 4073 Psychology of Learning		ISYS 3293 Systems Analysis and Design	3
PSYC 4123 Perception		ISYS 3393 Business Application Development Fundamentals	3
SOCI 2013 General Sociology		ISYS 4283 Business Database Systems	3
SOCI 3223 Social Psychology		Plus three hour JR/SR information systems course	3
SOCI 3303 Social Data and Analysis		Plus six hours JR/SR interdisciplinary electives	6
SOCI 4063 Organizations in Society		<b>Finance</b>	
PLSC 2003 American National Government		FINN 3053 Financial Markets and Institutions	3
PLSC 3103 Public Administration		FINN 3703 International Finance	3
PLSC 3243 The Judicial Process		FINN 3063 Principles of Investments, or	3
PLSC 3803 International Organization		FINN 3603 Corporate Finance	
PLSC/SOCI 4053 Political Sociology		FINN 4233 Advanced Corporate Finance, or	3
<b>C. Business Core Courses</b>	<b>33</b>	FINN 4133 Advanced Investments	
<b>Lower-Division Requirements</b>	<b>27</b>	Plus three hour JR/SR finance course	3
WCOB 1120 Computer Competency Requirement*	0	Plus six hours JR/SR interdisciplinary electives	6
WCOB 1111 Freshman Business Connections*	1	<b>General Business</b>	
WCOB 1012 Legal Environment of Business*	2	Fifteen hours of 3000/4000-level courses in Walton College; no more	15
WCOB 1023 Business Foundations*	3	than nine hours in a single academic area	
WCOB 1033 Data Analysis and Interpretation*	3	Plus six hours JR/SR interdisciplinary electives	6
ECON 2013 Principles of Macroeconomics*	3	<b>Management</b>	
ECON 2023 Principles of Microeconomics*	3	MGMT 4243 Ethics and Corporate Responsibility	3
WCOB 2013 Markets and Consumers*	3	MGMT 4583 International Mgmt.	3
WCOB 2023 Prod. and Delivery of Goods and Services*	3	Plus nine hours JR/SR management courses	9
WCOB 2033 Acquiring and Managing Human Capital*	3	Plus six hours JR/SR interdisciplinary electives	6
WCOB 2043 Acquiring and Managing Financial Resources*	6	<b>Marketing</b>	
<b>Upper-Division Course</b>	<b>6</b>	MKTG 3633 Marketing Research	3
WCOB 3016 Business Strategy and Planning	6	MKTG 3553 Consumer Behavior	3
<b>D. International Business and Collateral Course Requirements</b>	<b>36</b>	MKTG 4853 Marketing Mgmt.	3
<b>International Business Requirements</b>	<b>15</b>	MKTG 4633 Global Marketing	3
ECON 4633 International Trade	3	Plus three hour JR/SR marketing course	3
ECON 4643 International Macroeconomics and Finance	3	Plus six hours JR/SR interdisciplinary electives	6
Select 9 hours from the following:	9	<b>Supply Chain Management</b>	
FINN 3703 International Finance		SPCM 3443 Principles of Transportation	3
MGMT 4583 International Mgmt.		SPCM 3613 Business Logistics	3
MKTG 4633 Global Marketing		SPCM 3643 International Transportation and Logistics	3
SPCM 3643 International Transportation and Logistics		Plus six hours of JR/SR supply chain management courses	6
ECON 3853 Emerging Markets		Plus six hours JR/SR interdisciplinary electives	6
ECON 3843 Economic Development, World Bank, and Multilateral Finance		<b>F. Foreign Language Requirements</b>	<b>12</b>
ECON 3933 The Japanese Economic System		Students whose native language is English or whose native language is not	
(Other courses may fulfill this requirement if approved by the department chair)		taught at the University of Arkansas must complete 12 hours of university	
<b>E. Business Concentration</b>	<b>21</b>	course work in a single foreign language — six hours of intermediate language	
Students must complete one of the following business concentrations:		and six hours of upper-division course work in communications and business	
<b>Accounting</b>		language, or equivalent. Students who, on the basis of prior knowledge of	
ACCT 2013 Accounting Principles	3	language, omit one or both courses in the intermediate language sequence —	
ACCT 3533 Accounting Technology	3	2003 and 2013 level — may receive degree credit for omitted courses if they	
ACCT 3613 Managerial Uses of Accounting Information	3	validate their higher placement by passing the business language course (or	
ACCT 3723 Intermediate Accounting I	3	equivalent) with a grade of “C” or above. Students with no previous foreign	
Plus three hour JR/SR accounting course	3	language training or only rudimentary knowledge of a foreign language will be	
Plus six hours JR/SR interdisciplinary electives	6	required to complete up to six hours of elementary language —1003 and 1013	
<b>Business Economics</b>		level — in addition to the 12 hours of language specified above. No degree	
ECON 3033 Microeconomic Theory	3	credit will be given for elementary language courses.	
ECON 3133 Macroeconomic Theory	3	Students may select one of the following language tracks:	
		Arabic – ARAB 2013, ARAB 2016, ARAB 3016 or equivalent	

Chinese – CHIN 2003, CHIN 2013, CHIN 3033, and any other upper division CHIN

French – FREN 2003, FREN 2013, FREN 4333, FREN 3033 or FREN 3003

German – GERM 2003, GERM 2013, GERM 3003, and GERM 4333

Italian – ITAL 2003, ITAL 2013, ITAL 3003, and ITAL 3013

Japanese – JAPN 2003, JAPN 2013, JAPN 3003, and JAPN 3013

Spanish – SPAN 2003, SPAN 2013, SPAN 3003, and SPAN 4333

Students whose native language is not English but is taught at the University of Arkansas must select a third language from the list above or substitute six hours of upper-division English language courses (i.e., speech, writing, or U.S. literature), to be selected with the consent of an adviser and department chair. Those students whose native language is not taught at the University of Arkansas will normally be required to select a third language.

**G. Area Studies Requirements** 9

For students taking a foreign language, nine hours of upper-division course work in the J. William Fulbright College of Arts and Sciences are required. Domestic students can satisfy this requirement in one of three ways:

- 1) any upper division foreign language course,
- 2) minor in a foreign language, and/or
- 3) select upper division courses related to the foreign language to include:
  - Arabic – any upper division course for Middle Eastern Studies (MEST) to include MEST 4003, 4003H or additional courses listed under MEST in the university catalog
  - Chinese/Japanese/Asian Studies – any upper division course for Asian Studies (AIST)
  - French – any upper division course for EUST
  - German – any upper division course for EUST Italian – any upper division course for EUST
  - Spanish – any upper division course for Latin American Studies (LAST) or European Studies (EUST) to include LAST 4003, LAST 4003H, or LAST 470V or additional courses listed under LAST in the university catalog, or EUST 399VH, EUST 4003, EUST 4003H, EUST 470V, or EUST 470VH or additional courses listed under EUST in the university catalog.

International students may satisfy this requirement in one of two ways:

- 1) For students who choose to take a third language, area studies requirements are the same as those for domestic students.
- 2) For students who choose to take six hours of upper division English to satisfy their language requirement, nine hours of upper division course work in the J. William Fulbright College of Arts and Sciences pertaining to the United States to include any upper division course for American Studies (AMST) listed in the University catalog.

**H. International Experience Requirement**

At a minimum, a domestic student must complete a study abroad program approved by the Walton College of at least four weeks and six credit hours, or work abroad, or work with the international division of a domestic company as part of their program. Students are strongly encouraged, but not required, to seek job experience in a company located in a country related to their foreign language requirement.

**TOTAL DEGREE REQUIREMENTS** 125

(Total is more than the sum of the categories because some courses count for multiple requirements.)

**Clarifying Notes on Degree Requirements**

1. Courses that are required in either Walton College or the international business core and also are required in one of the business concentrations cannot be used to satisfy both requirements. For example, students who take FINN 3703 to satisfy the finance concentration requirements cannot also use it to

satisfy the international business requirements.

2. Students who select ECON 2013 and ECON 2023 to partially satisfy the social science bloc and a foreign language numbered 2003 to partially satisfy the fine arts and humanities bloc of the University Core Requirements can complete the degree with 125 hours. Students selecting other courses to satisfy these requirements will have longer programs.

**Bachelor of Science in International Business Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 42 in the Academic Regulations chapter for university requirements of the program. The International Business degree program has eight concentrations:

- Accounting
- Business Economics
- Finance
- General Business
- Information Systems
- Management
- Marketing
- Supply Chain Management

The first four semesters of each of concentration are exactly the same and are listed immediately below. The final four semesters of each concentration follow after that.

In addition to the coursework below, students must complete an International Experience Requirement. Courses in BOLD must be taken in the semester designated. Courses in ITALICS may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations noted below are preferred.

**B.S.I.B. First Four Semesters**

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I* – University Core
- 3 MATH 2053 **Finite Math** – University Core
- 3 COMM 1313 **Public Speaking**
- 1 WCOB 1111 **Freshman Business Connections**
- 2 WCOB 1012 *Legal Environment of Business \**
- 0 WCOB 1120 **Computer Competency Requirement**
- 3 *Intermediate Foreign Language I (2003-level)*
- 15 Semester Hours

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II* – University Core
- 3 WCOB 1023 **Business Foundations**
- 3 WCOB 1033 **Data Analysis and Interpretation**
- 3 ECON 2023 **Microeconomics** – University Core
- 3 *Intermediate Foreign Language II (2013 level)*
- 15 Semester Hours

**Fall Semester Year 2**

- 3 MATH 2043 *Survey of Calculus \*\**
- 3 ECON 2013 **Macroeconomics \*\*** - University Core
- 6 Select TWO of the following:
  - WCOB 2013 **Markets and Consumers**
  - WCOB 2023 **Production and Delivery of Goods and Services**
  - WCOB 2033 **Acquiring and Managing Human Capital**
  - WCOB 2043 **Acquiring and Managing Financial Resources\*\*\*\***
- 3 *U.S. History or Political Science* – University Core
- 3 *Upper division foreign language course*
- 18 Semester Hours

**Spring Semester Year 2**

- 3 Fine Art/Humanities – University Core or ACCT 2013 *Accounting Principles* (for Accounting concentration)
- 4 Natural Science – University Core
- 3 Upper division foreign language course
- 6 Select TWO of the following not completed in previous semester:
  - WCOB 2013 **Markets and Consumers**

WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital  
 WCOB 2043 Acquiring and Managing Financial Resources\*\*\*\*

16 Semester Hours

ALL pre-business requirements should be met by end of term

### B.S.I.B. Accounting Final Four Semesters

#### Fall Semester Year 3

6 WCOB 3016 Business Strategy and Planning  
 3 *Business Social Science*  
 3 ACCT 3723 Intermediate Accounting I  
 3 International Business and Collateral Elective  
 15 Semester Hours

#### Spring Semester Year 3

3 ACCT 3533 Accounting Technology  
 3 ACCT 3613 Managerial Uses of Accounting  
 3 ECON 4633 International Trade  
 3 Area Studies Course – see the top of this page  
 3 *Social Science* – University Core  
 15 Semester Hours

#### Fall Semester Year 4

3 Fine Arts/Humanities – University Core  
 3 ECON 4643 International Macroeconomics and Finance  
 3 International Business and Collateral Elective  
 3 Area Studies Course  
 4 *Natural Science* – University Core  
 16 Semester Hours

#### Spring Semester Year 4

3 ACCT elective  
 3 Area Studies Course  
 3 International Business and Collateral Elective  
 6 Junior Senior Business Electives  
 15 Semester Hours  
 125 Total Hours

### B.S.I.B. Business Economics Final Four Semester

#### Fall Semester Year 3

6 WCOB 3016 Business Strategy and Planning  
 3 *Business Social Science*  
 3 ECON 3133 Macroeconomic Theory  
 3 International Business and Collateral Elective  
 15 Semester Hours

#### Spring Semester Year 3

3 ECON 4743 Introduction to Econometrics  
 3 ECON elective  
 3 ECON 4633 International Trade  
 3 Area Studies Course – see page 210 in catalog  
 3 *Social Science* – University Core  
 15 Semester Hours

#### Fall Semester Year 4

3 ECON 4333 Economics of Organizations  
 3 ECON 4643 International Macroeconomics and Finance  
 3 International Business and Collateral Elective  
 3 Area Studies Course  
 4 *Natural Science* – University Core  
 16 Semester Hours

#### Spring Semester Year 4

3 Junior Senior ECON elective  
 3 Area Studies Course  
 3 International Business and Collateral Elective  
 6 Junior Senior Business Electives  
 15 Semester Hours  
 125 Total Hours

### B.S.I.B. Finance Final Four Semesters

#### Fall Semester Year 3

6 WCOB 3016 Business Strategy and Planning  
 3 *Business Social Science*  
 3 FINN 3053 Financial Markets and Institutions  
 3 FINN 3013 Financial Analysis  
 15 Semester Hours

#### Spring Semester Year 3

3 FINN 3063 Investments or FINN 3603 Corporate Finance  
 3 FINN 3703 International Finance  
 3 ECON 4633 International Trade Policy  
 3 Area Studies Course – see page 210 in catalog  
 3 *Social Science* – University Core  
 15 Semester Hours

#### Fall Semester Year 4

3 FINN 4133 Advanced Investments or FINN 4233 Advanced Corporate Finance  
 3 ECON 4643 International Macroeconomics and Finance  
 3 International Business and Collateral Elective  
 3 Area Studies Course  
 4 *Natural Science* – University Core  
 16 Semester Hours

#### Spring Semester Year 4

3 FINN elective  
 3 Area Studies Course  
 3 International Business and Collateral Elective  
 6 Junior Senior Business Electives  
 15 Semester Hours  
 125 Total Hours

### B.S.I.B. General Business Final Four Semesters

#### Fall Semester Year 3

6 WCOB 3016 Business Strategy and Planning  
 3 *Business Social Science*  
 3 Junior Senior Business Elective  
 3 International Business and Collateral Elective  
 15 Semester Hours

#### Spring Semester Year 3

6 Junior Senior Business Electives  
 3 ECON 4633 International Trade  
 3 Area Studies Course – see page 210 in catalog  
 3 *Social Science* – University Core  
 15 Semester Hours

#### Fall Semester Year 4

3 Junior Senior Business Elective  
 3 ECON 4643 International Macroeconomics and Finance  
 3 International Business and Collateral Elective  
 3 Area Studies Course  
 4 *Natural Science* – University Core  
 16 Semester Hours

#### Spring Semester Year 4

3 Junior Senior Business Elective  
 3 Area Studies Course  
 3 International Business and Collateral Elective  
 6 Junior Senior Business Electives  
 15 Semester Hours  
 125 Total Hours

### B.S.I.B. Information Systems

#### Fall Semester Year 3

6 WCOB 3016 Business Strategy and Planning  
 3 *Business Social Science*  
 3 ISYS 2263 Introduction to Information Systems  
 3 International Business and Collateral Elective  
 15 Semester Hours

#### Spring Semester Year 3

3 ISYS 3293 System Analysis and Design  
 3 ISYS 3393 Business Application Development Fundamentals  
 3 ECON 4633 International Trade  
 3 Area Studies Course – see page 210 in catalog  
 3 *Social Science* – University Core  
 15 Semester Hours

#### Fall Semester Year 4

3 ISYS 4283 Business Database Systems  
 3 ECON 4643 International Macroeconomics and Finance  
 3 International Business and Collateral Elective  
 3 Area Studies Course  
 4 *Natural Science* – University Core  
 16 Semester Hours

**Spring Semester Year 4**

- 3 ISYS elective
- 3 Area Studies Course
- 3 International Business and Collateral Elective
- 6 Junior Senior Business Electives
- 15 Semester Hours**
- 125 Total Hours**

**B.S.I.B. Management Final Four Semesters****Fall Semester Year 3**

- 6 WCOB 3016 Business Strategy and Planning
- 3 *Business Social Science*
- 3 MGMT 4243 Ethics and Corporate Responsibility
- 3 International Business and Collateral Elective
- 15 Semester Hours**

**Spring Semester Year 3**

- 3 MGMT elective
- 3 MGMT 4583 International Management
- 3 ECON 4633 International Trade
- 3 Area Studies Course – see page 210 in catalog
- 3 *Social Science* – University Core
- 15 Semester Hours**

**Fall Semester Year 4**

- 3 MGMT elective
- 3 ECON 4643 International Macroeconomics and Finance
- 3 International Business and Collateral Elective
- 3 Area Studies Course
- 4 *Natural Science* – University Core
- 16 Semester Hours**

**Spring Semester Year 4**

- 3 MGMT elective
- 3 Area Studies Course
- 3 International Business and Collateral Elective
- 6 Junior Senior Business Electives
- 15 Semester Hours**
- 125 Total Hours**

**B.S.I.B. Marketing Final Four Semesters****Fall Semester Year 3**

- 6 WCOB 3016 Business Strategy and Planning
- 3 Business Social Science
- 3 **MKTG 3433 Introduction to Marketing Strategy** (Jr Sr Business elective)
- 3 International Business and Collateral Elective
- 15 Semester Hours**

**Spring Semester Year 3**

- 3 **MKTG 3633 Marketing Research**
- 3 **MKTG 3553 Consumer Behavior**
- 3 ECON 4633 International Trade
- 3 Area Studies Course – see page 210 in catalog
- 3 *Social Science* – University Core
- 15 Semester Hours**

**Fall Semester Year 4**

- 3 MKTG 4633 Global Marketing
- 3 ECON 4643 International Macroeconomics and Finance
- 3 International Business and Collateral Elective
- 3 Area Studies Course
- 4 *Natural Science* – University Core
- 16 Semester Hours**

**Spring Semester Year 4**

- 3 MKTG 4853 Marketing Management
- 3 MKTG elective
- 3 Area Studies Course
- 3 International Business and Collateral Elective
- 3 Junior Senior Business Electives
- 15 Semester Hours**
- 125 Total Hours**

**B.S.I.B. Supply Chain Management Final Four Semesters****Fall Semester Year 3**

- 6 WCOB 3016 Business Strategy and Planning
- 3 *Business Social Science*
- 3 SPCM 3613 Business Logistics
- 3 International Business and Collateral Elective
- 15 Semester Hours**

**Spring Semester Year 3**

- 3 SPCM 3443 Principles of Transportation
- 3 SPCM 3643 International Transportation and Logistics
- 3 ECON 4633 International Trade
- 3 Area Studies Course – see page 210 in catalog
- 3 *Social Science* – University Core
- 15 Semester Hours**

**Fall Semester Year 4**

- 3 SPCM elective
- 3 ECON 4643 International Macroeconomics and Finance
- 3 International Business and Collateral Elective
- 3 Area Studies Course
- 4 *Natural Science* – University Core
- 16 Semester Hours**

**Spring Semester Year 4**

- 3 SPCM elective
- 3 Area Studies Course
- 3 International Business and Collateral Elective
- 6 Junior Senior Business Electives
- 15 Semester Hours**
- 125 Total Hours**

\* Must be taken prior to fall semester of sophomore year

\*\* Must be taken prior to fall semester of junior year

\*\*\* No more than 9 hours of junior senior business electives can be taken in a single academic area

\*\*\*\* Accounting majors should take fall semester of sophomore year

**International Business Minor for Business Students**

The Walton College offers a minor for students desiring more knowledge in international programs to assist them with their business careers. The minor requires completion of 21 required hours of study (including equivalencies). The 21 hours include the following courses:

Select 15 hours from the following:

ECON 3843 Economic Development, World Bank, and Multilateral Finance

ECON 3853 Emerging Markets

ECON 3933 The Japanese Economic System

ECON 4633 International Trade

ECON 4643 International Macroeconomics and Finance

ECON 468V International Economics and Business Seminar

FINN 3703 International Finance

MGMT 4583 International Management

MKTG 4633 Global Marketing

SPCM 3643 International Transportation and Logistics

3 hours of Study Abroad led by Walton College faculty

Other—Department Chair Approval Needed

Students must also complete 6 hours of intermediate foreign language.

Students whose native language is English or whose native language is not taught at the University of Arkansas must complete six hours of university course work in a single foreign language. Students who, on the basis of prior knowledge of language, omit one or both courses in the intermediate language sequence — at 2003 and 2013 level — may receive degree credit for omitted courses if they validate their higher placement by passing the business language course (or equivalent) with a grade of “C” or above. Students with no previous foreign language training or only rudimentary knowledge of a foreign language will be required to complete up to six hours of elementary foreign language. Students whose native language is not English but is taught at the University of Arkansas must select a third language from the list below, or substitute six hours of upper-division English language courses (i.e., speech, writing, or U.S. literature), to be selected with the consent of the department chair. Those students whose native language is not taught at the University of Arkansas will normally be required to select a third language.

Students may select from one of the following language tracks:

Arabic – 2016

Chinese – CHIN 2003, CHIN 2013

French – FREN 2003, FREN 2013 (or FREN 2013H)

German – GERM 2003, GERM 2013  
 Italian – ITAL 2003, ITAL 2013  
 Japanese – JAPN 2003, JAPN 2013 (or JAPN 2013H)  
 Russian – RUSS 2003, RUSS 2013  
 Spanish – SPAN 2003, SPAN 2013 (or SPAN 2013H)  
 Swahili – SWAH 2003, SWAH 2013

Students who desire to earn an International Business minor must notify the Walton College Undergraduate Programs Office of their intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

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## MINORS IN THE J. WILLIAM FULBRIGHT COLLEGE OF ARTS AND SCIENCES

Students in Walton College may pursue an academic minor in the J. William Fulbright College of Arts and Sciences. Academic minors usually consist of 15 to 18 hours of course work. The available minors and course requirements are specified in the Fulbright College section of this catalog. Students must notify the Undergraduate Programs Office in Walton College of their intention to pursue a minor as early as possible. Walton College will certify that the requirements of the minor have been satisfied by graduation and, with the assistance of the Fulbright College, will advise students on the requirements to complete a minor. The minor will be designated on the student's transcript.

Courses that are part of the University Core Requirements or the additional General Education Requirements or any other non-business course that is part of a student's course of study may also be counted for credit in a minor. For example, ANTH 1023 Introduction to Cultural Anthropology, is a concentration in the B.S.B.A. social science block and can also be used to satisfy the requirements of the anthropology minor. Other courses in a minor can be counted as general education electives. Walton College economics majors in the business economics concentration or the international economics and business concentration may not obtain a Fulbright College minor in economics.

### Business Administration Minors for Non-Business Students

To facilitate students outside Walton College in obtaining knowledge that will assist them in making sustained contributions to organizations and society in a global, diverse, and dynamic environment, the Walton College offers a business minor. The minor requires completion of 20 to 21 required hours of study (including equivalencies) with at least 50 percent of the courses applied toward the minor taken in residence. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor.

All upper level minor requirements must be taken in residence. All students seeking a business minor are required to complete the Walton College computer competency requirement (WCOB 1120) and the following courses:

ECON 2143 Basic Economics Theory and Practice  
 WCOB 1023 Business Foundations  
 WCOB 1033 Data Analysis and Interpretation or equivalent

In addition, students must select and complete one of the following concentrations:

#### Concentration 1 – General Business

Select 12 hours from the following courses  
 (at least 6 hours must be at the 3000 or 4000 level).  
 WCOB 1012 Legal Environment of Business  
 WCOB 2013 Markets and Consumers  
 WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital  
 WCOB 2043 Acquiring and Managing Financial Resources  
 Plus any other 3000- or 4000-level Walton College course

#### Concentration 2 – Accounting

ACCT 2013 Accounting Principles  
 ACCT 3613 Managerial Uses of Accounting Info  
 ACCT 3723 Intermediate Accounting I  
 Plus an additional three hours selected from the following:  
 ACCT 3533 Accounting Technology  
 ACCT 3843 Fundamentals of Taxation

#### Concentration 3 – Business Economics

ECON 4333 Economics of Organizations  
 Plus an additional nine hours of 3000- or 4000-level business economics courses.

#### Concentration 4 – Enterprise Resource Planning

WCOB 2013 Markets and Consumers  
 WCOB 2043 Acquiring and Managing Financial Resources  
 WCOB 4213 ERP Fundamentals  
 Plus an additional three hours from the following:  
 ISYS 4233 Seminar in ERP Development  
 ISYS 4293 Business Intelligence  
 WCOB 4223 ERP Configuration and Implementation

#### Concentration 5 – Enterprise Systems

ISYS 4453 Introduction for Enterprise Servers  
 ISYS 4463 Enterprise Transaction Systems  
 Plus an additional six hours from the following:  
 ISYS 4233 Seminar in ERP Development  
 ISYS 4293 Business Intelligence  
 WCOB 4213 ERP Fundamentals  
 WCOB 4223 ERP Configuration and Implementation

#### Concentration 6 – Finance

WCOB 2043 Acquiring and Managing Financial Resources  
 Plus an additional nine hours of 3000-4000 level finance courses

#### Concentration 7 – Information Systems

ISYS 3293 System Analysis and Design  
 ISYS 3393 Business Applications and Development Fundamentals  
 Plus an additional three hours from the following:  
 WCOB 4213 ERP Fundamentals  
 WCOB 4223 Configuration and Implementation

One 3-hour 4000 level ISYS course

#### Concentration 8 – International Business

Select 12 hours from the following:  
 ECON 3843 Economic Development, World Bank, and Multilateral Finance  
 ECON 3853 Emerging Markets  
 ECON 3933 The Japanese Economic System  
 ECON 4633 International Trade  
 ECON 4643 International Macroeconomics and Finance  
 ECON 468V International Economics and Business Seminar  
 FINN 3703 International Finance  
 MGMT 4583 International Management  
 MKTG 4633 Global Marketing  
 SPCM 3643 International Transportation and Logistics

#### Concentration 9 – Management

MGMT 4243 Ethics and Corporate Responsibility  
 Plus an additional nine hours of 3000/4000 level management courses (may include  
 WCOB 2033, Acquiring and Managing Human Capital OR MGMT 3563,  
 Organizational Behavior)

#### Concentration 10 – Marketing

MKTG 3433 Introduction to Marketing Strategy  
 Plus an additional nine hours selected from the following:  
 MKTG 3553 Consumer Behavior  
 MKTG 3633 Marketing Research  
 MKTG 4233 Integrated Marketing Communications  
 MKTG 4343 Selling and Sales Management  
 MKTG 4633 Global Marketing  
 MKTG 4433 Retail Strategy  
 MKTG 4443 Retail Buying and Merchandise  
 SPCM 3613 Business Logistics

#### Concentration 11 – Retail

MKTG 3433 Introduction to Marketing Strategy  
 MKTG 3553 Consumer Behavior  
 MKTG 4433 Retail Strategy  
 MKTG 4443 Retail Buying and Merchandise

#### Concentration 12 – Supply Chain Management

SPCM 3443 Principles of Transportation

SPCM 3613 Business Logistics

Plus an additional six hours selected from the following:

- SPCM 3623 Purchasing and Inventory Systems
- SPCM 3643 International Transportation and Logistics
- SPCM 4633 Transportation Carrier Management
- SPCM 4653 Transportation and Logistics Strategy

In addition to the above course requirements, non-business, degree-seeking students working toward a minor should note the following:

1. Students who elect to obtain a business minor must provide written notice of their intent to the dean's office of the college in which they are receiving a degree. This notice and all requirements for the business minor must be completed prior to the awarding of the student's undergraduate degree.
2. Business minor students must complete all 1000- and 2000-level courses required for the business minor and be a junior- or senior-level student to enroll in 3000- or 4000-level business courses.
3. All specific course prerequisites must be met. Although business minor students are not required to satisfy the entire pre-business core, they must complete the required courses and any other prerequisite course specified prior to enrolling in a 3000/4000-level course.
4. Business minor students may complete multiple minors with the exception of General Business and an additional area of business study. Students may not use more than three hours of minor courses toward additional minor requirements.
5. ECON 2143 will substitute for ECON 2013/2023 for prerequisite purposes. In addition, students who take both ECON 2013 (Macroeconomics) and ECON 2023 (Microeconomics) will satisfy the economics requirements of the minor.
6. Business minor students are ineligible to take WCOB 3016 Business Strategy and Planning.
7. All equivalencies must be approved by the assistant dean for undergraduate programs.

**GRADUATE STUDIES**

The University of Arkansas offers the following advanced degrees in business: Master of Accountancy, Master of Business Administration, Master of Arts in Economics, Master of Information Systems, Doctor of Philosophy in Business Administration, and Doctor of Philosophy in Economics.

For further information about these programs and requirements for admission, see the Graduate School Catalog or write to the assistant director of marketing and recruiting, Graduate School of Business, 475 WJWH.

**ACCREDITATIONS**

The college has been a member of and accredited by AACSB International-The Association to Advance Collegiate Schools of Business since 1931. The accounting program was accredited separately in 1986 at both the bachelor's and master's level. The master's degree in the business administration program was approved in 1963. Accreditation by and membership in AACSB signifies commitment by the college to the goals of promoting and actualizing the highest standards of business education.

**ACCOUNTING (ACCT)**

Vernon Richardson  
Department Chair, 401 WCOB, 479-575-4051

FACULTY

- Walter B. Cole Chair in Accounting and Professor Bouwman
- Ralph McQueen Chair in Accounting and Professor Myers (J.)
- Garrison/Wilson Chair in Accounting and Professor Myers (L.)
- Nolan E. Williams Lecturer and Professor Norwood
- Doris M. Cook Chair in Accounting and Professor Peters
- Doyle Z. and Maynette Derr Williams Chair in Professional Accounting and Professor Pincus
- S. Robson Walton Chair in Accounting and Professor Richardson
- Associate Professor Sanchez (J.M.)
- BKD Lectureship in Accounting and Clinical Professor Leflar
- Assistant Professors Cassell, Chi, Cooper, Huang, Henderson, Keskek
- Instructors Greenhaw, Reid

The mission of the department of accounting is to cultivate an environment of educational excellence. We do so by pursuing the following endeavors:

- Providing a learning environment in which students interact with others to identify and solve accounting and business problems.
- Developing and disseminating knowledge that has the potential for significant impact on accounting, business, and education.
- Interacting with the accounting profession, the business and academic communities, and the community at large.

The department of accounting offers an undergraduate degree program in accounting and graduate programs at both the master's and doctoral levels. The department's programs are accredited by the AACSB – The International Association for Management Education, which ensures quality and promotes excellence and continuous improvement in undergraduate and graduate education. In addition, the accounting department offers courses in Business Law.

The objective of the B.S.B.A. accounting curriculum is to provide students with a broad overall education, solid grounding in the common body of knowledge of business administration, and exposure to accounting in sufficient depth to help them achieve entry-level competence for pursuit of a career in industry. The department also offers a five-year integrated program approach to receive the Master of Accountancy degree, which leads to the simultaneous award of the B.S.B.A. and the Master of Accountancy degrees. The integrated program is designed for students who wish to concentrate in accounting and obtain education in an accounting specialization. The objective of the integrated program is to provide students with advanced knowledge of accounting and business topics in order to obtain an accelerated position in accounting or help them launch a career in public accounting. Those students who are not accepted into the integrated program or choose not to enroll in the integrated program will be allowed to graduate with a B.S.B.A. upon successful completion of the B.S.B.A. degree requirements and Accounting Major Requirements detailed below.

<b>Accounting Major Requirements</b>	<b>Hours</b>
Complete the requirements for a B.S.B.A. degree as listed on page 203.	
<b>Total General Education</b>	60
<b>Walton College Core Requirements (See page 206)</b>	33
<b>Course Requirements in the Major</b>	27
ACCT 2013 Accounting Principles	3
ACCT 3533 Accounting Technology	3
ACCT 3613 Managerial Uses of Accounting Information	3
ACCT 3723 Intermediate Accounting I	3
ACCT 3753 Intermediate Accounting II	3
ACCT 3843 Fundamentals of Taxation	3
ACCT 4673 Product, Project and Service Costing	3



ACCT 4963 Audit and Assurance Services	3
Choose a total of three hours from any of the following courses:	3
ACCT 310V Spring Accounting Internship	3
ACCT 410V Special Topics in Accounting	3
ACCT 4003H Honors Accounting Colloquium	3
ISYS 2263 Introduction to Information Systems	3
WCOB 4213 ERP Fundamentals	3
Walton College Study Abroad Course	3
<b>Junior- senior-level electives within Walton College</b>	12
Maximum of 30 hours of ACCT courses in department (core, major, elective).	
More than 30 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
<b>Total Walton College Requirements</b>	60
<b>Total Degree Requirements</b>	126

NOTE: Selection of electives should be made in consultation with academic advisers. Students planning on taking professional examinations should ascertain course requirements by examining authorities. Successful completion of a Master of Accountancy Degree from the University of Arkansas will qualify a student to take the CPA examination in Arkansas. B.S.B.A. graduates would need additional accounting hours and other courses amounting to a total of 150 semester hours to sit for the CPA exam in Arkansas.

#### Accounting B.S.B.A.

##### Eight-Semester Degree Program:

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

##### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connection</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
<b>15</b>	<b>Semester Hours</b>

##### Spring Semester Year 1

3	<i>ENGL 1023 Composition II</i> - University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
<b>16</b>	<b>Semester Hours</b>

##### Fall Semester Year 2

3	MATH 2043 Survey of Calculus **
3	ECON 2013 Macroeconomics ** - University Core
3	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
3	Select ONE of the following:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
3	<i>Social Science</i> – University Core
3	<i>Fine Art/Humanities</i> – University Core
<b>18</b>	<b>Semester Hours</b>

##### Spring Semester Year 2

3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<b>ACCT 2013 Accounting Principles</b>
6	Select TWO of the following not completed in previous semester:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
<b>16</b>	<b>Semester Hours</b>

ALL pre-business requirements should be met by end of term

##### Fall Semester Year 3

3	<b>ACCT 3723 Intermediate Accounting I</b>
3	<b>ACCT 3613 Managerial Uses of Accounting Information</b>
6	WCOB 3016 Business Strategy and Planning
3	<i>General Education Elective</i>
<b>15</b>	<b>Semester hours</b>

##### Spring Semester Year 3

3	<b>ACCT 3533 Accounting Technology</b>
3	<b>ACCT 3753 Intermediate Accounting II</b>
3	<b>ACCT 3843 Fundamentals of Taxation</b>
3	Junior Senior Business Elective
4	<i>General Education Elective</i>
<b>16</b>	<b>Semester hours</b>

##### Fall Semester Year 4

3	<b>ACCT 4673 Production Project and Service Costing</b>
3	<b>ACCT 4963 Audit and Assurance Services</b>
3	Junior Senior Business Electives
3	<i>General Education Electives</i>
3	<i>Business Social Science</i>
<b>15</b>	<b>Semester hours</b>

##### Spring Semester Year 4

3	Choose a total of three credit hours from any of the courses below:
	<b>ACCT 310V Accounting Internship</b>
	<b>ACCT 410V Special Topics</b>
	<b>ACCT 4003H Honors Accounting Colloquium</b>
	<b>WCOB 4213 ERP Fundamentals</b>
	<b>ISYS 2263 Introduction to Information Systems</b>
	<b>3 credit hours of WCOB Study Abroad</b>
6	Junior Senior Business Electives
6	<i>General Education Electives</i>
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>

\* Must be taken prior to fall semester of sophomore year

\*\* Must be taken prior to fall semester of junior year

#### Accounting Minor for Business Students

The Department of Accounting offers a minor for Walton College students desiring more knowledge of accounting to assist them in their business careers. The minor requires the completion of 15 specific hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include the following courses:

ACCT 2013 Accounting Principles
ACCT 3533 Accounting Technology
ACCT 3613 Managerial Uses of Accounting Information
ACCT 3723 Intermediate Accounting I
ACCT 3843 Fundamentals of Taxation

Students who desire to earn an Accounting minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

#### B.S.B.A./M.Acc.: Integrated Program

The integrated program to the Master of Accountancy is a five-year program of undergraduate and graduate coursework that allows outstanding students to earn the B.S.B.A. and the Master of Accountancy (M.Acc.) degrees at the same time. The professional curriculum, which usually begins in the student's junior year, includes specially designed accounting courses taught in relatively small classes by full-time faculty members. Students accepted into the integrated degree program may concurrently enroll in undergraduate and graduate level courses.

Because M.Acc. graduates are expected to become leaders in the accounting profession, highly motivated students with the personal qualities and intellectual capacity to establish successful careers in public accounting, industry, not-for-profit organizations, and higher education are encouraged to apply.

##### Admission

Students are admitted to the integrated program according to the following

requirements. Admission is granted only for the fall semester; July 1 is the application deadline for those who wish to begin the integrated program the following fall. Students interested in this program must have completed 90 credit hours of study towards the baccalaureate degree (including ACCT 2013, ACCT 3533, ACCT 3613, ACCT 3723) by the July 1 deadline:

Acceptance into the integrated program is based upon the discretion of the admissions committee. The committee considers the overall quality of the applications including the overall grade point average, the grades in ACCT 2013, ACCT 3533, ACCT 3613, ACCT 3723 and the Graduate Management Admission Test (GMAT), as well as other relevant examples of academic ability and leadership. To receive serious consideration by the admissions committee, a student should have a minimum GPA of 3.0 within the applicant's overall university and accounting coursework. Due to the demand for seats in the program, the admissions committee selectively restricts admission into the program based upon the availability of instructional resources. Students must complete at least two long-session semesters in residence in the M.Acc. program.

Transfer students will be handled on a case-by-case basis.

**Satisfactory Progress**

Students are expected to make continuous progress toward the degree by completing required accounting coursework each semester. Students who fail to meet the requirements for the M.Acc. program must choose another major of study or finalize their B.S.B.A. in Accounting. Students will be notified before this action is taken and should meet with an academic advisor in the Undergraduate Programs Office upon notification.

**Probation**

A student is placed on probation if his or her grade point average in core undergraduate accounting courses falls below 3.00. Except with the consent of the M.Acc. Program Director a student on probation may not take graduate accounting courses.

**Graduation**

To receive an integrated B.S.B.A./M.Acc. degree, a student must have a grade point average of at least 3.00 in all coursework taken as part of the minimum thirty hour M.Acc. degree. He or she must also have a grade point average in graduate accounting coursework of at least 3.00.

**Degree Requirements**

The requirements of B.S.B.A./M.Acc. Integrated program are:

1. Undergraduate coursework
  - a. Complete the requirements for the B.S.B.A. degree requirements and Accounting Major Requirements detailed above.
  - b. Students are strongly encouraged, but not required, to participate in an accounting internship, ACCT 310V.
2. Graduate coursework

Students with appropriate backgrounds in business administration and economics and with an undergraduate concentration in accounting will be required to complete 30 semester hours of course work beyond the baccalaureate degree, at least 21 semester hours of which must be in courses reserved exclusively for graduate students..

All students must be enrolled for a minimum of 12 hours during consecutive fall/spring semesters. The student must be in residence a minimum of 24 weeks (see residency requirements of the Master of Arts/Master of Science).

A minimum of 18 semester hours of accounting are required, 12 hours of which are specified:

- ACCT 5413 Advanced Financial Accounting
- ACCT 5433 Fraud Prevention and Detection
- ACCT 5953 Auditing Standards
- ACCT 5873 Advanced Taxation

A minimum of six semester hours of the student's graduate program must be non-accounting electives.

The M.Acc. degree program does not require a thesis. Successful completion of integrated B.S.B.A./M.Acc program from the University of Arkansas will qualify a student to take relevant professional examinations.

For further information, write to the M.Acc. Adviser, Department of Accounting, Walton College of Business, University of Arkansas, Fayetteville, AR 72701 or contact the Graduate School of Business at gsb@walton.uark.edu.

See Page 308 for Accounting (ACCT) courses  
See Page 325 for Business Law (BLAW) courses.

**ECONOMICS (ECON)**

Gary D. Ferrier  
Department Chair, 402 WCOB, 479-575-ECON (3266)

**FACULTY**

- Lewis E. Epley Jr. Professorship in Economics and University Professor Ferrier
- University Professors Britton, Gay
- Margaret Gerig and R.S. Martin, Jr. Chair in Business and Professor Farmer
- Professors Curington, Deck, Dixon, Horowitz, Ziegler
- ConocoPhillips Chair in International Economics and Business and Associate Professor Kali
- Associate Professors Mendez, Reyes
- Assistant Professors Civelli, Gu, Hao, Jahedi
- Clinical Associate Professor Stapp
- Clinical Assistant Professor Embaye
- Instructor Jensen (S.)

The department of economics offers two concentrations within the business economics major:

- 1) business economics
- 2) international economics and business.

The concentration in business economics is intended for those students who are interested primarily in business, but at the same time have a desire to understand the more advanced tools of economic analysis. Such a background is excellent preparation for careers in corporate research and planning, as well as careers with government and regulatory agencies, for graduate study in business and economics, and for law school. Students who want to pursue an advanced degree in business economics can, with appropriate planning, complete a master's degree at the University of Arkansas within 12 months after receiving a B.S.B.A. degree. Please see the economics department chair for more information.

The international economics and business concentration is intended for students who wish to learn more about the international aspects of economics and business. It provides preparation for a broad range of careers in business, including management, marketing, and finance.

It is strongly recommended that economics majors who plan to continue their studies at the graduate level take at least two semesters of calculus (MATH 2554 and MATH 2564) and linear algebra (MATH 3083). These courses will substitute for the math courses required within Walton College core (MATH 2043 and MATH 2053).

**Business Economics Concentration**

The major in Business Economics requires 24 hours of major and collateral courses in the discipline as well as satisfying the other requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in a WCOB major or discipline field of study (i.e., core, major, electives) unless the extra courses are part of an interdisciplinary minor or collateral track. See an adviser for selection of courses.

The courses required for the business economics concentration include those required in Walton College and Fulbright College. In addition, 15 hours of specified courses (listed below) are required:

Complete the requirements for a B.S.B.A. degree as listed on page 208.	<b>Hours</b>
<b>Total General Education</b>	<b>60</b>
<b>Walton College Core Requirements</b> (See page 206)	<b>33</b>
<b>Course Requirements in the concentration</b>	<b>24</b>
ECON 3033 Microeconomic Theory	3
ECON 3133 Macroeconomic Theory	3
ECON 4333 Economics of Organizations	3
ECON 4743 Intro. to Econometrics, or ECON 4753 Forecasting	3
Nine hours of ECON 3000/4000	9

Collateral Course (may be selected from MATH 2603, MATH 2564, MATH 2574, AGEC 3413, AGEC 5133, GEOG 3353, and any upper division course in ACCT, FINN, ISYS, MGMT, MKTG, MATH, and STAT)	3
<b>Junior- senior-level electives within Walton College</b>	<b>15</b>
Maximum of 27 hours of ECON courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
<b>Total Walton College Requirements</b>	<b>60</b>
<b>Total Degree Requirements</b>	<b>126</b>

### International Economics and Business Concentration

The major in International Economics requires 24 hours of major and collateral courses in the discipline as well as satisfying the other requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in a Walton College of Business major or discipline field of study (i.e., core, major, electives) unless the extra course is part of an interdisciplinary minor or collateral track. See an adviser for selection of courses. The courses required for the international economics and business concentration include those required in Walton College and Fulbright College. In addition, 24 hours of economics and business courses, six hours of a single foreign language at the intermediate level or above, and three hours at the upper-division level in business communications, or equivalent, in the same foreign language are specified, and nine hours of upper division courses in the Fulbright College in an area of study related to the foreign language studied.

Complete the requirements for a B.S.B.A. degree as listed on page 208.	<b>Hours</b>
<b>University Core</b>	<b>35</b>
<b>Additional University Core</b>	<b>9</b>
<b>Walton College Core Requirements</b> (See page 206)	<b>33</b>
<b>Course Requirements in the concentration</b>	<b>24</b>
ECON 3033 Microeconomic Theory	3
ECON 3133 Macroeconomic Theory	3
ECON 4633 International Trade	3
ECON 4643 International Macroeconomics and Finance	3
ECON Electives or Collateral Courses	<b>6</b>
Select two classes (six hours) from the following:	6
FINN 3703 International Finance	
MGMT 4583 International Management	
MKTG 4633 Global Marketing	
SPCM 3643 International Transportation and Logistics	
ECON 3853 Emerging Markets	
ECON 3843 Economic Development, World Bank, and Multilateral Finance	
ECON 3933 The Japanese Economic System	
Other courses may fulfill this requirement as approved by the economics department chair	
<b>Foreign Language Requirements</b>	<b>9</b>
Students whose native language is English or whose native language is not taught at the University of Arkansas must complete nine hours of university course work in a single foreign language — six hours of intermediate language and three hours of upper-division course work in communications and business language, or equivalent. Students who, on the basis of prior knowledge of language, omit one or both courses in the intermediate language sequence — at 2003 and 2013 level — may receive degree credit for omitted courses if they validate their higher placement by passing the business language course (or equivalent) with a grade of “C” or above. Students with no previous foreign language training or only rudimentary knowledge of a foreign language will be required to complete up to six hours of elementary language — at 1003 and 1013 level — in addition to the nine hours of language specified above.	
Students may select one of the following language tracks:	

Arabic – ARAB 2013, ARAB 2016, ARAB 3016 or equivalent  
 Chinese – CHIN 2003, CHIN 2013, CHIN 3033, and any other upper division CHIN  
 French – FREN 2003, FREN 2013, FREN 4333, FREN 3033 or FREN 3003  
 German – GERM 2003, GERM 2013, GERM 3003, and GERM 4333  
 Italian – ITAL 2003, ITAL 2013, ITAL 3003, and ITAL 3013  
 Japanese – JAPN 2003, JAPN 2013, JAPN 3003, and JAPN 3013  
 Spanish – SPAN 2003, SPAN 2013, SPAN 3003, and SPAN 4333  
 Students whose native language is not English but is taught at the University of Arkansas must select a third language from the list above, or substitute six hours of upper-division English language courses (i.e., speech, writing, or U.S. literature), to be selected with the consent of the department chair. Those students whose native language is not taught at the University of Arkansas will normally be required to select a third language.

<b>Area Studies Requirements</b>	<b>Hours</b>
For students taking a foreign language, nine hours of upper-division course work in the J. William Fulbright College of Arts and Sciences are required. Domestic students can satisfy this requirement in one of three ways:	<b>9</b>
1) any upper division foreign language course,	
2) minor in a foreign language, and/or	
3) select upper division courses related to the foreign language to include:	
Arabic – any upper division course for Middle Eastern Studies (MEST) to include MEST 4003, MEST 4003H or additional courses listed under MEST in the university catalog.	
Chinese/Japanese/Asian Studies – any upper division course for Asian Studies (AIST)	
French – any upper division course for EUST	
German – any upper division course for EUST	
Italian – any upper division course for EUST	
Spanish – any upper division course for Latin American Studies (LAST) or European Studies (EUST) to include LAST 4003, LAST 4003H, or additional courses listed under LAST in the university catalog, or EUST 399VH, EUST 4003, EUST 4003H, EUST 470V, or EUST 470VH or additional courses listed under EUST in the University catalog.	
International students may satisfy this requirement in one of two ways:	
1) For students who choose to take a third language, area studies requirements are the same as those for domestic students.	
2) For students who choose to take six hours of upper division English to satisfy their language requirement, 9 hours of upper division course work in the J. William Fulbright College of Arts and Sciences pertaining to the United States to include any upper division course for American Studies (AMST) listed in the university catalog.	
<b>Junior- senior-level electives within Walton College</b>	<b>13</b>
Maximum of 27 hours of ECON courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
General Education Electives	7
<b>Total Degree Requirements</b>	<b>126</b>
(Total is more than the sum of the categories because some courses count for multiple requirements.)	

### Economics B.S.B.A. with Business Economics Concentration Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these course are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I* – University Core
- 3 MATH 2053 **Finite Math** – University Core
- 3 COMM 1313 **Public Speaking**
- 1 WCOB 1111 **Freshman Business Connections**
- 2 WCOB 1012 **Legal Environment of Business \***
- 0 WCOB 1120 **Computer Competency Requirement**
- 3 U.S. *History or Political Science* – University Core
- 15 **Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II* - University Core
- 3 WCOB 1023 **Business Foundations**
- 3 WCOB 1033 **Data Analysis and Interpretation**
- 3 ECON 2023 **Microeconomics** – University Core
- 4 *Natural Science* – University Core
- 16 **Semester Hours**

**Fall Semester Year 2**

- 3 MATH 2043 *Survey of Calculus \*\**
- 3 ECON 2013 *Macroeconomics \*\** - University Core
- 6 Select TWO of the following:  
 WCOB 2013 **Markets and Consumers**  
 WCOB 2023 **Production and Delivery of Goods and Services**  
 WCOB 2033 **Acquiring and Managing Human Capital**  
 WCOB 2043 **Acquiring and Managing Financial Resources**
- 3 *Social Science* – University Core
- 3 *Fine Art/Humanities* – University Core
- 18 **Semester Hours**

**Spring Semester Year 2**

- 3 *Fine Art/Humanities* – University Core
- 4 *Natural Science* – University Core
- 3 *Business Social Science*
- 6 Select TWO of the following not completed in previous semester:  
 WCOB 2013 **Markets and Consumers**  
 WCOB 2023 **Production and Delivery of Goods and Services**  
 WCOB 2033 **Acquiring and Managing Human Capital**  
 WCOB 2043 **Acquiring and Managing Financial Resources**
- 16 **Semester Hours**

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

- 3 ECON 3033 **Microeconomic Theory**
- 3 ECON elective
- 6 WCOB 3016 **Business Strategy and Planning**
- 3 Junior Senior Business Elective
- 15 **Semester hours**

**Spring Semester Year 3**

- 3 ECON 3133 **Macroeconomic Theory**
- 3 ECON 4743 **Introduction to Econometrics** (or ECON 4753 **Forecasting in Fall of Year 4**)
- 6 Junior Senior Business Electives
- 3 *General Education Elective*
- 15 **Semester hours**

**Fall Semester Year 4**

- 3 ECON 4333 **Economics of Organizations**
- 3 ECON elective
- 3 Collateral Course
- 7 *General Education Electives*
- 16 **Semester hours**

**Spring Semester Year 4**

- 3 ECON elective
- 6 *General Education Electives*
- 6 Junior Senior Business Electives
- 15 **Semester hours**
- 126 **Total hours**

\* Must be taken prior to fall semester of sophomore year  
 \*\* Must be taken prior to fall semester of junior year

**Economics B.S.B.A. with International Economics and Business Concentration Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these course are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I* – University Core
- 3 MATH 2053 **Finite Math** – University Core
- 3 COMM 1313 **Public Speaking**
- 1 WCOB 1111 **Freshman Business Connections**
- 2 WCOB 1012 **Legal Environment of Business \***
- 0 WCOB 1120 **Computer Competency Requirement**
- 3 *Intermediate Foreign Language I (2003 level)*
- 15 **Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II* - University Core
- 3 WCOB 1023 **Business Foundations**
- 3 WCOB 1033 **Data Analysis and Interpretation**
- 3 ECON 2023 **Microeconomics** – University Core
- 4 *Intermediate Foreign Language II (2013 level)*
- 16 **Semester Hours**

**Fall Semester Year 2**

- 3 MATH 2043 *Survey of Calculus \*\**
- 3 ECON 2013 *Macroeconomics \*\** - University Core
- 6 Select TWO of the following:  
 WCOB 2013 **Markets and Consumers**  
 WCOB 2023 **Production and Delivery of Goods and Services**  
 WCOB 2033 **Acquiring and Managing Human Capital**  
 WCOB 2043 **Acquiring and Managing Financial Resources**
- 3 *Social Science* – University Core
- 3 U.S. *History or Political Science*
- 18 **Semester Hours**

**Spring Semester Year 2**

- 3 *Fine Art/Humanities* – University Core
- 4 *Natural Science* – University Core
- 3 *Business Social Science*
- 6 Select TWO of the following not completed in previous semester:  
 WCOB 2013 **Markets and Consumers**  
 WCOB 2023 **Production and Delivery of Goods and Services**  
 WCOB 2033 **Acquiring and Managing Human Capital**  
 WCOB 2043 **Acquiring and Managing Financial Resources**
- 16 **Semester Hours**

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

- 3 ECON 3033 **Microeconomic Theory**
- 3 ECON or collateral elective
- 6 WCOB 3016 **Business Strategy and Planning**
- 3 Junior Senior Business Elective
- 15 **Semester hours**

**Spring Semester Year 3**

- 3 ECON 3133 **Macroeconomic Theory**
- 3 ECON 4633 **International Trade Policy**
- 3 Area Studies Course
- 3 Junior Senior Business Elective
- 3 *General Education Elective*
- 15 **Semester hours**

**Fall Semester Year 4**

- 3 ECON 4643 **International Macroeconomics and Finance**
- 3 International Economics/Business elective
- 3 Area Studies Course
- 1 *General Education Elective*
- 4 *Natural Science* – University Core
- 3 Junior Senior Business Elective
- 17 **Semester hours**

**Spring Semester Year 4**

- 3 International Economics/Business elective
- 3 ECON or collateral elective

3	Area Studies Course
6	Junior Senior Business Electives
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>

- \* Must be taken prior to fall semester of sophomore year  
 \*\* Must be taken prior to fall semester of junior year

### Economics Minor for Business Students

The Department of Economics offers a minor for Walton College students desiring more knowledge of economics to assist them in their business careers. The minor requires completion of 15 hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include the following courses:

- ECON 2013 Principles of Macroeconomics  
 ECON 2023 Principles of Microeconomics

Plus nine hours of upper division course work in economics.

Students who desire to earn an Economics minor must notify the Walton College Undergraduate Programs Office of their intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

## FINANCE (FINN)

Pu Liu  
 Department Chair, 302 WCOB, 479-575-4505

### FACULTY

- J.W. Bellamy Chair in Banking and Professor Dominick
- Garrison Chair in Finance and Alice L. Walton Chair in Finance and Professor Lee
- Harold A. Dulan Finance Chair in Capital Formation and Robert E. Kennedy Chair in Finance and Professor Liu
- Dillard Department Store Chair in Corporate Finance and Professor Millar
- Clete and Tammy Brewer Professorship in Business and Associate Professor Rennie
- Arkansas Bankers Association Chair in Banking and Associate Professor Yeager
- Associate Professors Hearth, Jandik
- Assistant Professors Fogel, Kangzhen, Malakhov
- Instructors Driver, Morris, Risk, Webster

The academic mission of the department of finance is to provide an educational experience that:

- stimulates student learning through open dialogue and informative discussion both inside and outside the classroom;
- actively engages students in their own learning through problem-based caseworks, participation in real-world business activities, and internships in the financial community; and
- prepares students to successfully meet the rigors of the challenging and diverse career opportunities in finance.

### Finance Major

Students who elect to major in finance can choose from one of five concentrations: banking; financial management/investment; insurance; real estate, and personal financial management. This choice should reflect the student's primary career focus and electives should be used to complement the coursework in the chosen concentration. Careers in finance that are analytically oriented will generally require proficiency in accounting, economics, and quantitative methods. In contrast, careers in finance that are sales or management oriented will generally require marketing and management skills. Finance majors are strongly encouraged to consult with departmental faculty advisers and/or the department chair in developing their curriculum.

### Finance Major Requirements with Concentrations

Complete the requirements for a B.S.B.A. degree as listed on page 208.

	<b>Hours</b>
<b>Total General Education</b>	60
<b>Walton College Core Requirements</b> (See page 206)	33
<b>Course Requirements in the concentration</b>	24
FINN 3013 Financial Analysis and Valuation	3
FINN 3053 Financial Markets and Institutions	3
FINN 3703 International Finance	3
NOTE: These required courses represent a common body of knowledge for all finance majors and should be taken prior to coursework specified in concentrations within the major.	
<b>Concentration I: Banking</b>	
FINN 3103 Financial Modeling	3
FINN 3133 Commercial Banking	3
FINN 4313 Advanced Commercial Banking Finance	3
<b>Concentration II: Financial Management/Investment</b>	
FINN 3103 Financial Modeling	3
Plus one of the following options (six hours):	
<b>Option 1:</b> Any two of the four courses listed below	
FINN 3063 Investments	3
FINN 3603 Corporate Finance	3
FINN 4133 Advanced Investments	3
FINN 4233 Advanced Corporate Finance	3
<b>Option 2:</b>	
FINN 4143 Portfolio Management I	3
FINN 4153 Portfolio Management II	3
<b>Option 3:</b>	
FINN 4163 Fixed Income Securities I	3
FINN 4173 Fixed Income Securities II	3
Finance or interdisciplinary electives	6
<b>Concentration III: Insurance</b>	
FINN 3623 Risk Management	3
FINN 4733 Life/Health Insurance I	3
FINN 4833 Property/Casualty Insurance I	3
Finance or interdisciplinary electives	6
<b>Concentration IV: Real Estate</b>	
FINN 3933 Real Estate Principles	3
FINN 4413 Real Estate Investment and Appraisal	3
FINN 4433 Real Estate Finance and Investment	3
Finance or interdisciplinary electives	6
<b>Concentration V: Personal Financial Management</b>	
FINN 3003 Personal Financial Management	3
FINN 3063 Investments	3
FINN 3623 Risk Management	3
FINN 4013 Seminar in Financial Planning	3
FINN 4733 Life and Health Insurance I	3
The following courses are strongly recommended for the Personal Financial Management concentration and may be used toward the junior/senior business elective requirements:	
ACCT 3843 Fundamentals of Taxation	3
ACCT 5883 Individual Tax Planning	3
The highly recommended courses listed below satisfy the six-credit-hour interdisciplinary requirement in the major:	
<b>Accounting</b>	
ACCT 3723 Intermediate Accounting I	3
ACCT 3753 Intermediate Accounting II	3

<b>Economics</b>	
ECON 3733 Experimental Economics	3
<b>Information Systems</b>	
ISYS 2263 Introduction to Information Systems	3
<b>Management</b>	
MGMT 4433 Small Enterprise Management	3
MGMT 3933 Entrepreneurship and New Venture Development	3
<b>Marketing</b>	
MKTG 3633 Marketing Research	3
MKTG 3553 Consumer Behavior	3
<b>Supply Chain Management</b>	
SPCM 3613 Business Logistics	3
SPCM 3623 Purchasing and Inventory Systems	3
<b>Junior- senior-level electives within Walton College</b>	15
Maximum of 27 hours of FINN courses in department (core, major, elective).	
More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
<b>Total Walton College Requirements</b>	60
<b>Total Degree Requirements</b>	126

**Finance B.S.B.A. with Banking Concentration  
Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.  
Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I* – University Core
- 3 MATH 2053 **Finite Math** – University Core
- 3 COMM 1313 **Public Speaking**
- 1 WCOB 1111 **Freshman Business Connections**
- 2 WCOB 1012 *Legal Environment of Business* \*
- 0 WCOB 1120 **Computer Competency Requirement**
- 3 U.S. *History or Political Science* – University Core
- 15 Semester Hours

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II* – University Core
- 3 WCOB 1023 **Business Foundations**
- 3 WCOB 1033 **Data Analysis and Interpretation**
- 3 ECON 2023 **Microeconomics** – University Core
- 4 *Natural Science* – University Core
- 16 Semester Hours

**Fall Semester Year 2**

- 3 MATH 2043 *Survey of Calculus* \*\*
- 3 ECON 2013 *Macroeconomics* \*\* - University Core
- 6 Select TWO of the following:  
WCOB 2013 **Markets and Consumers**  
WCOB 2023 **Production and Delivery of Goods and Services**  
WCOB 2033 **Acquiring and Managing Human Capital**  
WCOB 2043 **Acquiring and Managing Financial Resources**
- 3 *Social Science* – University Core
- 3 *Fine Art/Humanities* – University Core
- 18 Semester Hours

**Spring Semester Year 2**

- 3 *Fine Art/Humanities* – University Core
- 4 *Natural Science* – University Core
- 3 *Business Social Science*
- 6 Select TWO of the following not completed in previous semester:  
WCOB 2013 **Markets and Consumers**  
WCOB 2023 **Production and Delivery of Goods and Services**  
WCOB 2033 **Acquiring and Managing Human Capital**  
WCOB 2043 **Acquiring and Managing Financial Resource**
- 16 Semester Hours

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

- 3 FINN 3013 **Financial Analysis**
- 3 FINN 3103 *Financial Modeling*
- 6 WCOB 3016 **Business Strategy and Planning**
- 4 *General Education Electives*
- 16 Semester hours

**Spring Semester Year 3**

- 3 FINN 3053 **Financial Markets and Institutions**
- 3 FINN 3133 **Commercial Banking**
- 6 *Junior Senior Business Electives*
- 3 *General Education Elective*
- 15 Semester hours

**Fall Semester Year 4**

- 3 FINN 3703 **International Finance**
- 3 *Finance or Interdisciplinary Electives*
- 6 *Junior Senior Business Electives*
- 3 *General Education Elective*
- 15 Semester hours

**Spring Semester Year 4**

- 3 FINN 4313 **Advanced Commercial Banking**
- 3 *Finance or Interdisciplinary Electives*
- 3 *Junior Senior Business Elective*
- 6 **General Education Electives**
- 15 Semester hours
- 126 Total hours

- \* Must be taken prior to fall semester of sophomore year
- \*\* Must be taken prior to fall semester of junior year

**Finance B.S.B.A. with Financial Management and Investment Concentration  
Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.  
Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I* – University Core
- 3 MATH 2053 **Finite Math** – University Core
- 3 COMM 1313 **Public Speaking**
- 1 WCOB 1111 **Freshman Business Connections**
- 2 WCOB 1012 *Legal Environment of Business* \*
- 0 WCOB 1120 **Computer Competency Requirement**
- 3 U.S. *History or Political Science* – University Core
- 15 Semester hours

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II* – University Core
- 3 WCOB 1023 **Business Foundations**
- 3 WCOB 1033 **Data Analysis and Interpretation**
- 3 ECON 2023 **Microeconomics** – University Core
- 4 *Natural Science* – University Core
- 16 Semester hours

**Fall Semester Year 2**

- 3 MATH 2043 *Survey of Calculus*\*\*
- 3 ECON 2013 *Macroeconomics*\*\* - University Core
- 6 Select TWO of the following:  
WCOB 2013 **Markets and Consumers**  
WCOB 2023 **Production and Delivery of Goods and Services**  
WCOB 2033 **Acquiring and Managing Human Capital**  
WCOB 2043 **Acquiring and Managing Financial Resources**
- 3 *Social Science* – University Core
- 3 *Fine Art/Humanities* – University Core
- 18 Semester hours

**Spring Semester Year 2**

- 3 *Fine Art/Humanities* – University Core
- 3 *Business Social Science*
- 4 *Natural Science* – University Core
- 6 Select TWO of the following not completed in previous semester:  
WCOB 2013 **Markets and Consumers**  
WCOB 2023 **Production and Delivery of Goods and Services**

WCOB 2033 Acquiring and Managing Human Capital WCOB 2043 Acquiring and Managing Financial Resources	
<b>16</b>	<b>Semester hours</b>
ALL pre-business requirements should be met by end of term	
<b>Fall Semester Year 3</b>	
3	FINN 3013 Financial Analysis
3	FINN 3103 Financial Modeling
6	WCOB 3016 Business Strategy and Planning
3	Junior Senior Business Elective
<b>15</b>	<b>Semester hours</b>
<b>Spring Semester Year 3</b>	
3	FINN 3053 Financial Markets and Institutions
6	Junior Senior Business Electives
3	Finance or Interdisciplinary Elective
3	General Education Elective
<b>15</b>	<b>Semester hours</b>
<b>Fall Semester Year 4</b>	
6	Junior Senior Business Electives
7	General Education Electives
3	Finance Option Class***
<b>16</b>	<b>Semester hours</b>
<b>Spring Semester Year 4</b>	
3	FINN 3703 International Finance
3	Finance or interdisciplinary elective
6	General Education Electives
3	Finance option class***
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>
* Must be taken prior to fall semester of sophomore year	
** Must be taken prior to fall semester of junior year	
*** If student selects Option 2 (FINN 4143 and 4153) under the Financial Management concentration, they must take ACCT 2013 as a junior senior business elective in Spring of their sophomore year, ACCT 3723 as a junior senior business elective in Fall of their junior year, and FINN 3063 as either a junior senior business elective or a finance/interdisciplinary elective in Spring of their junior year. If student selects Option 3 (FINN 4163 and 4173) they must take FINN 3063 as either a junior senior business elective or a finance/interdisciplinary elective in their junior year.	

### Finance B.S.B.A. with Insurance Concentration

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

#### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
<b>15</b>	<b>Semester Hours</b>

#### Spring Semester Year 1

3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
<b>16</b>	<b>Semester Hours</b>

#### Fall Semester Year 2

3	MATH 2043 Survey of Calculus **
3	<i>ECON 2013 Macroeconomics</i> ** – University Core
6	Select TWO of the following: <b>WCOB 2013 Markets and Consumers</b>

WCOB 2023 Production and Delivery of Goods and Services WCOB 2033 Acquiring and Managing Human Capital WCOB 2043 Acquiring and Managing Financial Resources	
3	<i>Social Science</i> – University Core
3	<i>Fine Art/Humanities</i> – University Core
<b>18</b>	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<i>Business Social Science</i>
6	Select TWO of the following not completed in previous semester: <b>WCOB 2013 Markets and Consumers</b> <b>WCOB 2023 Production and Delivery of Goods and Services</b> <b>WCOB 2033 Acquiring and Managing Human Capital</b> <b>WCOB 2043 Acquiring and Managing Financial Resources</b>
<b>16</b>	<b>Semester Hours</b>
ALL pre-business requirements should be met by end of term	
<b>Fall Semester Year 3</b>	
3	<b>FINN 3013 Financial Analysis</b>
3	FINN 3623 Risk Management
6	WCOB 3016 Business Strategy and Planning
4	<i>General Education Electives</i>
<b>16</b>	<b>Semester hours</b>
<b>Spring Semester Year 3</b>	
3	FINN 3053 Financial Markets and Institutions
3	<b>FINN 4833 Property and Casualty Insurance I</b>
6	Junior Senior Business Electives
3	<i>General Education Elective</i>
<b>15</b>	<b>Semester hours</b>
<b>Fall Semester Year 4</b>	
3	FINN 3703 International Finance
3	<b>FINN 4733 Life and Health Insurance I</b>
6	Junior Senior Business Electives
3	<i>General Education Elective</i>
<b>15</b>	<b>Semester hours</b>
<b>Spring Semester Year 4</b>	
6	Finance or Interdisciplinary Electives
3	Junior Senior Business Elective
6	<i>General Education Electives</i>
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>
* Must be taken prior to fall semester of sophomore year	
** Must be taken prior to fall semester of junior year	

### Finance B.S.B.A. with Personal Financial Management Concentration

#### Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

#### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
<b>15</b>	<b>Semester Hours</b>

#### Spring Semester Year 1

3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
<b>16</b>	<b>Semester Hours</b>

**Fall Semester Year 2**

- 3 MATH 2043 Survey of Calculus \*\*
- 3 ECON 2013 Macroeconomics \*\* - University Core
- 3 WCOB 2043 Acquiring and Managing Financial Resources
- 3 Select ONE of the following:  
 WCOB 2013 Markets and Consumers  
 WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital
- 3 Social Science – University Core
- 3 Fine Art/Humanities – University Core
- 18 Semester Hours

**Spring Semester Year 2**

- 3 Fine Art/Humanities – University Core
- 4 Natural Science – University Core
- 3 ACCT 2013 Accounting Principles
- 6 Select TWO of the following not completed in previous semester:  
 WCOB 2013 Markets and Consumers  
 WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital
- 16 Semester Hours

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

- 3 ACCT 3723 Intermediate Accounting I (Jr Sr Business elective)
- 3 FINN 3003 Personal Financial Management
- 3 FINN 3013 Financial Analysis
- 6 WCOB 3016 Business Strategy and Planning
- 15 Semester hours

**Spring Semester Year 3**

- 3 ACCT 3843 Fundamentals of Taxation (Jr Sr Business Elective)
- 3 FINN 3063 Principles of Investments
- 3 FINN 3623 Risk Management
- 3 General Education Elective
- 3 General Education Elective
- 15 Semester hours

**Fall Semester Year 4**

- 3 FINN 3703 International Finance
- 3 FINN 4733 Life and Health Insurance
- 3 Junior Senior Business Elective
- 3 Business Social Science
- 4 General Education Electives
- 16 Semester hours

**Spring Semester Year 4**

- 3 FINN 3053 Financial Markets and Institutions
- 3 FINN 4013 Seminar in Financial Planning
- 3 Junior Senior Business Elective
- 6 General Education Electives
- 15 Semester hours
- 126 Total hours

- \* Must be taken prior to fall semester of sophomore year
- \*\* Must be taken prior to fall semester of junior year
- \*\*\* If a student selects Concentration V under Personal Financial Management, they must take ACCT 2013 as a junior/senior business elective in Spring of their sophomore year and ACCT 3723 in the Fall of their junior year.

**Finance B.S.B.A. with Real Estate Concentration  
Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.  
 Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I – University Core
- 3 MATH 2053 Finite Math – University Core
- 3 COMM 1313 Public Speaking

- 1 WCOB 1111 Freshman Business Connections
- 2 WCOB 1012 Legal Environment of Business \*
- 0 WCOB 1120 Computer Competency Requirement
- 3 U.S. History or Political Science – University Core
- 15 Semester Hours

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II - University Core
- 3 WCOB 1023 Business Foundations
- 3 WCOB 1033 Data Analysis and Interpretation
- 3 ECON 2023 Microeconomics – University Core
- 4 Natural Science – University Core
- 16 Semester Hours

**Fall Semester Year 2**

- 3 MATH 2043 Survey of Calculus \*\*
- 3 ECON 2013 Macroeconomics \*\* - University Core
- 6 Select TWO of the following:  
 WCOB 2013 Markets and Consumers  
 WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital  
 WCOB 2043 Acquiring and Managing Financial Resources
- 3 Social Science – University Core
- 3 Fine Art/Humanities – University Core
- 18 Semester Hours

**Spring Semester Year 2**

- 3 Fine Art/Humanities – University Core
- 4 Natural Science – University Core
- 3 Business Social Science
- 6 Select TWO of the following not completed in previous semester:  
 WCOB 2013 Markets and Consumers  
 WCOB 2023 Production and Delivery of Goods and Services  
 WCOB 2033 Acquiring and Managing Human Capital  
 WCOB 2043 Acquiring and Managing Financial Resources
- 16 Semester Hours

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

- 3 FINN 3013 Financial Analysis
- 3 FINN 3933 Real Estate Principles
- 6 WCOB 3016 Business Strategy and Planning
- 4 General Education Electives
- 16 Semester hours

**Spring Semester Year 3**

- 3 FINN 3053 Financial Markets and Institutions
- 3 FINN 4433 Real Estate Finance
- 6 Junior Senior Business Electives
- 3 General Education Elective
- 15 Semester hours

**Fall Semester Year 4**

- 3 FINN 3703 International Finance
- 3 FINN 4413 Real Estate Investment and Appraisal
- 6 Junior Senior Business Electives
- 3 General Education Elective
- 15 Semester hours

**Spring Semester Year 4**

- 6 Finance or Interdisciplinary Elective
- 3 Junior Senior Business Elective
- 6 General Education Electives
- 15 Semester hours
- 126 Semester hours

- \* Must be taken prior to fall semester of sophomore year
- \*\* Must be taken prior to fall semester of junior year

**Finance Minors for Business Students**

The Department of Finance offers two minor options for Walton College students in the areas of Banking/Financial Management/ Investment and Insurance/Real Estate. The minors require completion of 15 hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include the following options and courses:

1. Banking/Financial Management/Investment	Hours
FINN 3013 Financial Analysis and Valuation	3



<b>Plus two (six hours) of the following courses</b>	6
FINN 3053 Financial Markets and Institutions	
FINN 3103 Financial Modeling	
FINN 3703 International Finance	
<b>Plus two (six hours) of the following courses</b>	6
FINN 3063 Investments	
FINN 3133 Commercial Banking	
FINN 3603 Corporate Finance	
FINN 4133 Advanced Investment	
FINN 4233 Advanced Corporate Finance	
FINN 4313 Advanced Commercial Banking	
<b>Total</b>	15
<b>2. Insurance/Real Estate</b>	
<b>Choose any five classes (fifteen hours) of the following courses</b>	15
FINN 3003 Personal Financial Management	
FINN 3623 Risk Management	
FINN 4733 Life and Health Insurance I	
FINN 4833 Property and Casualty Insurance I	
FINN 3933 Real Estate Principles	
FINN 4413 Real Estate Investment and Appraisal	
FINN 4433 Real Estate Finance	
<b>Total</b>	15

Students who desire to earn a Finance minor must notify the Walton College Undergraduate Programs Office of their intent to pursue a minor. All requirements for a minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor.

See Page 354 for Finance (FINN) courses.

## INFORMATION SYSTEMS (ISYS)

Rajiv Sabherwal  
Department Chair, 204 WCOB, 479-575-4500

### FACULTY

- University Professors Douglas, Jones (T.W.)
- M.D. Matthews Chair in Information Systems and Professor Cronan
- David D. Glass Chair in Information Systems and Distinguished Professor Davis (F.)
- Edwin and Karlee Bradberry and Professor Limayem
- Walton Professorship in Information Systems and Professor Sabherwal
- George and Boyce Billingsley Endowed Chair in Information Systems and Professor Venkatesh
- Assistant Professors Serrano, Setia, Sykes
- Instructors Bristow, McDaniel, Thompson
- Executive in Residence Mullins

The curriculum in information systems is designed to prepare graduates for careers in solving business problems with applications of computer technology.

Graduates with a degree in Information Systems are sought by hundreds of companies for many different types of positions, such as programmer, analyst, database administrator, and web developer, among others. Graduates are now programming, analyzing and designing systems, consulting, teaching, and solving business problems across the country.

### Information Systems Major Requirements

The major in Information Systems requires 24 hours of major and collateral courses in the discipline as well as satisfying the other requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in a WCOB major or discipline field of

study (i.e., core, major, electives) unless the extra courses are part of an interdisciplinary minor. The Information Systems department encourages its majors to seek an interdisciplinary minor. See an adviser for selection of courses.

NOTE: Course requirements in the Information Systems major total 24 credit hours. Because of prerequisites, students should allow two full years (24 months) to complete this coursework. Prerequisites are strictly enforced.

Complete the requirements for a B.S.B.A. degree as listed on page 208. Programming I (CSCE 2003/2001L) is recommended as a general education elective.	<b>Hours</b>
<b>Total General Education</b>	<b>60</b>
<b>Walton College Core Requirements</b> (See page 206)	<b>33</b>
<b>Course Requirements in the Major for All Concentrations</b>	<b>18</b>
ISYS 2263 Introduction to Information Systems	3
ISYS 3293 System Analysis and Design	3
ISYS 3393 Business Applications Development Fundamentals	3
ISYS 4283 Business Database Systems	3
ISYS 4363 Business Project Development	3
WCOB 4213 ERP Fundamentals	3
<b>Note:</b> These required courses represent a common body of knowledge for all information systems majors. Majors must select one of the following concentrations and must complete six additional hours of coursework in the elected concentration.	<b>6</b>
<b>Concentration I: Enterprise Resource Planning</b>	<b>6</b>
WCOB 4223 ERP Configuration and Implementation	
ISYS 4233 Seminar in ERP Development	
<b>Concentration II: Enterprise Systems</b>	<b>6</b>
ISYS 4453 Introduction to Enterprise Servers	
ISYS 4463 Enterprise Transaction Systems	
<b>Concentration III: IT Applications Management</b>	<b>6</b>
ISYS 4243 Current Topics in Computer Information	
ISYS 4373 Application Development with Java	
<b>Junior- senior-level electives or interdisciplinary minor within Walton College</b>	<b>15</b>
Maximum of 27 hours of ISYS courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
<b>Total Walton College Requirements</b>	<b>60</b>
<b>Total Degree Requirements</b>	<b>126</b>

### Information Systems B.S.B.A. with Enterprise Resource Planning Concentration

#### Eight-Semester Degree Program:

Students wishing to follow the eight-semester degree plan for Information Systems should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

#### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
<b>15</b>	<b>Semester hours</b>

#### Spring Semester Year 1

3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core

4 *Natural Science* – University Core**16 Semester hours****Fall Semester Year 2**

3 MATH 2043 Survey of Calculus \*\*

3 ECON 2013 Macroeconomics \*\* - University Core

6 Select TWO of the following:

**WCOB 2013 Markets and Consumers****WCOB 2023 Production and Delivery of Goods and Services****WCOB 2033 Acquiring and Managing Human Capital****WCOB 2043 Acquiring and Managing Financial Resources**3 *Fine Art/Humanities* – University Core3 *Social Science* – University Core**18 Semester hours****Spring Semester Year 2**3 *Fine Art/Humanities* – University Core4 *Natural Science* – University Core

3 ISYS 2263 Intro to Information Systems

6 Select TWO of the following not completed in previous semester:

**WCOB 2013 Markets and Consumers****WCOB 2023 Production and Delivery of Goods and Services****WCOB 2033 Acquiring and Managing Human Capital****WCOB 2043 Acquiring and Managing Financial Resources****16 Semester hours**

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

3 ISYS 3293 Systems Analysis and Design

3 Junior Senior Business Electives

6 WCOB 3016 Business Strategy and Planning

3 *Business Social Science***15 Semester hours****Spring Semester Year 3**

3 ISYS 3393 Business Application Development Fundamentals

3 **WCOB 4213 ERP Fundamentals**

6 Junior Senior Business Electives

3 General Education Elective

**15 Semester hours****Fall Semester Year 4**

3 ISYS 4283 Business Database Systems

3 **WCOB 4223 ERP Configuration and Implementation**7 *General Education Electives*

3 Junior Senior Business Electives

**16 Semester hours****Spring Semester Year 4**

3 ISYS 4363 Business Project Development

3 ISYS 4233 ERP Development

6 *General Education Electives*

3 Junior Senior Business Elective

**15 Semester hours****126 Total hours**

\* Must be taken prior to fall semester of sophomore year

\*\* Must be taken prior to fall semester of junior year

**Information Systems B.S.B.A. with Enterprise Systems Concentration****Eight-Semester Degree Program:**

Students wishing to follow the eight-semester degree plan for Information Systems should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**3 ENGL 1013 *Composition I* – University Core3 MATH 2053 **Finite Math** – University Core3 COMM 1313 **Public Speaking**1 **WCOB 1111 Freshman Business Connections**2 WCOB 1012 *Legal Environment of Business* \*0 **WCOB 1120 Computer Competency Requirement**3 *U.S. History or Political Science* – University Core**15 Semester hours****Spring Semester Year 1**3 ENGL 1023 *Composition II* – University Core3 **WCOB 1023 Business Foundations**3 **WCOB 1033 Data Analysis and Interpretation**3 ECON 2023 **Microeconomics** – University Core4 *Natural Science* – University Core**16 Semester hours****Fall Semester Year 2**

3 MATH 2043 Survey of Calculus \*\*

3 ECON 2013 Macroeconomics \*\* - University Core

6 Select TWO of the following:

**WCOB 2013 Markets and Consumers****WCOB 2023 Production and Delivery of Goods and Services****WCOB 2033 Acquiring and Managing Human Capital****WCOB 2043 Acquiring and Managing Financial Resources**3 *Fine Art/Humanities* – University Core3 *Social Science* – University Core**18 Semester hours****Spring Semester Year 2**3 *Fine Art/Humanities* – University Core4 *Natural Science* – University Core

3 ISYS 2263 Intro to Information Systems

6 Select TWO of the following not completed in previous semester:

**WCOB 2013 Markets and Consumers****WCOB 2023 Production and Delivery of Goods and Services****WCOB 2033 Acquiring and Managing Human Capital****WCOB 2043 Acquiring and Managing Financial Resources****16 Semester hours**

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

3 ISYS 3293 Systems Analysis and Design

3 Junior Senior Business Electives

6 WCOB 3016 Business Strategy and Planning

3 *Business Social Science***15 Semester hours****Spring Semester Year 3**

3 ISYS 3393 Business Application Development Fundamentals

3 **WCOB 4213 ERP Fundamentals**

6 Junior Senior Business Electives

3 General Education Elective

**15 Semester hours****Fall Semester Year 4**3 ISYS 4283 **Centralized Database Systems**3 ISYS 4453 **Introduction to Enterprise Servers**7 *General Education Electives*

3 Junior Senior Business Electives

**16 Semester hours****Spring Semester Year 4**3 ISYS 4363 **Business Project Development**3 ISYS 4463 **Enterprise Transaction Systems**6 *General Education Electives*

3 Junior Senior Business Elective

**15 Semester hours****126 Total hours**

\* Must be taken prior to fall semester of sophomore year

\*\* Must be taken prior to fall semester of junior year

**Information Systems B.S.B.A. with IT Applications Concentration****Eight-Semester Degree Program:**

Students wishing to follow the eight-semester degree plan for Information Systems should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**3 ENGL 1013 *Composition I* – University Core

3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
15	Semester hours
<b>Spring Semester Year 1</b>	
3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
16	Semester hours
<b>Fall Semester Year 2</b>	
3	MATH 2043 Survey of Calculus **
3	<i>ECON 2013 Macroeconomics **</i> - University Core
6	Select TWO of the following:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
3	<i>Fine Art/Humanities</i> – University Core
3	<i>Social Science</i> – University Core
18	Semester hours
<b>Spring Semester Year 2</b>	
3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<b>ISYS 2263 Intro to Information Systems</b>
6	Select TWO of the following not completed in previous semester:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
16	Semester hours
ALL pre-business requirements should be met by end of term	
<b>Fall Semester Year 3</b>	
3	<b>ISYS 3293 Systems Analysis and Design</b>
3	Junior Senior Business Electives
6	WCOB 3016 Business Strategy and Planning
3	<i>Business Social Science</i>
15	Semester hours
<b>Spring Semester Year 3</b>	
3	<b>ISYS 3393 Business Application Development Fundamentals</b>
3	<b>WCOB 4213 ERP Fundamentals</b>
6	Junior Senior Business Electives
3	General Education Elective
15	Semester hours
<b>Fall Semester Year 4</b>	
3	<b>ISYS 4283 Centralized Database Systems</b>
3	<b>ISYS 4373 Application Development with Java</b>
7	<i>General Education Electives</i>
3	Junior Senior Business Electives
16	Semester hours
<b>Spring Semester Year 4</b>	
3	<b>ISYS 4243 Current Topics in Computer Information</b>
3	<b>ISYS 4363 Business Project Development</b>
6	<i>General Education Electives</i>
3	Junior Senior Business Elective
15	Semester hours
126	Total hours
* Must be taken prior to fall semester of sophomore year	
** Must be taken prior to fall semester of junior year	

### Information Systems Minor for Business Students

The Department of Information Systems offers a minor for Walton College students desiring more knowledge of information systems to assist them in their careers. The minor requires completion of 15 hours of study with all of the courses applied

toward the minor in residence. The 15 hours include the following courses:

ISYS 2263 Introduction to Information Systems  
 ISYS 3293 System Analysis and Design  
 ISYS 3393 Business Application Development Fundamentals  
 WCOB 4213 ERP Fundamentals  
 Plus one of the following:

WCOB 4223 ERP Configuration and Implementation  
 Any 3-hour Junior/Senior level ISYS course

Students who desire to earn an Information Systems minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor.

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See Page 356 for Information Systems (ISYS) courses.

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## MANAGEMENT (MGMT)

Alan Ellstrand  
 Department Chair, 402 WCOB, 479-575-4566

### FACULTY

- John H. Tyson Chair and Distinguished Professor in Management Gupta
- Raymond F. Orr Chair and Professor Delery
- Charles C. Fichtner and Professor Ellstrand
- Walton College Professorship in Sustainability and Professor Johnson
- William R. and Cacia Howard Chair and Professor O'Leary-Kelly (A.)
- Cecil and Gwendolyn Cupp Applied Professorship in Entrepreneurship and Professor Reeves
- Professor Worrell
- Associate Professors Anand, Rosen
- Assistant Professors Breaux, Kish-Gephart
- Instructors Miles, Newman, Pullen

Management is the force responsible for directing organizations toward goals or objectives. Therefore, the management curriculum focuses on the nature and capabilities of human and other resources, as well as how the manager plans, organizes, staffs, coordinates, and evaluates those resources in an organization and its environment. The study of management prepares men and women for positions of leadership in profit and nonprofit organizations of all sizes. Management majors gain insight and skill needed for careers as professional managers or as self-employed entrepreneurs. These skills include technical knowledge, communicative capacity, human understanding, and conceptual and problem-solving ability. Two majors are offered in the management department: management and general business. Both majors are described below.

### Management Major

Students may choose from among three concentrations: Human Resource Management, Small Business and Entrepreneurship, and Organizational Leadership. All management majors must complete MGMT 4243 Ethics and Corporate Responsibility. An additional 21 hours of credit are required for students majoring in management. Six of these credit hours are specified in the concentration. Beyond this, students can choose from specified management and non-management courses in order to complete the requirements for the major.

The Human Resource Management concentration is designed to prepare students for careers in human resource-related occupations. Among issues and areas addressed are management-employee relations, quality of work life, compensation and other reward systems, organizational staffing, and training and development. The Human Resource Management track emphasizes the importance of integrating individual goals and organizational objectives.

The Small Business and Entrepreneurship concentration is suggested for students who are interested in starting and/or operating a small business or independent company after graduation. The Small Business and Entrepreneurship focus provides excellent

preparation for students wishing to obtain a highly integrated view of business operations. The Organizational Leadership concentration prepares new students for leadership positions within organizations. Among the topics explored are employee motivation, how to manage power and influence within organizations, developing effective teams, managing diversity, organizational transformation and change, and globalization.

**Management Major Requirements**

The major in management requires 24 hours of major and collateral courses in the discipline as well as satisfying the other requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in a WCOB major or discipline field of study (i.e., core, major, electives) unless the extra courses are part of an interdisciplinary minor or collateral track. See an adviser for selection of courses.

Complete the requirements for a B.S.B.A. degree as listed on page 208.	<b>Hours</b>
<b>Total General Education</b>	<b>60</b>
<b>College Core Requirements</b>	<b>33</b>
<b>Courses Required</b>	<b>24</b>
<b>Concentration I: Human Resources Management</b>	
MGMT 4943 Organizational Staffing	3
MGMT 4953 Organizational Rewards and Compensation	3
MGMT 4243 Ethics and Corporate Responsibility	3
Select at least two classes (six hours) from the following courses:	6
MGMT 4253 Leadership	
MGMT 4263 Organizational Change and Development	
MGMT 3933 Entrepreneurship and New Venture Development	
MGMT 4103 Special Topics	
MGMT 4433 Small Enterprise Management	
MGMT 4583 International Management	
MGMT 4993 Entrepreneurship Practicum	
Select up to three classes (nine hours) from the following courses:	9
ECON 3533 Labor Economics	
ECON 4333 Economics of Organizations	
ACCT 3613 Managerial Uses of Accounting Information	
ISYS 2263 Introduction to Information Systems	
MKTG 3553 Consumer Behavior	
MKTG 3633 Marketing Research	
MKTG 4853 Marketing Management	
<b>Concentration II: Organizational Leadership</b>	
MGMT 4253 Leadership	3
MGMT 4263 Organizational Change and Development	3
MGMT 4243 Ethics and Corporate Responsibility	3
Select at least two classes (six hours) from the following courses:	6
MGMT 3933 Entrepreneurship and New Venture Development	
MGMT 4103 Special Topics in Management	
MGMT 4433 Small Enterprise Management	
MGMT 4583 International Management	
MGMT 4943 Organizational Staffing	
MGMT 4953 Organizational Rewards and Compensation	
MGMT 4993 Entrepreneurship Practicum	
Select up to three classes (nine hours) from the following courses:	9
ACCT 3613 Managerial Uses of Accounting Information	
ACCT 3723 Intermediate Accounting I	
ECON 3533 Labor Economics	
ECON 4333 Managerial Economics	
ECON 4643 International Macroeconomics and Finance	
ECON 4653 Global Competition and Strategy	
FINN 3603 Corporate Finance	
FINN 3703 International Finance	
ISYS 2263 Introduction to Information Systems	

- MKTG 4853 Marketing Management
- MKTG 4633 Global Marketing
- SPCM 3613 Business Logistics
- SPCM 3643 International Transportation and Logistics
- SPCM 4653 Transportation and Logistics Strategy

**Concentration III: Small Business and Entrepreneurship**

**Required courses:**

MGMT 3933 Entrepreneurship and New Venture Development	3
MGMT 4243 Ethics and Corporate Responsibility	3
MGMT 4433 Small Enterprise Management	3
Select at least two classes (six hours) from the following courses:	6
MGMT 4103 Special Topics in Management	
MGMT 4253 Leadership	
MGMT 4263 Organizational Change and Development	
MGMT 4433 Small Enterprise Management	
MGMT 4583 International Management	
MGMT 4943 Organizational Staffing	
MGMT 4953 Organizational Rewards and Compensation	
MGMT 4993 Entrepreneurship Practicum	
Select up to three classes (nine hours) from the following courses:	9
ACCT 3613 Managerial Uses of Accounting Information	
ACCT 3723 Intermediate Accounting I	
ACCT 3843 Fundamentals of Taxation	
BLAW 3033 Commercial Law	
FINN 3053 Financial Markets and Institutions	
FINN 3623 Risk Management	
FINN 3933 Real Estate Principles	
ISYS 2263 Introduction to Information Systems	
MKTG 4233 Integrated Marketing Communications	
MKTG 4343 Selling and Sales Management	
MKTG 3553 Consumer Behavior	
MKTG 4633 Global Marketing	
MKTG 4433 Retail Strategy	
SPCM 3613 Business Logistics	
SPCM 3623 Purchasing and Inventory Systems	
SPCM 4653 Transportation and Logistics Strategy	

**Junior- senior-level electives within Walton College** **15**

Maximum of 27 hours of MGMT courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.

**Total College Requirements** **60**

**Total Degree Requirements** **126**

**Management B.S.B.A., Human Resources Management Concentration Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in **BOLD** must be taken in the designated semester. Courses in *ITALIC* may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 *ENGL 1013 Composition I* – University Core
- 3 **MATH 2053 Finite Math** – University Core
- 3 **COMM 1313 Public Speaking**
- 1 **WCOB 1111 Freshman Business Connections**
- 2 WCOB 1012 Legal Environment of Business \*
- 0 **WCOB 1120 Computer Competency Requirement**
- 3 *U.S. History or Political Science* – University Core
- 15 Semester Hours**

**Spring Semester Year 1**

- 3 *ENGL 1023 Composition II* – University Core

3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
16	<b>Semester Hours</b>
<b>Fall Semester Year 2</b>	
3	MATH 2043 Survey of Calculus **
3	ECON 2013 Macroeconomics ** - University Core
6	Select TWO of the following:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
3	<i>Social Science</i> – University Core
3	<i>Fine Art/Humanities</i> – University Core
18	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<i>Business Social Science</i>
6	Select TWO of the following not completed in previous semester:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
16	<b>Semester Hours</b>
ALL pre-business requirements should be met by end of term	
<b>Fall Semester Year 3</b>	
3	MGMT 4243 Ethics and Corporate Responsibility or MGMT 4953 Organizational Rewards
3	MGMT 4943 Organizational Staffing
6	WCOB 3016 Business Strategy and Planning
3	Junior Senior Business Elective
15	<b>Semester hours</b>
<b>Spring Semester Year 3</b>	
3	MGMT 4953 Organizational Rewards and Compensation or MGMT 4943 Organizational Staffing
6	MGMT or Collateral electives
3	Junior Senior Business Elective
3	General Education Elective
15	<b>Semester hours</b>
<b>Fall Semester Year 4</b>	
6	MGMT electives
3	Junior Senior Business Elective
7	General Education Electives
16	<b>Semester hours</b>
<b>Spring Semester Year 4</b>	
3	MGMT or collateral elective
6	Junior Senior Business Electives
6	General Education Electives
15	<b>Semester hours</b>
126	<b>Total hours</b>
* Must be taken prior to fall semester of sophomore year	
** Must be taken prior to fall semester of junior year	

### Management B.S.B.A., Organizational Leadership Concentration Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in **BOLD** must be taken in the designated semester. Courses in *ITALIC* may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated semester, the recommendations below are preferred.

#### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>

3	<i>U.S. History or Political Science</i> – University Core
15	<b>Semester Hours</b>

#### Spring Semester Year 1

3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
16	<b>Semester Hours</b>

#### Fall Semester Year 2

3	MATH 2043 Survey of Calculus **
3	ECON 2013 Macroeconomics ** - University Core
6	Select TWO of the following:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources***</b>
3	<i>Social Science</i> – University Core
3	<i>Fine Art/Humanities</i> – University Core
18	<b>Semester Hours</b>

#### Spring Semester Year 2

3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<i>Business Social Science</i>
6	Select TWO of the following not completed in previous semester:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources***</b>
16	<b>Semester Hours</b>
ALL pre-business requirements should be met by end of term	

#### Fall Semester Year 3

3	MGMT 4243 Ethics and Corporate Responsibility
3	MGMT 4253 Leadership
6	WCOB 3016 Business Strategy and Planning
3	Junior Senior Business Elective
15	<b>Semester hours</b>

#### Spring Semester Year 3

3	MGMT 4263 Organizational Change and Development
6	MGMT or Collateral electives
3	Junior Senior Business Elective
3	<i>General Education Elective</i>
15	<b>Semester hours</b>

#### Fall Semester Year 4

6	MGMT electives
3	Junior Senior Business Elective
7	General Education Electives
16	<b>Semester hours</b>

#### Spring Semester Year 4

3	MGMT or collateral elective
6	Junior Senior Business Electives
6	<i>General Education Electives</i>
15	<b>Semester hours</b>
126	<b>Total hours</b>

\* Must be taken prior to fall semester of sophomore year

\*\* Must be taken prior to fall semester of junior year

### Management B.S.B.A., Small Business and Entrepreneurship Concentration Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in **BOLD** must be taken in the designated semester. Courses in *ITALIC* may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

#### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core

3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	WCOB 1012 Legal Environment of Business *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
15	<b>Semester Hours</b>
<b>Spring Semester Year 1</b>	
3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
16	<b>Semester Hours</b>
<b>Fall Semester Year 2</b>	
3	MATH 2043 Survey of Calculus **
3	<i>ECON 2013 Macroeconomics</i> ** - University Core
6	Select TWO of the following:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources***</b>
3	<i>Social Science</i> – University Core
3	<i>Fine Art/Humanities</i> – University Core
18	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<i>Business Social Science</i>
6	Select TWO of the following not completed in previous semester:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources***</b>
16	<b>Semester Hours</b>
ALL pre-business requirements should be met by end of term	
<b>Fall Semester Year 3</b>	
3	MGMT 3933 Entrepreneurship and New Venture Development
3	MGMT 4243 Ethics and Corporate Responsibility
6	WCOB 3016 Business Strategy and Planning
3	Junior Senior Business Elective
15	<b>Semester hours</b>
<b>Spring Semester Year 3</b>	
3	MGMT 4433 Small Enterprise Management
6	MGMT or Collateral electives
3	Junior Senior Business Elective
3	<i>General Education Elective</i>
15	<b>Semester hours</b>
<b>Fall Semester Year 4</b>	
6	MGMT electives
3	Junior Senior Business Elective
7	<i>General Education Electives</i>
16	<b>Semester hours</b>
<b>Spring Semester Year 4</b>	
3	MGMT or collateral elective
6	Junior Senior Business Electives
6	<i>General Education Electives</i>
15	<b>Semester hours</b>
126	<b>Total hours</b>
*	Must be taken prior to fall semester of sophomore year
**	Must be taken prior to fall semester of junior year

**Management Minor for Business Students**

The Department of Management offers a minor for students desiring more knowledge of management to assist them in their careers. The minor requires completion of 15 hours of study with all of the courses applied toward the minor in residence. The 15 hours include the following courses:

- MGMT 4243 Ethics and Corporate Responsibility
- Plus 12 hours from the following courses:
  - MGMT 3933 Entrepreneurship and New Venture Development
  - MGMT 4103 Special Topics in Management

- MGMT 4253 Leadership
- MGMT 4263 Organizational Change and Development
- MGMT 4433 Small Enterprise Management
- MGMT 4583 International Management
- MGMT 4943 Organizational Staffing
- MGMT 4953 Organizational Rewards and Compensation
- MGMT 4993 Entrepreneurship Practicum

Students who desire to earn a Management minor must notify the Walton College Undergraduate Programs Office of intent to pursue the minor. All requirements for the minor must be completed prior to the awarding of a student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level requirements must be taken in residence.

**General Business Major**

General Business is the broadest major in Walton College. This program provides the student exposure to all facets of the business process. Maximum flexibility is retained by the student. At the same time, careful use of general and junior/senior business electives allows the student to concentrate additional coursework in one or more selected functional areas.

**General Business Major Requirements**

Complete the requirements for a B.S.B.A. degree as listed on page 208.	<b>Hours</b>
<b>Total General Education</b>	<b>60</b>
<b>Walton College Core Requirements Core Requirements</b> (See page 206)	<b>33</b>

**Students must complete the following six hours of collateral courses:**

- MKTG 3433 Introduction to Marketing Strategy
- ACCT 2013 Accounting Principles

**Course Requirements in the Major** **21**

Select one from each of the following seven groups. Sequencing of courses will be determined by choices made.

**Group 1**

- MGMT 3933 Entrepreneurship and New Venture Development
- MGMT 4243 Ethics and Corporate Responsibility
- MGMT 4253 Leadership
- MGMT 4263 Organizational Change and Development
- MGMT 4433 Small Enterprise Management
- MGMT 4943 Organizational Staffing
- MGMT 4953 Orgn Rewards and Compensation

**Group 2**

- ACCT 3533 Accounting Technology
- ACCT 3613 Managerial Uses of Accounting Information
- ACCT 3723 Intermediate Accounting I
- ACCT 3753 Intermediate Accounting II

**Group 3**

- WCOB 4213 ERP Fundamentals
- ISYS 2263 Introduction to Information Systems
- ISYS 4263 Information Technology Strategy
- ISYS 4933 Global Information Technology

**Group 4**

- ECON 3033 Microeconomic Theory
- ECON 3133 Macroeconomic Theory
- ECON 3533 Labor Economics
- ECON 4333 Economics of Organizations
- ECON 4633 International Trade
- ECON 4643 International Macroeconomics and Finance

**Group 5**

- FINN 3053 Financial Markets and Institutions

FINN 3063 Investments  
 FINN 3623 Risk Management  
 FINN 4233 Advanced Corporate Finance

**Group 6**

MKTG 4233 Integrated Marketing Communications  
 MKTG 3553 Consumer Behavior  
 MKTG 4433 Retail Strategy  
 Six hours 3000/4000 business courses

**Group 7**

SPCM 3443 Principles of Transportation  
 SPCM 3613 Business Logistics  
 SPCM 3623 Purchasing and Inventory Systems  
 SPCM 3643 International Transportation and Logistics  
 SPCM 4633 Transportation Carrier Management  
 SPCM 4653 Transportation and Logistics Strategy

**Junior- senior-level electives within Walton College 12**

Maximum of 27 hours of courses in any one department (core, major, elective).  
 More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.

**Total Walton College Requirements 60**

**Total Degree Requirements 126**

**General Business B.S.B.A.****Eight-Semester Degree Program:**

Students wishing to follow the eight-semester degree plan for General Business should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

3 ENGL 1013 *Composition I* – University Core  
 3 MATH 2053 *Finite Math* – University Core  
 3 COMM 1313 *Public Speaking*  
 1 WCOB 1111 *Freshman Business Connections*  
 2 WCOB 1012 *Legal Environment of Business* \*  
 0 WCOB 1120 *Computer Competency Requirement*  
 3 U.S. *History or Political Science* – University Core  
 15 Semester Hours

**Spring Semester Year 1**

3 ENGL 1023 *Composition II* – University Core  
 3 WCOB 1023 *Business Foundations*  
 3 WCOB 1033 *Data Analysis and Interpretation*  
 3 ECON 2023 *Microeconomics* – University Core  
 4 *Natural Science* – University Core  
 16 Semester Hours

**Fall Semester Year 2**

3 MATH 2043 *Survey of Calculus* \*\*  
 3 ECON 2013 *Macroeconomics* \*\* - University Core  
 3 WCOB 2043 *Acquiring and Managing Financial Resources*  
 3 Select ONE of the following:  
 WCOB 2013 *Markets and Consumers*  
 WCOB 2023 *Production and Delivery of Goods and Services*  
 WCOB 2033 *Acquiring and Managing Human Capital*  
 3 *Social Science* – University Core  
 3 *Fine Art/Humanities* – University Core  
 18 Semester Hours

**Spring Semester Year 2**

3 *Fine Art/Humanities* – University Core  
 4 *Natural Science* – University Core  
 3 ACCT 2013 *Accounting Principles* (Collateral Course)  
 6 Select TWO of the following not completed in previous semester:  
 WCOB 2013 *Markets and Consumers*  
 WCOB 2023 *Production and Delivery of Goods and Services*  
 WCOB 2033 *Acquiring and Managing Human Capital*  
 WCOB 2043 *Acquiring and Managing Financial Resources*  
 16 Semester Hours

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

3 Group 1 course (see above)  
 3 Group 2 course (see above)  
 6 WCOB 3016 *Business Strategy and Planning*  
 3 MKTG 3433 *Intro to Marketing Strategy* (Collateral Course)  
 15 Semester hours

**Spring Semester Year 3**

3 Group 3 course (see above)  
 3 Group 6 course (see above)  
 3 Junior Senior Business Elective  
 3 *Business Social Science*  
 3 *General Education Elective*  
 15 Semester hours

**Fall Semester Year 4**

3 Group 5 course (see above)  
 3 Junior Senior Business Elective  
 3 Group 7 course (see above)  
 7 *General Education Electives*  
 15 Semester hours

**Spring Semester Year 4**

3 Group 4 course (see above)  
 6 *General Education Electives*  
 6 Junior Senior Business Elective  
 15 Semester hours  
 126 Total hours

\* Must be taken prior to fall semester of sophomore year

\*\* Must be taken prior to fall semester of junior year

See Page 383 for Management (MGMT) courses.

**MARKETING (MKTG)**

Jeff B. Murray,  
 Department Chair, 302 WCOB, 479-575-4055

**FACULTY**

- Wal-Mart Chair of Marketing and Distinguished Professor Burton
- Wal-Mart Lecturer in Retailing and Professor Jensen (T.)
- Sam M. Walton Leadership Chair and Professor Jones (E.)
- R.A. and Vivian Young Chair and Professor Murray
- Professor Howlett
- Associate Professors Ashton, Kopp, Rapert, Stassen
- Assistant Professors Kelting, Smith (R.), Soster
- Clinical Associate Professor Jensen (M.)
- Instructors Cole, Cox

The department of marketing offers two majors:

- 1) Marketing
- 2) Retail, and

Descriptions of the marketing major and courses follow. The retail major is described in the next section.

**Marketing Major**

The major in marketing requires 24 hours of major and collateral courses in the discipline as well as satisfying the other requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in a WCOB major or discipline field of study (i.e., core, major, electives) unless the extra courses are part of an interdisciplinary minor or collateral track. See an adviser for selection of courses.

The major in marketing is designed to prepare students for careers involving product planning, distribution, promotion, and pricing strategies in profit or nonprofit organiza-

tions. In addition to a broad overview of the marketing functions within organizations, students are provided with knowledge and skills in consumer behavior, marketing research, and strategic marketing.

Students majoring in marketing are actively subjected to problem-solving situations, both domestic and international, where a variety of contemporary tools are employed to stimulate the strategic decision-making process. Supportive disciplines with which the marketer should be familiar include psychology, sociology, accounting, economics, statistics, quantitative analysis, and research methodology.

The marketing major is intended to provide students with broad knowledge and skills in marketing applicable to a wide range of profit and nonprofit organizations.

**Marketing Major Requirements**

Complete the requirements for a B.S.B.A. degree as listed on page 208.	<b>Hours</b>
<b>Total General Education</b>	<b>60</b>
<b>Walton College Core Requirements</b> (See page 206)	<b>33</b>
<b>Course Requirements</b>	<b>24</b>
MKTG 3433 Introduction to Marketing Strategy	
MKTG 3553 Consumer Behavior	
MKTG 3633 Marketing Research	
MKTG 4853 Marketing Management	
Select twelve hours from the following:	
MKTG 4233 Integrated Marketing Communications	
MKTG 4343 Selling and Sales Management	
MKTG 4103 Marketing Topics	
MKTG 4633 Global Marketing	
MKTG 4433 Retail Strategy	
MKTG 4443 Retail Buying and Merchandise	
<b>Junior- senior-level electives within Walton College</b>	<b>15</b>
Maximum of 27 hours of MKTG courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
<b>Total Walton College Requirements</b>	<b>60</b>
<b>Total Degree Requirements</b>	<b>126</b>

**Marketing B.S.B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in **BOLD** must be taken in the designated semester. Courses in *ITALIC* may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I*\*\* – University Core
- 3 MATH 2053 **Finite Math** – University Core
- 3 COMM 1313 **Public Speaking**
- 1 WCOB 1111 **Freshman Business Connections**
- 2 WCOB 1012 **Legal Environment of Business** \*
- 0 WCOB 1120 **Computer Competency Requirement**
- 3 U.S. History or Political Science – University Core
- 15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II*\*\* – University Core
- 3 WCOB 1023 **Business Foundations**
- 3 WCOB 1033 **Data Analysis and Interpretation**
- 3 ECON 2023 **Microeconomics** – University Core
- 4 Natural Science – University Core
- 16 Semester Hours**

**Fall Semester Year 2**

- 3 MATH 2043 **Survey of Calculus** \*\*
- 3 ECON 2013 **Macroeconomics** \*\* – University Core
- 6 Select TWO of the following:  
WCOB 2013 **Markets and Consumers**  
WCOB 2023 **Production and Delivery of Goods and Services**

	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
3	Social Science – University Core
3	Fine Art/Humanities – University Core
<b>18</b>	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	Fine Art/Humanities – University Core
4	Natural Science – University Core
3	Business Social Science
6	Select TWO of the following not completed in previous semester: <b>WCOB 2013 Markets and Consumers</b> <b>WCOB 2023 Production and Delivery of Goods and Services</b> <b>WCOB 2033 Acquiring and Managing Human Capital</b> <b>WCOB 2043 Acquiring and Managing Financial Resources</b>
<b>16</b>	<b>Semester Hours</b>
ALL pre-business requirements should be met by end of term	
<b>Fall Semester Year 3</b>	
3	<b>MKTG 3433 Introduction to Marketing Strategy</b>
6	WCOB 3016 Business Strategy and Planning
6	Junior Senior Business Electives
<b>15</b>	<b>Semester hours</b>
<b>Spring Semester Year 3</b>	
3	<b>MKTG 3633 Marketing Research</b>
3	MKTG elective
6	Junior Senior Business Electives
3	General Education Elective
<b>15</b>	<b>Semester hours</b>
<b>Fall Semester Year 4</b>	
3	<b>MKTG 3553 Consumer Behavior</b>
6	MKTG electives
7	General Education Electives
<b>16</b>	<b>Semester hours</b>
<b>Spring Semester Year 4</b>	
3	<b>MKTG 4853 Marketing Management</b>
3	MKTG elective
3	Junior Senior Business Elective
6	General Education Electives
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>
* Must be taken prior to fall semester of sophomore year	
** Must be taken prior to fall semester of junior year	

**Marketing Minor for Business Students**

The Department of Marketing offers a minor for Walton College students desiring more knowledge of marketing to assist them in their careers. The minor requires the completion of 15 hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include the following courses:

- MKTG 3433 Introduction to Marketing Strategy
- MKTG 3553 Consumer Behavior
- Plus nine hours from the following courses:  
MKTG 4233 Integrated Marketing Communications  
MKTG 4343 Selling and Sales Management  
MKTG 3633 Marketing Research  
MKTG 4633 Global Marketing  
MKTG 4433 Retail Strategy  
MKTG 4443 Retail Buying and Merchandising

Students who desire to earn a Marketing minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course pre-requisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

See Page 384 for Marketing (MKTG) Courses



**Retail Major**

The retail major requires 24 hours of major and collateral courses in the discipline as well as satisfying the other requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in a WCOB major or discipline field of study (i.e., core, major, electives) unless the extra courses are part of an interdisciplinary minor or collateral track. See an adviser for selection of courses.

The major in retail is designed to prepare students for careers in retailing or in companies that manufacture, sell, and distribute consumer goods to retailers. In addition to a broad view of the business and retail environments students can select to concentrate their retail studies in accounting, economics, finance, information systems, international retail, management, marketing, or supply chain management. A general retail concentration is also available.

**Retail Major Requirements**

Complete the requirements for a B.S.B.A. degree as listed on page 208. **Hours**

**Total General Education** **60**

**Walton College Core Requirements** (See page 206) **33**

**Course Requirements in All Concentrations** **24**

MKTG 3433 Introduction to Marketing Strategy

MKTG 3553 Consumer Behavior

MKTG 4433 Retail Strategy

MKTG 4443 Retail Buying and Merchandise

Select twelve hours from a single concentration:

Accounting Concentration (12 hours)

ACCT 2013 Accounting Principles

ACCT 3613 Managerial Use of Accounting Info

ACCT 3723 Intermediate Accounting I

ACCT 4673 Product, Project and Service Costing

Economics Concentration (12 hours)

ECON 3033 Microeconomic Theory

ECON 3133 Macroeconomic Theory

ECON 4333 Economics of Organizations

ECON 4633 International Trade

ECON 4643 International Macroeconomics and Finance

Finance Concentration (12 hours)

FINN 3013 Financial Analysis and Valuation

FINN 3053 Financial Markets and Institutions

FINN 3603 Corporate Finance

FINN Elective – select 3 hours from the following:

FINN 3623 Risk Management

FINN 3703 International Finance

FINN 3933 Real Estate Principles

Information Systems Concentration (12 hours)

ISYS 2263 Introduction to Information Systems

ISYS 4243 Current Topics in Computer Information

ISYS 4293 Business Intelligence

WCOB 4213 ERP Fundamentals

International Concentration (12 hours)

ECON 3853 Emerging Markets

ECON 4633 International Trade

ECON 4643 International Macroeconomics and Finance

FINN 3703 International Finance

MGMT 4583 International Management

MKTG 4633 Global Marketing

SPCM 3643 International Transportation and Logistics

Management Concentration (12 hours)

MGMT 3933 Entrepreneurship and New Venture Development

MGMT 4243 Ethics and Corporate Responsibility

MGMT 4253 Leadership

MGMT 4263 Organizational Change and Development

MGMT 4433 Small Enterprise Management

MGMT 4583 International Management

MGMT 4943 Organizational Staffing

MGMT 4953 Organizational Rewards and Compensation

Marketing Concentration (12 hours)

MKTG 3633 Marketing Research

MKTG 4003H Marketing Honors Colloquium

MKTG 4103 Marketing Topics

MKTG 4233 Integrated Marketing Communications

MKTG 4343 Selling and Sales Management

MKTG 4633 Global Marketing

MKTG 4853 Marketing Management

Supply Chain Management Concentration (12 hours)

SPCM 3443 Principles of Transportation

SPCM 3613 Business Logistics

SPCM 3623 Purchasing and Inventory Systems

SPCM 3643 International Transportation and Logistics

SPCM 4633 Transportation Carrier Management

General Retail Concentration (12 hours)

Select 1 course from each of 4 different areas

Accounting

ACCT 2013 Accounting Principles

Economics

ECON 3033 Microeconomic Theory

ECON 3133 Macroeconomic Theory

ECON 4333 Economics of Organizations

ECON 4633 International Trade

ECON 4643 International Macroeconomics and Finance

Finance

FINN 3013 Financial Analysis and Valuation

FINN 3053 Financial Markets and Institutions

FINN 3603 Corporate Finance

FINN 3623 Risk Management

FINN 3703 International Finance

FINN 3933 Real Estate Principles

FINN 4833 Property/Casualty Ins. I

Information Systems

ISYS 2263 Introduction to Information Systems

ISYS 4243 Current Topics in Computer Information

WCOB 4213 ERP Fundamentals

Management

MGMT 4243 Ethics and Corporate Responsibility

MGMT 4253 Leadership

MGMT 4263 Organizational Change and Development

MGMT 4943 Organizational Staffing

MGMT 4953 Organizational Rewards and Compensation

MGMT 4433 Small Enterprise Management

Marketing

MKTG 3633 Marketing Research

MKTG 4233 Integrated Marketing Communications

MKTG 4343 Selling and Sales Management

MKTG 4633 Global Marketing

Supply Chain Management

SPCM 3613 Business Logistics

SPCM 3443 Principles of Transportation

**Junior- senior-level electives within Walton College** 15

Maximum of 27 hours of MKTG courses in department (core, major, elective).

More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.

**Total Walton College Requirements** 60

**Total Degree Requirements** 126

**Retail B.S.B.A.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

**Fall Semester Year 1**

- 3 ENGL 1013 *Composition I* – University Core
- 3 **MATH 2053 Finite Math** – University Core
- 3 **COMM 1313 Public Speaking**
- 1 **WCOB 1111 Freshman Business Connections**
- 2 WCOB 1012 Legal Environment of Business \*
- 0 **WCOB 1120 Computer Competency Requirement**
- 3 *U.S. History or Political Science* – University Core
- 15 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 *Composition II* – University Core
- 3 **WCOB 1023 Business Foundations**
- 3 **WCOB 1033 Data Analysis and Interpretation**
- 3 **ECON 2023 Microeconomics** – University Core
- 4 *Natural Science* – University Core
- 16 Semester Hours**

**Fall Semester Year 2**

- 3 MATH 2043 Survey of Calculus \*\*
- 3 *ECON 2013 Macroeconomics* \*\* - University Core
- 6 Select TWO of the following:  
**WCOB 2013 Markets and Consumers**  
**WCOB 2023 Production and Delivery of Goods and Services**  
**WCOB 2033 Acquiring and Managing Human Capital**  
**WCOB 2043 Acquiring and Managing Financial Resources**
- 3 *Social Science* – University Core
- 3 *Fine Art/Humanities* – University Core
- 18 Semester Hours**

**Spring Semester Year 2**

- 3 *Fine Art/Humanities* – University Core
- 4 *Natural Science* – University Core
- 3 *Business Social Science*
- 6 Select TWO of the following not completed in previous semester:  
**WCOB 2013 Markets and Consumers**  
**WCOB 2023 Production and Delivery of Goods and Services**  
**WCOB 2033 Acquiring and Managing Human Capital**  
**WCOB 2043 Acquiring and Managing Financial Resources**
- 16 Semester Hours**

ALL pre-business requirements should be met by end of term

**Fall Semester Year 3**

- 3 **MKTG 3433 Introduction to Marketing Strategy**
- 6 WCOB 3016 Business Strategy and Planning
- 3 Retail Concentration
- 3 Junior Senior Business Electives
- 15 Semester hours**

**Spring Semester Year 3**

- 3 **MKTG 3553 Consumer Behavior**
- 3 **MKTG 4433 Retail Strategy**
- 6 Retail Concentration
- 3 *General Education Elective*
- 15 Semester hours**

**Fall Semester Year 4**

- 3 **MKTG 4443 Retail Buying and Merchandising**
- 6 Junior Senior Business Elective
- 7 *General Education Electives*
- 16 Semester hours**

**Spring Semester Year 4**

- 3 Retail Concentration
- 6 Junior Senior Business Elective

6	<i>General Education Electives</i>
15	Semester hours
<b>126</b>	<b>Total hours</b>

- \* Must be taken prior to fall semester of sophomore year
- \*\* Must be taken prior to fall semester of junior year

**Retail Minor for Business Students**

The Department of Marketing offers a retail minor for Walton College students desiring more knowledge of retail, to assist them in their careers. The minor requires the completion of 15 hours of study with all of the courses applied toward the minor taken in residence.

The 15 hours include the following courses:

- MKTG 3433 Introduction to Marketing Strategy
- MKTG 3553 Consumer Behavior
- MKTG 4433 Retail Strategy
- MKTG 4443 Retail Buying and Merchandising

Plus 3 hours from the following courses:

- ACCT 2013 Accounting Principles
- ECON – any ECON at the 3000 or 4000 level
- FINN 3013 Financial Analysis and Valuation
- MGMT - any MGMT at the 3000 or 4000 level
- MKTG 4233 Integrated Marketing Communications
- SPCM 3613 Business Logistics
- WCOB 4213 ERP Fundamentals

Students who desire to earn a retail minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

See Page 384 for Marketing (MKTG) courses.

**SUPPLY CHAIN MANAGEMENT**

Matthew Waller  
 Department Chair, 401 WCOB, 479-575-4051

FACULTY

- Garrison Chair in Supply Chain Management and Professor Waller
- Oren Harris Chair of Transportation and Professor Ozment
- Associate Professors Aloysius, Hofer (C.)
- Assistant Professors Hofer (A.), Williams (B.)
- Clinical Assistant Professor Hyatt
- Instructor Shook

**Supply Chain Management Major**

The major in supply chain management is designed to prepare students for careers in carrier management and logistics management. Carrier management is the management of the domestic and international modes of transportation. Logistic management applies analytical techniques and uses the systems approach in managing the flow of materials into and through the production and manufacturing processes of a firm to its customers.

Basic employment opportunities exist in marketing, sales, and operations positions with carriers in all transportation modes, and in positions with shippers having responsibility in one or more of the areas under logistics management, warehousing, packaging, and materials handling. Opportunities also exist in governmental agencies.

**Supply Chain Management Major Requirements**

Complete the requirements for a B.S.B.A. degree as listed on page 208.	<b>Hours</b>
<b>Total General Education</b>	<b>60</b>

<b>Walton College Core Requirements</b> (See page 206)	<b>33</b>
<b>Course Requirements in the Major</b>	<b>24</b>
SPCM 3443 Principles of Transportation	3
SPCM 3613 Business Logistics	3
SPCM 3623 Purchasing and Inventory Systems	3
SPCM 3643 International Transportation and Logistics	3
SPCM 4633 Transportation Carrier Management	3
SPCM 4653 Transportation and Logistics Strategy	3
Plus two classes (six hours) from a single area:	6
<b>Information Systems:</b>	
ISYS 2263 Introduction to Information Systems	
ISYS 3293 System Analysis and Design	
ISYS 4243 Current Topics in Computer Information	
ISYS 4293 Business Intelligence	
WCOB 4213 ERP Fundamentals	
<b>Marketing:</b>	
MKTG 4343 Selling and Sales Management	
MKTG 3633 Marketing Research	
MKTG 4633 Global Marketing	
MKTG 4433 Retail Strategy	
<b>International:</b>	
ECON 4633 International Trade Policy	
ECON 4643 International Macroeconomics and Finance	
FINN 3703 International Finance	
MGMT 4853 International Management	
Junior- senior-level electives within Walton College	<b>15</b>
Maximum of 27 hours of SPCM courses in department (core, major, elective).	
More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.	
<b>Total Walton College Requirements</b>	<b>60</b>
<b>Total Degree Requirements</b>	<b>126</b>

### Supply Chain Management B.S.B.A.

#### Eight-Semester Degree Program:

Students wishing to follow the eight-semester degree plan for Supply Chain Management should see page 41 in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

#### Fall Semester Year 1

3	<i>ENGL 1013 Composition I</i> – University Core
3	<b>MATH 2053 Finite Math</b> – University Core
3	<b>COMM 1313 Public Speaking</b>
1	<b>WCOB 1111 Freshman Business Connections</b>
2	<i>WCOB 1012 Legal Environment of Business</i> *
0	<b>WCOB 1120 Computer Competency Requirement</b>
3	<i>U.S. History or Political Science</i> – University Core
<b>15</b>	<b>Semester Hours</b>

#### Spring Semester Year 1

3	<i>ENGL 1023 Composition II</i> – University Core
3	<b>WCOB 1023 Business Foundations</b>
3	<b>WCOB 1033 Data Analysis and Interpretation</b>
3	<b>ECON 2023 Microeconomics</b> – University Core
4	<i>Natural Science</i> – University Core
<b>16</b>	<b>Semester Hours</b>

#### Fall Semester Year 2

3	MATH 2043 Survey of Calculus **
3	<i>ECON 2013 Macroeconomics</i> ** - University Core
6	Select TWO of the following:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>

	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
3	<i>Social Science</i> – University Core
3	<i>Fine Art/Humanities</i> – University Core
<b>18</b>	<b>Semester Hours</b>
	<b>Spring Semester Year 2</b>
3	<i>Fine Art/Humanities</i> – University Core
4	<i>Natural Science</i> – University Core
3	<i>Business Social Science</i>
6	Select TWO of the following not completed in previous semester:
	<b>WCOB 2013 Markets and Consumers</b>
	<b>WCOB 2023 Production and Delivery of Goods and Services</b>
	<b>WCOB 2033 Acquiring and Managing Human Capital</b>
	<b>WCOB 2043 Acquiring and Managing Financial Resources</b>
<b>16</b>	<b>Semester Hours</b>
ALL pre-business requirements should be met by end of term	
	<b>Fall Semester Year 3</b>
3	<b>SPCM 3443 Principles of Transportation</b>
3	<b>SPCM 3613 Business Logistics</b>
3	Collateral from a single area
6	WCOB 3016 Business Strategy and Planning
<b>15</b>	<b>Semester hours</b>
	<b>Spring Semester Year 3</b>
3	Collateral from a single area
9	Junior Senior Business Electives
4	<i>General Education Electives</i>
<b>ad16</b>	<b>Semester hours</b>
	<b>Fall Semester Year 4</b>
3	<b>SPCM 3623 Purchasing and Inventory Systems</b>
3	<b>SPCM 4633 Transportation Carrier Management</b>
6	<i>General Education Electives</i>
3	Junior Senior Business Elective
<b>15</b>	<b>Semester hours</b>
	<b>Spring Semester Year 4</b>
3	<b>SPCM 3643 International Transportation and Logistics</b>
3	<b>SPCM 4653 Transportation and Logistics Strategy</b>
3	Junior Senior Business Elective
6	<i>General Education Electives</i>
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>
*	Must be taken prior to fall semester of sophomore year
**	Must be taken prior to fall semester of junior year

### Supply Chain Management Minor for Business Students

The Department of Supply Chain Management offers a minor for Walton College students desiring more knowledge of supply chain management to assist them in their careers. The minor requires the completion of 15 hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include the following courses:

SPCM 3443 Principles of Transportation
SPCM 3613 Business Logistics
SPCM 3623 Purchasing and Inventory Systems
SPCM 3643 International Transportation Logistics
SPCM 4633 Transportation Carrier Management

Students who desire to earn a Supply Chain Management minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

See Page 405 for Supply Chain Management (SPCM) courses.

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## WALTON COLLEGE OF BUSINESS (WCOB)

Undergraduate Programs, 328 WCOB, 479-575-4622

The following programs are interdisciplinary and not attached to a specific department in Walton College. Similarly, WCOB courses are interdisciplinary and not assigned to a specific department either.

### Enterprise Resource Planning Minor

The Walton College offers an interdisciplinary minor in Enterprise Resource Planning (ERP). ERP systems are large-scale programs, which are used by many large companies to integrate their business processes and run the organization using primarily one software system. The minor requires completion of 15 hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include:

- WCOB 4213 ERP Fundamentals
- WCOB 4223 ERP Configuration and Implementation
- Plus nine hours from the following courses:
  - ACCT 3533 Accounting Technology
  - ACCT 3723 Intermediate Accounting I
  - ISYS 4233 Seminar in ERP Development
  - SPCM 3443 Principles of Transportation
  - SPCM 3613 Business Logistics
  - SPCM 3623 Purchasing and Inventory Systems

Students who desire to earn an Enterprise Resource Planning minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper level minor requirements must be taken in residence.

### Financial Economics Minor

The Walton College offers an interdisciplinary minor in Financial Economics. The minor will provide students with the background needed for research in finance and industry. The minor requires completion of 15 hours of study with all of the courses applied toward the minor taken in residence. The 15 hours include:

- FINN 3013 Financial Analysis
- ECON 4753 Forecasting (Applied Time Series)
- Plus nine hours from the following courses:
  - FINN 3063 Investments
  - FINN 3603 Corporate Finance
  - ECON 3433 Money and Banking
  - ECON 4743 Intro. to Econometrics

Students who desire to earn a Financial Economics minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered in the minor. All upper level minor requirements must be taken in residence.

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See Page 406 for Walton College of Business (WCOB) courses.

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# College of Education and Health Professions

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## Office of the Dean of the College

324 Graduate Education Building, 479-575-3208

### Dean of the College

Tom Smith

### Assistant Dean for Administration

Craig Edmonston

### Associate Dean for Academic Affairs

Michael T. Miller

### Assistant Dean for Academic Affairs

Janet Penner-Williams

### Lead Adviser

Doug Talbott

### Sylvia Hack Boyer Center for Student Services

336 Graduate Education Building, 479-575-4203

### Teacher Education/Licensure

350 Graduate Education Building, 479-575-6740

### Honors Program

318 Graduate Education Building, 479-575-4205

### Speech and Hearing Clinic

410 Arkansas Avenue, 479-575-4509

### World Wide Web:

<http://coehp.uark.edu/>

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## MISSION AND OBJECTIVES

The mission of the College of Education and Health Professions is to enhance the quality of life of the citizens of Arkansas, the nation, and the world through the development of scholar-practitioners in education, health, and human services. The vision of the college is to become a nationally competitive, student-centered research college serving Arkansas and the world.

The goals of the College of Education and Health Professions are as follows:

- Strengthen the academic quality and reputation of the college by developing and enhancing programs of excellence in teaching, research, and service.
- Improve the quality and diversity of our students, faculty, and staff, and increase the size of our student enrollment.
- Generate increased private and public support for the college's research, academic, and service initiatives.

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## FACILITIES AND RESOURCES

### The Sylvia Hack Boyer Center for Student Services

The Boyer Center for Student Services is the office dedicated to meeting student needs - putting students first! The office houses the Office of Field Placement, Licensure Services, and Student Assessment (including the Chalk and Wire helpdesk). The Center also provides support to the academic departments as they pursue state and national accreditation.

### Organization

For administrative purposes, the undergraduate programs of the college are organized under four academic units, with majors shown after each unit:

1. Curriculum and Instruction
  - Career and Technical Education
  - Childhood Education
  - Elementary Education
2. Eleanor Mann School of Nursing
  - Nursing
3. Health, Human Performance and Recreation
  - Community Health Promotion
  - Kinesiology
  - Recreation and Sport Management
4. Rehabilitation, Human Resources, and Communication Disorders
  - Communication Disorders
  - Human Resource Development

### Facilities

The Graduate Education Building, Peabody Hall and the Health, Physical Education and Recreation Building serve as the nucleus of the College of Education and Health Professions' activities. An auditorium, several conference and seminar rooms, classrooms, and offices for individual professors, along with administrative and service units such as dean, associate dean for administration, associate and assistant deans for academic affairs, the Sylvia Hack Boyer Center for Student Services, and computer laboratories are housed in the Graduate Education Building.

Peabody Hall houses the Department of Curriculum and Instruction, classrooms and offices for individual professors. The Health, Physical Education and Recreation (HPER) Building houses the majority of faculty offices and classrooms for Athletic Training, Community Health Promotion, Kinesiology, Recreation and Sport Management, the Office for Studies on Aging, the Human Performance Laboratory, and the University Recreation offices.

The department of University Recreation serves the university community by providing a diverse selection of recreational opportunities and facilities, which are designed to enhance the quality of life of each participant. University Recreation is organized into eight program areas: Accessible Recreation, Club Sports, Facility Management, Fitness/Wellness, Instructional Programs, Intramural Sports, and the Outdoor

Connection Center. University Recreation operates its main facility in the Health, Physical Education and Recreation Building, which houses an Olympic-sized swimming pool, multiple gymnasiums, an indoor track, the Donna Axum Fitness Center, racquetball courts and the Outdoor Connection Center. In addition to the HPER building, UREC also operates the University Recreation Fitness Center, located on the second floor of the Arkansas Union, which features almost 6,000-square feet of fitness floor space, a 1,500-square foot group exercise room, and men's and women's locker and shower facilities. Memberships may be purchased by University faculty, staff and alumni for both the HPER Building and the University Recreation Fitness Center. For additional information on the department of University Recreation, please visit <http://urec.uark.edu>.

The Communication Disorders program is housed in the Speech and Hearing Clinic. The clinic contains faculty offices, a classroom, a graduate seminar room, teaching and research laboratories, and space and facilities for the provision of services to the speech, language, and hearing impaired. University services are provided through the clinic to University students and the community.

The Eleanor Mann School of Nursing is housed in Epley Center for Health Professions. The nursing program facilities include administrative offices, faculty offices, two classrooms, simulation laboratories, a conference room, and a computer classroom. The school has affiliation agreements for clinical practice with area health care agencies.

West Avenue Annex houses the following education research and service units: the National Office for Research, Measurement and Evaluation Systems (NORMES), the Center for Mathematics and Science Education (CMASE), the Center for Children and Youth, and the Arkansas Leadership Academy (ALA). Established in 1991, the Arkansas Leadership Academy is a nationally recognized statewide partnership of 13 universities, 9 professional associations, 15 educational cooperatives, the Arkansas Departments of Education, Higher Education, and Workforce Education, the Arkansas Educational Television Network, Tyson Foods Inc., Wal-Mart Stores Inc., and the Walton Family Foundation. The National Office for Research, Measurement, and Evaluation Systems conducts targeted educational research focusing on issues affecting students in Arkansas and general theoretical work in statistics, testing, and educational measurement. The Center for Mathematics and Science Education provides quality resources to private and public educators. The center also serves as the Arkansas NASA Educator Resource Center, disseminating educational materials provided by NASA.

Established in 1974, the Center for the Utilization of Rehabilitation Resources for Education, Networking, Training and Service (CURRENTS) provides customized training and consulting for organizations ranging from large state agencies to small not-for-profits and is nationally recognized for the high level of commitment and responsiveness to their customers and their efforts to expand, improve, and strengthen services to people with disabilities. The center is located at the Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas.

Established in 1981, the Research and Training Center for People who are Deaf or Hard of Hearing conducts research and training programs to enhance rehabilitation efforts on behalf of the 24 million U.S. citizens who are deaf or hard of hearing. These programmatic efforts are directed toward enhancing the career preparation, job entry and placement, career advancement, and workplace communication accommodations consistent with the Americans with Disabilities Act. The center is located in Little Rock.

### Academic Journals

The *Journal of Interpretation* is edited by Douglas Watson, a professor of rehabilitation counseling. Published by the Registry of Interpreters for the Deaf, this journal is considered the most widely read sign-language interpreting journal in the world.

In addition, the college is host to the *Journal of Research & Policy Studies*, edited by Christopher J. Lucas, a professor of educational foundations, and the *Journal of Research in Education*, edited by Michael Miller, a professor higher education.

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## DEGREES OFFERED

The college offers curricula leading to the Bachelor of Science in Education degree (B.S.E.) with several programs listed below. Several of these degree programs have

concentrations and specialties that are described in the section titled "Departments and Majors."

The college also offers the curriculum leading to the Bachelor of Science in Nursing (B.S.N.). The degree programs are described in this college section under the area of "Departments and Majors."

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## MAJORS, CONCENTRATIONS, AND MINORS

### Majors and Concentrations

- Career and Technical Education
- Business Education
- Competency-Based Teacher Development
- Family and Consumer Sciences Education
- Technology Education
- Childhood Education
- Communication Disorders
- Community Health Promotion
- Elementary Education
- Human Resource Development
- Kinesiology
  - P-12 Teaching Physical Education/Wellness & Leisure
  - Exercise Science – Pre-Professional
  - Applied Exercise Science
- Nursing
- Recreation and Sport Management

### Minors

Undergraduate students in the college may declare any official academic minor available at the University of Arkansas. Students must notify the Sylvia Hack Boyer Center for Student Services of their intent to pursue a minor. The college, with the assistance of the college offering the minor, will certify that the requirements of the minor have been satisfied. The academic minor will be designated on the student's official transcript. Requirements for the minor are listed in the catalog under the department offering the minor. The College of Education and Health Professions only offers one minor in Recreation and Sport Management (Department of Health, Human Performance and Recreation). See page 258 for course requirements.

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## OTHER PROGRAMS

### Curricula Offered For Initial Licensure

**Nursing Licensure:** Completing the minimum requirements for the degree of Bachelor of Science in Nursing will satisfy the academic requirements for licensure as a Registered Professional Nurse. Students must complete all of the requirements set forth by the Arkansas State Board of Nursing to be licensed as a registered nurse. See adviser for details.

#### Teacher Licensure and Licensure of other School Personnel:

The University of Arkansas offers approved undergraduate programs of study for initial licensure in childhood education, career and technical education (business education, family and consumer science, technology education), kinesiology (P-12 physical education), speech-language pathology, music and art education, and agriculture education, initial teacher licensure programs in secondary education (English/language arts, drama/speech, social studies, science, mathematics, world language), and childhood education in the Masters of Arts In Teaching (M.A.T.) degree program. The M.A.T. degree program is offered in consecutive summer, fall, and spring semesters with initial enrollment in the summer semester. The M.A.T. is a graduate degree program and requires a minimum of 33 semester hours. The M.A.T. degree program has two areas of emphasis: childhood education and secondary education in drama/speech, English, foreign language, mathematics, science and social studies. Consult the Admissions Process for Initial Teacher Licensure Stages I-IV on page 237 and the *Graduate School Catalog* for admission and graduation requirements for the M.A.T. degree program. The approved program of study for initial licensure in speech-language pathology is the Master of Science degree in Communication Disorders.

Procedures for obtaining licensure parallel those used with M.A.T. graduates. There are some non-M.A.T. licensure programs. See the appropriate sections of this catalog for that information. For bachelor's degree licensure requirements in career and technical education, music and art education, and some areas of agriculture education, see appropriate sections of this catalog.

The State Board of Education issues the regulations governing the licensure of teachers in Arkansas. The Board specifies minimum cut-off scores for all Praxis exams. Each application for a teacher's license requires completion of an approved program of study, completion of a state and national background check, and documentation of passing the Praxis exams. Those wishing to add an additional license or endorsement, should contact the Teacher Certification Officer in 350 Peabody Hall for the approved programs of study or go to <http://coehp.uark.edu/licensure.html>. Look for the menu "Additional Licensure Plan."

The Bumpers College of Agricultural, Food and Life Sciences, College of Education and Health Professions, Fulbright College of Arts and Sciences, and the University Teacher Education Board for Initial Certification have developed the preparation programs leading to initial teacher licensure. The Teacher Certification Officer will recommend students for initial teacher license who have submitted the licensing packet and successfully completed the appropriate approved program and all state licensure requirements. Licensure packets may be obtained from the Teacher Certification Officer, 350 Peabody Hall, 479-575-6740, or from the Arkansas Department of Education 501-682-4342. Students must follow the licensure guidelines as set forth by the Arkansas Department of Education in consultation with the Teacher Certification Officer. Adding an additional licensing area or endorsement may also require passing the Praxis II test and an approved program of study. See College Academic Regulations for the admission process for initial teacher licensure.

### University Teacher Education Board

The University Teacher Education Board is composed of the associate deans; faculty representatives from the College of Education and Health Professions; the J. William Fulbright College of Arts and Sciences; the Dale Bumpers College of Agricultural, Food and Life Sciences; public school teachers and/or administrators, and students. The functions are to (1) govern the teacher education and licensure program; (2) establish general policies and procedures necessary to maintain quality in degree programs; (3) oversee the general coordination of the initial licensure process; and (4) approve new courses and course changes in individual licensure program. The Board serves as a liaison group for the faculties involved and emphasizes the importance of teacher education as one of the primary responsibilities of the University.

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## COLLEGE ADMISSION REQUIREMENTS

All entering students (including freshmen, international, and transfer) admitted to the University of Arkansas, Fayetteville, are eligible for admission to the college.

### Transfer of Credit

The policies controlling the granting of credit for course work taken at other institutions apply as follows:

1. If a course with a grade of "D" is successfully petitioned for degree credit to the University of Arkansas, the College of Education and Health Professions requires a second petition called "A Petition to Accept 'D' Grades for Transfer Credit" to be successfully navigated. The petition can be obtained from the Sylvia Hack Boyer Center for Student Services, 336 Graduate Education Building. Each course will be reviewed by the COEHP Academic Affairs Dean's Office. Students are encouraged to make an appointment with an academic adviser in the Sylvia Hack Boyer Center for Student Services to discuss options and to clarify this procedure.
2. Courses completed at the lower-division (freshman or sophomore) level at another institution may not count as equivalents of upper-division (junior or senior) level courses offered in the college unless student requests program modification with proper petition approvals.
3. Students should be prepared to submit official course descriptions of transfer course work if there is any question as to whether the college will grant degree credit for such work.

### Undeclared Majors

Students enrolled in the College of Education and Health Professions are encouraged to declare a major as soon as possible. For assistance contact the Sylvia Hack Boyer Center for Student Services, 336 Graduate Education Building, 479-575-4203.

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## COLLEGE SCHOLARSHIPS

The College of Education and Health Professions offers limited numbers of scholarships in varying amounts. Recipient selection is based on a variety of attributes that are specific to each award. Attributes may include but are not limited to; the basis of promise, character, leadership skills, scholarship, or financial need.

Scholarship applications are available in December of each year via the College Web site at <http://coehp.uark.edu/#>. All current and future students of the college are strongly encouraged to take advantage of these scholarship opportunities. For further information regarding scholarships and the application process, visit the Scholarships link on the College of Education and Health Professions' Web site or contact the Office of the Associate Dean for Administration.

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## STUDENT ORGANIZATIONS

There are many general-interest societies and organizations on the campus, and nearly every department of the University maintains an honor society through which high scholarship is rewarded. Of special interest to students in the college are the following:

- Kappa Delta Pi – honor society for education
- Phi Delta Kappa – honor fraternity for graduate students
- Kinesiology Club – for kinesiology majors
- Recreation and Sport Management Majors Club – for recreation and sport management students
- Razorback Athletic Training Association (RATA) – for undergraduate kinesiology majors with a concentration in exercise science – pre-athletic training, entry level graduate athletic training students and graduate assistant athletic trainers in women's and men's athletics
- National Student Speech-Language-Hearing Association – for communication disorders majors
- Arkansas Nursing Students Association, National Student Nurse Association, and the Pi Theta chapter of Sigma Theta Tau International Honor Society of Nursing – for nursing majors
- Rehabilitation Counseling Association for Students – rehabilitation counseling program majors.
- Technology Education Collegiate Association -- Technology education program majors.

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## COLLEGE ACADEMIC REGULATIONS

### Admission Process for Initial Teacher Licensure

#### Stage I: Enrollment

Enroll in an undergraduate degree program leading to a potential teacher licensure field. Potential fields include the following:

- Agricultural Education – B.S.A.
- Art Education – B.F.A.
- Career & Technical Education (Business Education) – B.S. E. (initial licensure program, see page 241 for admissions requirements)
- Career & Technical Education (Family & Consumer Science) – B.S. E. (initial licensure program, see page 242 for admissions requirements)
- Career & Technical Education (Technology Education) – B.S. E. (initial licensure program, see page 243 for admissions requirements)
- Childhood Education – B.S.E.
- Elementary Education – B.S.E. Licensure Program
- Human Environmental Sciences Education – B.S.H.E.S.
- Kinesiology P-12 – B.S.E.

Music Education – B.M.  
 Secondary Education – B.A., B.S.  
 Speech-Language Pathology – B.S.

### Stage II: Evaluation

Complete an Evaluation for Internship by October 1 prior to entering the undergraduate student teaching semester or the Masters of Arts in Teaching (M.A.T.). All non-M.A.T. licensure programs should complete the evaluation by October 1 prior to a fall student teaching and by March 1 prior to a spring student teaching experience. Satisfactory completion of this form does not guarantee admission to the student teaching semester or the Masters of Arts in Teaching (M.A.T.) degree program or other teacher education programs. All requirements must be cleared for the internship. This form is available from the college Web site at <http://coehp.uark.edu/4880.htm>. The form must be completed and returned to the Teacher Certification Officer, 350 Peabody Hall.

Students must meet the following criteria to be cleared for internship:

1. Pass Praxis I test by meeting or exceeding the Arkansas Department of Education cut-off scores. This test should be taken after the student has completed 30 credit hours and upon completion of ENGL 1013, ENGL 1023, and MATH 1203. Please note that several departments have additional program requirements regarding the Praxis I and II. Please consult with adviser for additional requirements.
2. Obtain a “C” or better in the following pre-education core if these courses are required for the chosen program:  
 CIED 1002, CIED 1011, CIED 3023 (PHED 3903 for KINS p-12 majors), and CIED 3033.  
 In Addition, For Middle-Level Education and Childhood Education a minimum of “C” or higher must be earned in ENGL 1013, ENGL 1023, ENGL 2003, and MATH 1203 unless UA exemption is earned in one or more of the courses. This does not apply to career and technical education students.
3. Career and technical students may take CATE 1001 Practicum in Career & Technical Education in lieu of CIED 1002 and CIED 1011.
4. Complete additional licensure requirements: Kinesiology majors take CHLP 1103, and PHED 3043. CHED and MLED majors take HIST 3383. SEED Social Studies students take either HIST 4583 or HIST 3383 and any ECON course.
5. Secondary Education majors except for art and music majors, must complete the following courses with a grade of “C” or higher: CIED 4023, CIED 4131, and demonstration of computer competencies in a portfolio.
6. Obtain a “C” or better in the six hours of program-specific courses (see adviser for information), except for Kinesiology P-12.
7. Schedule a visit with adviser for additional requirements including admission to upper-division courses.
8. Consult with adviser regarding Praxis II requirements.
9. Consult adviser for the GPA requirements for the chosen program.

### Stage III: Admission

#### A. Admission to M.A.T.

The following minimum criteria are necessary to be eligible for consideration for admission to the M.A.T. Degree Program: (Consult with faculty adviser for additional requirements set by the chosen program.)

1. Meet all requirements in stages I and II.
2. Complete an appropriate undergraduate degree program.
3. Earn a cumulative GPA of 3.0 on the last 60 hours of Bachelor’s degree for automatic admission to the Graduate School. Consult adviser for the GPA requirements for the chosen program.
4. Obtain recommendation for admission from M.A.T. program area based on successful completion of portfolios, evaluation for internship, GPA requirements, course work requirements, selected written recommendations, an interview, and other requirements specified by the chosen program.
5. Obtain admission to Graduate School. (See *UA Graduate School Catalog* for details.)  
 Enrollment in each cohort will be limited. Transfer students will be allowed

to enter the program on a space-available basis and must progress through all three admission stages.

#### B. Admission to Career and Technical Education B.S.E.

The following minimum criteria are necessary to be eligible for consideration for admission to the career and technical education B.S.E. teacher licensure program. (Consult with faculty adviser for additional requirements set by the chosen program).

1. Meet all applicable requirements in Stages I and II.
2. Earn a cumulative GPA of 2.50 or higher before the internship semester in the undergraduate program. Several courses have minimum grade requirements of “C” or better.
3. Please see your adviser for a listing of those courses.
4. Passing scores received on all three parts of Praxis I are required before enrolling in CATE 406v: Teaching Internship, CATE 4041: Lab Management and CATE 4051: Seminar.
5. A successful interview with the teacher education faculty in career and technical education must be complete before enrolling in professional education courses. This is normally completed during the advising registration period.

### Stage IV: Graduation

#### A. Requirements for M.A.T.

1. Meet all requirements in stages I – III.
2. Obtain a minimum cumulative GPA of 3.00.
3. Complete a minimum of 33 graduate semester hours as specified by program area.
4. Satisfactorily complete an internship. The internship or student teaching experience will be completed at a school/district in Benton or Washington County that has been approved by the Northwest Arkansas Partnership Steering Committee.
5. Pass the appropriate Praxis tests (see adviser for the appropriate test) by meeting or exceeding the Arkansas Department of Education cut-off scores. This test is required for most programs. Please consult with adviser.
6. Successfully complete Comprehensive Examination.
7. Consult with adviser for other requirements.
8. Apply for degree at the Graduate School, 119 Ozark Hall.

#### B. Requirements for Career and Technical Education and Kinesiology P-12

1. Meet all requirements in Stages I - III.
2. Obtain a minimum cumulative GPA of 2.50.
3. Complete all coursework in the Program of Study.
4. Satisfactorily complete a student teaching experience for one semester. The student teaching experience will be completed at a school/district in Benton or Washington County.
5. Pass the appropriate Praxis tests (see adviser for the appropriate test) by meeting or exceeding the Arkansas Department of Education cut-off scores.
6. Successfully complete a teaching portfolio, except for Kinesiology P-12.
7. Consult with adviser for other requirements.
8. Apply for degree.

### Initial Licensure

Students who have completed the stages listed above must obtain a licensure packet from the Teacher Certification Officer, 350 Peabody Hall, prior to entering internship. A mandatory meeting is held each April before starting either an internship or a student teaching experience.

Students should always consult the Teacher Certification Officer or adviser regarding licensure requirement changes. Students will not be licensed to teach in Arkansas until they have met all requirements for licensure as set forth by the Arkansas Department of Education.

Students who have completed the B.M. or B.F.A. in music or art education and the B.S.A. in agriculture education and have completed the internship may obtain the licensure packet from the Teacher Certification Officer, 350 Peabody Hall, at the mandatory meeting held each April before starting either an internship or a student teaching experience.



Usually licensure in another state is facilitated by qualifying for a license in Arkansas. Application in another state must be made on the application form of that state, which can be obtained by request from the State Teacher Licensure office in the capital city. An official transcript should accompany the application. In many instances the applications are referred to the Teacher Certification Officer to verify program completion in teacher education.

### College Honor Roll

At the close of each semester, the college recognizes students who qualify for the honor roll. They are the 10 percent of the highest-ranking students in each class. Students must carry a minimum of 12 semester hours to be eligible for the Honor Roll and obtain a minimum term GPA of 3.5.

### Graduation with Distinction

Graduation with Distinction will be conferred to College of Education and Health Professions students (who are not participating in the college "Honors Program") based upon their University of Arkansas cumulative grade-point average at the time of graduation. To earn this distinction, a student must have completed at least one-half of the course work required for his or her degree at the University of Arkansas, Fayetteville. The graduation with distinction designation will be assigned as follows:

1. For *highest distinction*, the student must have a minimum cumulative grade point average of 3.95 and rank in the top 10 percent of the graduating class.
2. For *high distinction*, the student must have a minimum cumulative grade point average of 3.75 and rank in the top 10 percent of the graduating class.

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## HONORS PROGRAM

The College of Education and Health Professions Honors Program is designed for students who value and want to be challenged by an exceptional educational experience and want to focus their studies intensively. The program creates and supports an academic environment of intellectual adventure and provides a carefully integrated and demanding curriculum. The rewards are immense: high academic achievement; involvement in undergraduate research; academic distinction of *Summa Cum Laude*, *Magna Cum Laude*, or *Cum Laude* and confirmation of an honors degree on the student's transcript; and recognition at commencement.

The mission of the Honors Program is to: Establish and maintain an Honors community of learning that is intellectually rigorous, personally and culturally enriching, and fosters learning and discovery through independent and collaborative inquiry; Allow students to be creative, inquisitive and innovative; Support student research and analysis of ideas; Support student academic ventures through mentoring, travel, and supplies when presenting work at undergraduate research symposia; Challenge students to connect the classroom with the larger world by expanding social and cultural experiences and promoting leadership, and Prepare students for admission to and success within graduate and professional schools in the United States and abroad.

Benefits of participating in the Honors Program include: Small class sizes, close contact with talented faculty, opportunity for independent study that counts toward the requirements of the Honors Program, special academic counseling and priority registration, increased confidence and skill in writing, Honors housing, recognition on transcript as "Graduate of the University Honors Program," enhanced career opportunities, and increased advantages for graduate or professional school applicants.

Admission to the University of Arkansas Honors College assures automatic admission to the COEHP Honors Program for incoming freshmen. The student can apply for admission electronically through the following website: <http://honorscollege.uark.edu/503.php>. The following are admission criteria for students seeking admission to the COEHP Honors Program:

#### Entering Freshmen

- 28 ACT or 1240 SAT score (Critical Reading plus Math). Honors admission is based on your highest composite ACT or SAT score, not on superscores.
- 3.5 or greater high school GPA

### Students Applying as Continuing or Transfer

(within and outside the University of Arkansas)

1. 3.4 cumulative GPA
2. Applications will not be accepted from students who are within three full semesters of anticipated graduation date.
3. Below are the minimum requirements for UA students who have already been accepted into an Honors Program in another college and are transferring to the College of Education and Health Professions:
  - 3.25 GPA at freshman classification (0-29 hours)
  - 3.37 GPA at sophomore classification (30-59 hours)
  - 3.50 GPA at junior classification (60-89 hours)
  - 3.50 GPA at senior classification (90 hours to undergraduate completion)

#### Application:

1. Complete the Honors Program Continuing and Transfer Application and return to: COEHP Honors Program, Attention Assistant Dean for Academic Affairs, Graduate Education Building, Room 317 Fayetteville, AR 72701
2. Following admission to the COEHP Honors Program, a faculty mentor adviser will be assigned from the student's academic department in addition to an academic adviser in the Sylvia Hack Boyer Center for Student Services. Eligibility for continued enrollment in the COEHP Honors Program will be based on the following cumulative minimum grade-point averages:
  - 3.25 GPA - At the end of the freshman year (0-29 hours)
  - 3.37 GPA - At the end of the sophomore year (30-59 hours)
  - 3.50 GPA - At the end of the junior year (60-89 hours)
  - 3.50 GPA - At graduation

At the end of each semester, the director of the COEHP honors program will review the academic records of all enrolled honors students to determine whether each one has the cumulative grade-point average to continue in the program. Students with less than a 3.5 GPA will be placed on probation. The student will be reinstated to the honors program when they have achieved the minimum grade point average. Students will be dismissed from the Honors Program if they violate the University's Academic Integrity policy at a violation level of 1.0. If the student's violation level is above 1.0, the student will lose financial scholarships as well.

### Honors Degrees

The College of Education and Health Professions is dedicated to providing programs designed to meet the honors student's needs. To achieve this aim, the college faculty has developed two honors tracts for students, which includes the COEHP Scholars Program and the COEHP Honors Program. Students successfully completing the COEHP Honors Program and Scholars Program will receive the following academic accolades: (1) GPA > 3.9 - *Summa Cum Laude*, (2) GPA > 3.7 - *Magna Cum Laude*, (3) GPA ≥ 3.5 *Cum Laude*.

**Requirements for the COEHP Scholars Program:** The Scholars program provides an honors program for students of superior academic talent. Requirements for the scholars program include meeting all University and department degree requirements; completion of a minimum of 18 honors credit hours taken from the University program of study; completion of a minimum of 6 honors credit hours within the student's program of study including HNEP 3001H Honors Education Thesis Tutorial, three hours of HNEP 400VH Honors Education Thesis/Project; a minimum of 2 hours of honors courses from the student's academic department; completion of honors requirements including preparation and oral defense of an honors thesis; and a minimum cumulative grade-point average of 3.5.

**Requirements for the COEHP Honors Program:** Requirements for the COEHP Honors Program include meeting all University, COEHP, and department degree requirements; completion of a minimum of 12 honors credit hours taken from the university program of study; completion of a minimum of 6 honors credit hours within the students program of study including HNEP 3001H Honors Education Thesis Tutorial, three hours of HNEP 400VH Honors Education Thesis/Project; a minimum of 2 hours of honors courses from the student's academic department; completion of honors requirements including preparation and oral defense of an honors thesis; and a minimum cumulative grade-point average of 3.5

For more information about the honors program or to complete an application form,

please refer to the college's honors Web page at <http://hono.uark.edu/>.

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See Page 365 for College of Education and Health Professions  
honors program (HNED) courses

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## DEGREE REQUIREMENTS

### Minimum Requirements for the B.S.E. or B.S.N. Degree

The candidates for a baccalaureate degree from the college must meet University requirements, which specify at least 124 semester hours of work with a grade-point average of at least 2.00 on all work attempted in the University. Students exempting any course must still meet the 124-hour graduation requirement and should consult their adviser for specific program requirements. Exemption of courses does not result in credit earned. The students must comply with the prescriptions and restrictions listed below and under General Studies and must complete the requirements in one or more of the approved degree programs.

Students must also meet all other University Requirements for Graduation, including the University Core requirements (page 41). Students are required to have a pre-graduation check at least one semester prior to the graduation term. Students who complete the pre-graduation check and meet all University and College of Education and Health Professions requirements may apply for graduation under the guidelines detailed on page 39. All course work, University requirements, and college requirements must be completed by the deadline for the term in which applied. Students not graduating in spring, but wishing to participate in the spring commencement ceremony, must apply for graduation by the established priority deadline for the spring term. For clarification, please contact the Sylvia Hack Boyer Center for Student Services, 336 Graduate Education Building, at 479-575-4203.

## GRADUATE STUDIES

The Graduate School, in cooperation with the college offers advanced work in education and health professions leading to the degrees of Master of Arts in Teaching, Master of Science, Master of Education, Educational Specialist, Doctor of Education, and Doctor of Philosophy.

The graduate programs include:

- Athletic Training
- Childhood Education
- Communication Disorders
- Community Health Promotion
- Counselor Education
- Curriculum and Instruction
- Educational Leadership
- Educational Statistics and Research Methods
- Educational Technology
- Education Policy
- Elementary Education
- Higher Education
- Kinesiology
- Middle-Level Education
- Physical Education
- Recreation and Sport Management
- Rehabilitation
- Secondary Education
- Special Education
- Workforce Development

The Graduate School awards the graduate degrees. Students who are interested in registering for graduate courses or in becoming candidates for these degrees should consult the dean of the Graduate School and the *Graduate School Catalog*.

Students who plan to study for an advanced degree in the subject-matter field should consult with the head of the department concerning course requirements to be eligible to begin graduate study. Specialization requirements for a B.S.E. degree in the

College of Education and Health Professions may not be sufficient in every field to gain admission for graduate study without deficiencies.

## ACCREDITATIONS

Students who complete the approved program of study leading to initial licensure are eligible to receive licenses to teach at the grade level or in the fields for which they have made preparation upon application and presentation of acceptable scores on the appropriate Praxis exams. However, students must follow licensure guidelines set forth by the Arkansas Department of Education to be licensed to teach.

The teacher education program of the College of Education and Health Professions is accredited by the National Council for Accreditation of Teacher Education (NCATE), 2010 Massachusetts Ave., NW, Suite 500, Washington, D.C. 20036; phone 202-466-7496; Web: [www.ncate.org](http://www.ncate.org). This accreditation covers the initial teacher preparation programs and/or advanced educator preparation programs. Because of the accreditation by the National Council for Accreditation of Teacher Education, students who complete the curricula as outlined in this catalog are eligible to be recommended for licensure in states that agree to certify graduates who are recommended by the College of Education and Health Professions as having fulfilled its requirements.

The University of Arkansas holds membership in and is accredited by the North Central Association of Colleges and Secondary Schools. The college is also a member of the American Association of Colleges for Teacher Education. The graduate program in communication disorders is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association. The counselor education graduate program is nationally accredited through the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). The Bachelor of Science in Nursing (B.S.N.) degree program is accredited by the Commission on Collegiate Nursing Education and by the National League for Nursing Accrediting Commission. It is also approved by the Arkansas State Board of Nursing. The M.S. degree program in Rehabilitation Counseling is accredited by the Council on Rehabilitation Education (CORE). Graduates of the accredited program are eligible to sit for the Certified Rehabilitation Counselor (CRC) examination.

## DEPARTMENTS AND MAJORS

### CURRICULUM AND INSTRUCTION (CIED)

Michael K. Daugherty  
Department Head  
217 Peabody Hall  
479-575-4209  
[mkd03@uark.edu](mailto:mkd03@uark.edu)

The Department of Curriculum and Instruction sponsors initial teacher licensure programs in the areas of career and technical education, elementary education, childhood education and secondary education. The department also offers additional licensure plans in ESL, gifted and talented, special education and selected other areas (please see College Web Site licensure link). The Special Education Program also offers a Graduate Certificate in Autism Spectrum Disorders (ASD). Additional secondary school licensure programs are made available with the cooperation of the Department of Health Science, Kinesiology, Recreation, and Dance; the Department of Rehabilitation, Human Resources and Communication Disorders; the J. William Fulbright College of Arts and Sciences; and the Dale Bumpers College of Agricultural, Food and Life Sciences,

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See Page 331 for Curriculum and Instruction (CIED) courses.

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## CAREER AND TECHNICAL EDUCATION (CATE)

Christy Wear  
Academic Counselor for Freshmen and Sophomores  
111 Peabody Hall  
479-575-6860  
cswear@uark.edu

### FACULTY

- Professors Daugherty, Thompson (C.)
- Associate Professor Orr
- Clinical Instructor Carter

The University of Arkansas has been approved by the State Board for Career and Technical Education for the preparation of teachers, supervisors, and administrators in career and technical education. Three of the four concentration areas lead to teacher licensure. These three concentration areas include: business education (BUED), family and consumer sciences education (FCSE) and technology education (TEED). One other concentration in career and technical education: competency-based teacher development (CBTD) does not lead to teacher licensure.

See Page 326 for Career and Technical Education (CATE) courses.

## Business Education (BUED)

Betsy Orr  
Adviser  
315 Peabody Hall  
479-575-6430  
borr@uark.edu

<http://cied.uark.edu/businessed.php>

Students pursuing the Bachelor of Science in Education degree may select the business education program concentration as a field of specialization in career and technical education. Completion of the B.S.E. will prepare students to teach business education at the junior high level and secondary education level.

In addition to the general studies requirement the following courses are required for a concentration in business education. All professional education courses must have a grade of "C" or better. No teaching methods courses may be taken by correspondence. CATE 4003, CATE 4013, CATE 4023, and CATE 4033 are fall only courses. CATE 4041, CATE 4051, CATE 406v, and CATE 4803: Word Processing are spring only courses.

Students must have passed all 3 parts of Praxis I to be admitted to the fall semester, senior year. Students must have passed Praxis II: Business Education Content Knowledge to be admitted to the spring semester, senior year in addition to successful completion of Praxis I and the 2.50 GPA requirement.

	<b>Hours</b>
<b>I. University Core Requirements (See page 41)</b>	<b>35</b>
Required University Core for Business Education	
PSYC 2003 General Psychology	
ECON 2013 Principles of Macroeconomics	
ECON 2023 Principles of Microeconomics	
MATH 2053 Finite Math	
<b>II. Professional Education</b>	<b>33</b>
CIED 3023 Survey of Exceptionalities	
CIED 3033 Classroom Learning Theory	
CATE 1001 Practicum in Career & Technical Education	
CATE 4003 Introduction to Professionalism	
CATE 4013 Teaching Strategies	
CATE 4023 Classroom Management	

CATE 4033 Assessment/Program Evaluation  
CATE 4041 Lab Management  
CATE 4051 Seminar  
CATE 406X Teaching Internship

### III. Technical Requirements

WCOB 1012 Legal Environment of Business  
WCOB 1023 Business Foundations  
WCOB 1033 Data Analysis and Interpretation  
WCOB 1120 Computer Competency Requirement  
WCOB 2013 Markets and Consumers  
WCOB 2023 Production and Delivery of Goods and Services  
WCOB 2043 Acquiring and Managing Financial Resources  
Any 3 hour computer course  
Any 3 hour MKTG course  
CATE 4803 Problems in Career & Technical Education (Word Processing)  
COMM 1313 Public Speaking  
MATH 1203 if required (see adviser)  
27 hours Electives (see adviser for course list)

Total 124 hours are required by the University of Arkansas for a degree. 124

### IV. Admission requirements for Spring, Senior Year:

1. Students must have a cumulative GPA of 2.5 or higher to be admitted for the student teaching semester.
2. Passing scores on all three parts of Praxis I are required before enrolling in CATE 406v: Teaching Internship, CATE 4041: Lab Management and CATE 4051: Seminar.
3. Passing scores are required for Praxis II: Subject Matter before enrolling in CATE 406v: Teaching Internship, CATE 4041: Lab Management and CATE 4051: Seminar.
4. Students must complete a successful "Internship Admission Interview" with career and technical education faculty. These interviews are scheduled with all senior students during the fall semester.

Note: All students seeking licensure in the state of Arkansas are subject to a criminal background check. Forms for this procedure may be obtained at 350 Graduate Education Building, at the State Department, or any police station, including the campus police. These background checks take up to six months to process; therefore, students are advised to complete and submit the forms to the proper authorities six months in advance of actually applying for a license. Arkansas will not certify anyone who has been convicted of a felony.

### Career and Technical Education B.S.E. with Business Education Concentration Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan in Career and Technical Education (teaching option) with a concentration in Business Education should see page 42 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

3 ENGL 1013 Composition I  
3 †Fine Arts or Humanities  
3 MATH 1203 – or equivalent – If required  
4 †Science with Lab  
3 COMM 1313 Public Speaking  
0 WCOB 1120 Computer Competency Requirement  
1 CATE 1001 Practicum in Career & Technical Education

#### 17 Semester hours

#### Spring Semester Year 1

3 ENGL 1023 Composition II  
3 †Fine Arts or Humanities  
3 †U.S. History  
3 †PSYC 2003 General Psychology  
1 Elective  
3 ECON 2013 Principles of Macroeconomics

#### 16 Semester hours

#### Fall Semester Year 2

3	ECON 2023 Principles of Microeconomics
3	MATH 2053 Finite Math
2	WCOB 1012 Legal Environment of Business
5	Electives
4	†Science with Lab
<b>17</b>	<b>Semester hours</b>
<b>Spring Semester Year 2</b>	
3	WCOB 1023 Business Foundations
3	WCOB 1033 Data Analysis and Interpretation
9	Electives
<b>15</b>	<b>Semester hours</b>
<b>Fall Semester Year 3</b>	
3	CIED 3023 Survey of Exceptionalities
3	CIED 3033 Classroom Learning Theory
3	Upper Level Elective
3	Computer course
3	WCOB 2023 Production and Delivery of Goods
<b>15</b>	<b>Semester hours</b>
<b>Spring Semester Year 3</b>	
3	WCOB 2013 Markets and Consumers
3	WCOB 2043 Acquiring and Managing Financial Resources
3	3000-level or above MKTG elective
3	CATE 4803 Problems in Career & Technical Education (Word Processing)
3	Electives
<b>15</b>	<b>Semester hours</b>
<b>Fall Semester Year 4</b>	
3	CATE 4003 Professionalism
3	CATE 4013 Teaching Strategies
3	CATE 4023 Classroom Management
3	CATE 4033 Assessment/Program Evaluation
3	Electives
<b>15</b>	<b>Semester hours</b>
<b>Spring Semester Year 4</b>	
1	CATE 4041 Lab Management
1	CATE 4051 Seminar
12	CATE 406V Teaching Internship
<b>14</b>	<b>Semester hours</b>
<b>124</b>	<b>Total hours</b>

†Core areas must be completed as outlined in Catalog of Studies, see page 41.

**Family and Consumer Sciences Education (FCSE)**

Cecelia K. Thompson  
 Adviser  
 314 Peabody Hall  
 479-575-2581

Christy Wear  
 Academic Counselor for Freshmen and Sophomores  
 111 Peabody Hall  
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 cswear@uark.edu

Students pursuing the Bachelor of Science in Education degree may select the family and consumer sciences education program concentration as a field of specialization in career and technical education.

Completion of the B.S.E. will prepare students to teach family and consumer sciences at the junior high and secondary education level or to prepare students to work in professional careers in the Cooperative Extension Service, business, industry, or social services.

In addition to the general studies, the following courses are required for a concentration in family and consumer sciences education.

**University Core Requirements for Concentration in Family and Consumer Science**

Required University Core (see Page 41)  
 PSYC 2003 General Psychology

**Hours**  
 35

CHEM 1103/1101L Chemistry I and lab or  
 CHEM 1073/1071L Fundamentals of Chemistry and lab  
 HESC 1403 Life Span Development  
 HESC 2413 Family Relations

**Professional Education Core** 36

CIED 3023 Survey of Exceptionalities  
 CIED 3033 Classroom Learning Theory  
 CATE 1001 Practicum in CATE  
 CATE 4003 Introduction to Professionalism  
 CATE 4013 Teaching Strategies  
 CATE 4023 Classroom Management  
 CATE 4033 Assessment/Program Evaluation  
 CATE 4041 Lab Management  
 CATE 4051 Seminar  
 CATE 406V Teaching Internship (12 hours)  
 CIED 1003 Introduction to Technology in Education

**Technical Requirements** 39

HESC 1013 Introduction to Clothing Concepts  
 HESC 1213 Fundamentals of Nutrition  
 HESC 2112/2111L Principles of Foods  
 HESC 2203 Sports Nutrition  
 HESC 2053 Intro. to Textile Science  
 HESC 2403 Infant and Toddler Development  
 HESC 2433 Child Development  
 HESC 3423 Adolescent Development  
 HESC 3443 Families in Crisis  
 HESC 4433 Dynamic Family Interaction  
 HESC 4453 Parenting and Family Dynamics  
 HESC 4753 Family Financial Management  
 CATE 4803 Problems in Career & Technical Education (Housing)

**Electives** (adviser approved) 13-14

**Total Hours for degree** 124

**Admission requirements for Spring, Senior Year:**

1. Earn a cumulative GPA of 2.5 or higher
2. Passing scores on Praxis I
3. Take Praxis II
4. Successful interview with career and technical education faculty in the Department of Curriculum and Instruction.

Note: All students seeking licensure in the state of Arkansas are subject to a criminal background check. Forms for this procedure may be obtained at 216 Peabody Hall, at the State Department, or any police station, including the campus police. These background checks take up to six months to process; therefore, students are advised to complete and submit the forms to the proper authorities six months in advance of actually applying for a license. Arkansas will not certify anyone who has been convicted of a felony.

**Career and Technical Education B.S.E. with Family and Consumer Sciences Education Concentration Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan in Career and Technical Education with a concentration in Family and Consumer Sciences Education should see page 42 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

3	ENGL 1013 Composition I
3	Math 1203 College Algebra or equivalent
3	†US History
3	HESC 1403 Lifespan Development
4	†CHEM 1103/1101L or CHEM 1073/1071L
<b>16</b>	<b>Semester Hours</b>

**Spring Semester Year 1**

3	ENGL 1023 Composition II
4	†Science with Lab
3	†Fine Arts or Humanities
3	HESC 1213 Fundamentals of Nutrition
3	HESC 1013 Introduction to Clothing Concepts

**16 Semester Hours****Fall Semester Year 2**

1	CATE 1001, Practicum in CATE
3	HESC 2112/2111L Principles of Foods and Lab
3	†Fine Arts or Humanities 3 hrs
3	PSYC 2003 General Psychology
3	CIED 1003 Introduction to Technology in Education
3	HESC 4753, Family Financial Management

**16 Semester Hours****Spring Semester Year 2**

3	HESC 2053 Introduction to Textile Science
3	HESC 2413 Family Relation
6	Electives
3	HESC 2203 Sports Nutrition

**15 Semester Hours****Fall Semester Year 3**

3	HESC4453 Parenting and Family Dynamics
3	HESC 2403 Infant and Toddler Development
3	CIED 3033 Classroom Learning Theory
3	HESC 3443 Families in Crisis
3	Elective

**15 Semester Hours****Spring Semester Year 3**

3	HESC 3423 Adolescent Development
3	HESC 4433 Dynamic Family Interaction
3	HESC 2433 Child Development
3	CATE 4803 Problems in CATE (Housing)
4-5	Electives

**16-17 Semester Hours****Fall Semester Year 4**

3	CIED 3023 Survey of Exceptionality
3	CATE 4003 Introduction to Professionalism
3	CATE 4013 Teaching Strategies
3	CATE 4023 Classroom Management
3	CATE 4033 Assessment/Program Evaluation

**15 Semester Hours****Spring Semester Year 4**

1	CATE 4041 Lab Management
1	CATE 4051 Seminar
12	CATE 406V Teaching Internship

**14 Semester Hours****124 Total Hours**

† Core areas must be completed as outlined in Catalog of Studies, see page 41.

**Technology Education (TEED)**

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A Bachelor of Science in Education degree with a concentration in Technology Education is a licensure program that prepares students to teach technology, pre-engineering, or other technical subject matter at the high school, middle-level, or community college. Additionally, the program prepares one to enter mid-level techni-

cal/management careers in business and industry. The concentration is a specialized field of study within the Career and Technical Education program at the University of Arkansas.

**University Core Requirements (State Minimum Core)** **Hours**  
35

**See Page 41**

Science concentration of core must include:

PHYS 2013/2011L College Physics and lab  
MATH 2043 Survey of Calculus

**Technical Requirements** **Hours**  
30

TEED 1103 The Nature of Technology

TEED 2103 Technology and Society

GNEG 1111 Introduction to Engineering I

GNEG 1121 Introduction to Engineering II

TEED 3103 Frameworks for Resolving Technological Challenges

TEED 4103 Engineering Design Capstone

GNEG 1122 Introduction to CAD

TEED 3303 The Technologies of Energy and Movement

TEED 3203 The Technology of Communication

INEG 3513 Manufacturing Design and Processes

AGME 3173 Electricity in Agriculture

AGME 3042 Agricultural Construction Technology

**Professional Education** **Hours**  
39

COMM 1313 Public Speaking

CIED 1003 Introduction to Technology in Education

CATE 1001 Practicum in CATE

CIED 3023 Survey of Exceptionalities

CIED 3033 Classroom Learning Theory

CATE 4003 Introduction to Professionalism

CATE 4013 Teaching Strategies

CATE 4023 Classroom Management

CATE 4033 Assessment/Program Evaluation

CATE 4041 Lab Management

CATE 4051 Seminar

CATE 406V Teaching Internship (12 hours)

**Technical Electives** **Hours**  
20

**Total Hours** **Hours**  
124

Internship Semester (Spring Semester/Senior Year) Admission Criteria:

1. Candidate must hold a cumulative GPA of 2.50 or higher
2. Candidate must have taken and passed the Praxis I examination during the previous semester or earlier
3. Candidate must have taken and passed the Praxis II content examination during the previous semester or earlier
4. Candidate must complete a successful "internship admission interview" with

Career & Technical Education faculty. Note these interviews are scheduled with all senior students during the fall semester.

Note: All students seeking licensure in the State of Arkansas are subject to a criminal background check. Forms needed to complete this procedure may be obtained in 340 Graduate Education Building on the University of Arkansas campus. These forms may also be obtained from any police station (including the University of Arkansas Police station) or directly from the Arkansas State Department. These background checks take up to six months to process; therefore, students are advised to complete and submit the forms to the proper authorities at least six months in advance of graduation (or six months prior to applying for a teaching license). Arkansas will not grant a teaching license to anyone who has been convicted of a felony.

**Career and Technical Education B.S.E.  
with Technology Education Concentration  
Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan in Technology Education

should see page 42 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

- 3 ENGL 1013 Composition I
- 1 GNEG 1111 Introduction to Engineering I
- 3 † Social Science
- 2 GNEG 1122 Introduction to CAD
- 3 † U.S. History
- 1 CATE 1001 Practicum in Career & Technical Education

**13 Semester Hours**

#### Spring Semester Year 1

- 3 ENGL 1023 Composition II
- 1 GNEG 1121 Introduction to Engineering II
- 3 AGME 3173 Electricity in Agriculture
- 3 TEED 1103 The Nature of Technology
- 3 MATH 2043 Survey of Calculus
- 3 Technical Elective Course \*\*\*

**16 Semester Hours**

#### Fall Semester Year 2

- 4 PHYS 2013/2011L College Physics with lab
- 3 †Fine Arts or Humanities
- 3 COMM 1313 Public Speaking
- 3 TEED 2103 Technology & Society
- 3 CIED 1003 Introduction to Technology in Education

**16 Semester Hours**

#### Spring Semester Year 2

- 3 Technical Elective Course\*\*\*
- 4 University Core Science with lab
- 3 TEED 3103 Tech. Research, Experimentation, & Trouble-shooting
- 3 †Fine Arts or Humanities
- 3 †Social Science

**16 Semester Hours**

#### Fall Semester Year 3

- 3 CIED 3023 Survey of Exceptionalities
- 3 CIED 3033 Classroom Learning Theory
- 3 TEED 3203 Information and Communications Systems
- 3 INEG 3513 Manufacturing Design and Processes
- 4 Technical Elective Course\*\*\*

**16 Semester Hours**

#### Spring Semester Year 3

- 3 TEED 3303 Energy, Power, & Transportation
- 3 †Social Science
- 2 AGME 3042 Construction Technology
- 3 Technical Elective Course\*\*\*
- 3 Technical Elective Course\*\*\*
- 4 Technical Elective Course\*\*\*

**18 Semester Hours**

#### Fall Semester Year 4

- 3 TEED 4103 Eng. Design for TE Capstone
- 3 CATE 4003 Professionalism
- 3 CATE 4013 Teaching Strategies
- 3 CATE 4023 Classroom Management
- 3 CATE 4033 Assessment & Program Evaluation

**15 Semester Hours**

#### Spring Semester Year 4

- 1 CATE 4041 Lab Management
- 1 CATE 4051 Seminar
- 12 CATE 406V Teaching Internship (12 hours)

**14 Semester Hours**

**124 Total Hours**

## Competency-Based Teacher Development (CBTD)

Vinson Carter  
Adviser  
313 Peabody Hall  
479-575-3076

## Competency-Based Teacher Development (CBTD) Concentration

This concentration should be selected by incumbent (in-service) trade and technical instructors who desire to obtain a Bachelor of Science in Education degree or

become certified as a master instructor in the post-secondary vocational and secondary school systems. CBTD concentration utilizes the online teacher development courses and is field-based.

## CHILDHOOD EDUCATION (ELED)

### FACULTY

- Associate Professors Collier, Imbeau, Penner-Williams
- Clinical Associate Professor Eilers
- Assistant Professors Beasley, Paulk, Wissehr
- Clinical Assistant Professors Brown (D.), Casey, Elsass, Mounts
- Clinical Instructors Owen, Kerr, Kindall, Smith (D.)

The Department of Curriculum and Instruction offers programs that prepare candidates for initial teacher licensure in Childhood Education. The B.S.E. degree in Childhood Education is not an initial teacher licensure program but instead leads to the Master of Arts in Teaching (M.A.T.), which is the initial teacher licensure preparation program. Information about the M.A.T. degree program can be found in the University of Arkansas *Graduate Catalog*.

Admission to the B.S.E. in Childhood Education is competitive and consists of a three-stage process. Admission will be determined by the Childhood Education faculty based on the 5 items listed below in Stage II.

### Stage I: Pre-Childhood Education (PCHED)

1. Complete all program pre-requisites including the first 62 or 63 hours of the 8-semester plan (see 8-semester table below)
2. Obtain a minimum of 2.7 GPA on UA coursework.
3. †Complete the following courses with a “C” or better: COMM 1313, MATH 1203 or equivalent, ENGL 1013, and ENGL 1023.
4. Obtain a passing score on the Math, Reading, and Writing sections of the Praxis I.

### Stage II: Admission to the Childhood Education Program (CHED)

Admission to the Childhood Education Program is competitive and occurs after completion of all Pre-Childhood Education requirements and prior to the beginning of the fall semester of the junior year. Not all applicants meeting the minimum requirements will be admitted to the program. Applications to the Childhood Education (CHED) program must be submitted by January 30. Not all applicants meeting the minimum requirements will be admitted to the program.

The application process includes:

1. Submission of Childhood Education application.
2. Submission of transcripts for all coursework.
3. Oral Interview.
4. Submission of Writing and Editing Samples.
5. Submission of passing score on Math, Reading, and Writing sections of Praxis I Exam.

### Stage III: Requirements for Program Continuation.

1. Declaration of endorsement area of ESL, SPED, STEM, or Grades 5/6.
2. Maintain a minimum cumulative GPA of 2.7.
3. All non-methods math, science, social studies and HESC courses as well as CIED 3003/3001, CIED 3023, CIED 3033, and CIED 3263 must be completed prior to senior year.

## Master of Arts in Teaching (M.A.T.)

The Masters of Arts in Teaching (M.A.T.) is the degree that leads to initial teacher licensure. This is a graduate program and applicants must meet the admission requirements of the Graduate School. Applicants must have completed all requirements for the B.S.E. by the end of spring semester to be considered for admission into the M.A.T., which is a year-long field-based degree that starts during the summer prior to the regular fall-spring academic year.

M.A.T. candidates will be advised by faculty advisers.

Admission requirements:

1. Admission to the University of Arkansas Graduate School.
2. Submission of M.A.T. Application.
3. Cumulative GPA of 3.0 on the last 60 hours of coursework. Including any transfer work or grade forgiveness.

4. Passing score on Praxis II, Early Childhood: Content Knowledge (10022).
5. Passing score on M.A.T. entrance portfolio.
6. Successful interview with M.A.T. admission committee.

NOTE: Requirements for teacher licensure vary from state to state and may differ from teacher preparation programs. Please note that Arkansas requires all applicants to successfully complete a criminal background check. Arkansas Teacher Licensure requirements can be found at <http://arkansased.org/teachers/licensureinitial.html>.

NOTE: All professional education courses in CIED must have a grade of "C" or better. No teaching methods courses may be taken by correspondence. CIED 3103, 3113, 3123, and 4153 are offered in the fall only. CIED 3133, 3143, 4101, and 4113, are offered in the spring semester only.

<b>Childhood Education Requirements</b>	<b>Hours</b>
<b>ESL option</b>	
University Core (State Minimum Core)	35
*Specifically required University Core for Childhood	
NOTE: All professional education courses in CIED must have a grade of "C" or better. Enrollment in upper-division professional education courses may be limited. Contact advisers for specific details. No teaching methods courses may be taken by correspondence.	
<b>Childhood Education</b>	25-26
CIED 3123 Mathematics Methods	
CIED 3133 Integrated Social Studies	
CIED 3143 Teaching Science in the Elementary Grades	
CIED 4101 Practicum	
CIED 4113 Integrated Communication Skills	
CIED 4153 Classroom Management	
CIED 3003/3001 Early Childhood Ed./Practicum or HESC 3402/3401L Child Guidance and lab	
CIED 3263 Language Development for the Educator	
HESC 2433 Child Development	
<b>Interdisciplinary Studies</b>	16
Mathematics (in addition to †MATH 1203)	
MATH 2213 Survey of Math Structures I	
MATH 2223 Survey of Math Structures II	
General Science (12 hours)	
*BIOL 1543/1541L Principles of Biology	
*GEOL 1113/1111L General Geology/Lab	
Physical science course with laboratory	
Social Science (18 hours)	
ECON 3053 Economics for Elementary Teachers or any Economics course**	
3 hours Geography**	
*PLSC 2003 American National Government	
*PSYC 2003 General Psychology	
Arkansas History	
HIST 3383 Arkansas and the Southwest or any Arkansas history course	
History (select one of the following):	
*HIST 2003 Hist/American People to 1877	
*HIST 2013 Hist/American People, 1877 to Present	
<b>Pre-Education Core</b>	18
†CIED 1002 Introduction to Education	
†CIED 1011 Introduction to Education Practicum	
†CIED 3023 Survey of Exceptionalities	
†CIED 3033 Classroom Learning Theory	
CIED 1003 Introduction to Technology in Education or any 3-hour computer course	
CIED 3103 Children's Literature	
CIED 3113 Emergent and Developmental Literacy	

<b>Aesthetics</b>	9
*3 hours University Core Fine Arts**	
*3 hours University Core Humanities**	
COMM 1313 Public Speaking	
CIED 4403 Understanding Cultures in the Classroom	
<b>Electives</b>	20-21
<b>Total for Childhood Education</b>	<b>124</b>

\*\* Students should meet with adviser to determine Core requirements.

<b>Childhood Education Requirements SPED option</b>	<b>Hours</b>
University Core (State Minimum Core)	35
*Specifically required University Core for Childhood Education major (see below)	
NOTE: All professional education courses in CIED must have a grade of "C" or better. Special Education licensure courses need to have a grade of "B" or better to be eligible for the license. Enrollment in upper-division professional education courses may be limited. Contact advisers for specific details. No teaching methods courses may be taken by correspondence.	
<b>Childhood Education</b>	25-26
CIED 3003/3001 Early Childhood Ed./Practicum or HESC 3402/3401L Child Guidance/Lab	
CIED 3123 Math Methods	
CIED 3133 Integrated Social Studies	
CIED 3143 Teaching Science in the Elementary Grades	
CIED 3263 Language Development for the Educator	
CIED 4101 Practicum	
CIED 4113 Integrated Communication Skills	
CIED 4153 Classroom Management	
HESC 2433 Child Development	
<b>Interdisciplinary Studies</b>	16
†Mathematics (in addition to MATH 1203)	
MATH 2213 Survey of Math Structures I	
MATH 2223 Survey of Math Structures II	
General Science (12 hours)	
*BIOL 1543/1541L Principles of Biology	
*GEOL 1113/1111L General Geology/Lab	
Physical science course with laboratory	
Social Science (18 hours)	
ECON 3053 Economics for Elementary Teachers or any Economics course**	
3 hours Geography**	
*PLSC 2003 American National Government	
*PSYC 2003 General Psychology	
Arkansas History	
HIST 3383 Arkansas and the Southwest or any Arkansas history course	
History (select one of the following):	
*HIST 2003 History of the American People to 1877	
*HIST 2013 History of the American People, 1877 to Present	
<b>Pre-Education Core</b>	18
†CIED 1002 Introduction to Education	
†CIED 1011 Introduction to Education Practicum	
†CIED 3023 Survey of Exceptionalities	
CIED 1003 Introduction to Technology in Education or any 3-hour computer course	
†CIED 3033 Classroom Learning Theory	
CIED 3103 Children's Literature	
CIED 3113 Emergent and Developmental Literacy	

<b>Aesthetics</b>	9
*3 hours University Core Fine Arts**	
*3 hours University Core Humanities**	
COMM 1313 Public Speaking	
CIED 4513 Teaching Children with Mild Disabilities	
CIED 4523 Teaching Children with Severe Disabilities	
<b>Electives</b>	20-21
<b>Total for Childhood Education</b>	<b>124</b>

\*\* Students should meet with adviser to determine Core requirements

### Childhood Education Requirements Hours

<b>Grades 5/6 option</b>	
University Core (State Minimum Core)	35
*Specifically required University Core for Childhood Education major (see below)	
NOTE: All professional education courses in CIED must have a grade of "C" or better. Special Education licensure courses need to have a grade of "B" or better to be eligible for the license. Enrollment in upper-division professional education courses may be limited. Contact advisers for specific details. No teaching methods courses may be taken by correspondence.	

<b>Childhood Education</b>	25-26
CCIED 3123 Mathematics Methods	
CIED 3133 Integrated Social Studies	
CIED 3143 Teaching Science in the Elementary Grades	
CIED 4101 Practicum	
CIED 4113 Integrated Communication Skills	
CIED 4153 Classroom Management	
CIED 3003/3001 Early Childhood Ed/Practicum or HESC 3402/3401L Child Guidance/Lab	
CIED 3263 Language Development for the Educator	
HESC 2433 Child Development	

### Interdisciplinary Studies 16

Mathematics (in addition to †MATH 1203 or equivalent)	
MATH 2213 Survey of Math Structures I	
MATH 2223 Survey of Math Structures II	
General Science (12 hours)	
*BIOL 1543/1541L Principles of Biology	
*GEOL 1113/1111L General Geology/Lab	
Physical science course with laboratory	
Social Science (18 hours)	
ECON 3053 Economics for Elementary Teachers or any Economics course**	
3 hours Geography**	
*PLSC 2003 American National Government	
*PSYC 2003 General Psychology	
Arkansas History	
HIST 3383 Arkansas and the Southwest or any Arkansas history course	
History (select one of the following):	
*HIST 2003 Hist/American People to 1877	
*HIST 2013 Hist/American People, 1877 to Present	

### Pre-Education Core 18

†CIED 1002 Intro. to Education	
†CIED 1011 Intro. to Education Practicum	
†CIED 3023 Survey of Exceptionalities	
†CIED 3033 Classroom Learning Theory	
CIED 1003 Introduction to Technology in Education or any 3 hour computer course	
CIED 3103 Children's Literature	
CIED 3113 Emergent and Developmental Literacy	

<b>Aesthetics</b>	9
*3 hours University Core Fine Arts**	
*3 hours University Core Humanities**	
COMM 1313 Public Speaking	
CIED 3053 The Emerging Adolescent	
CIED 3043 Introduction to Middle Level Principles and Methods	
<b>Electives</b>	20-21
<b>Total for Childhood Education</b>	<b>124</b>

\*\* Students should meet with adviser to determine Core requirements

### Childhood Education Requirements Hours

<b>STEM option</b>	
University Core (State Minimum Core)	35
*Specifically required University Core for Childhood Education major (see below)	
NOTE: All professional education courses in CIED must have a grade of "C" or better. Enrollment in upper-division professional education courses may be limited. Contact advisers for specific details. No teaching methods courses may be taken by correspondence.	

<b>Childhood Education</b>	25-26
CIED 3123 Mathematics Methods	
CIED 3133 Integrated Social Studies	
CIED 3143 Teaching Science in the Elementary Grades	
CIED 4101 Practicum	
CIED 4113 Integrated Communication Skills	
CIED 4153 Classroom Management	
CIED 3003/3001 Early Childhood Ed/Practicum or HESC 3402/3401L Child Guidance/Lab	
CIED 3263 Language Development for the Educator	
HESC 2433 Child Development	

### Interdisciplinary Studies

Mathematics (in addition to †MATH 1203 or equivalent)	
MATH 2213 Survey of Math Structures I	
MATH 2223 Survey of Math Structures II	
General Science (12 hours)	
*BIOL 1543/1541L Principles of Biology	
*GEOL 1113/1111L General Geology/Lab	
Physical science course with laboratory	
Social Science (18 hours)	
ECON 3053 Economics for Elementary Teachers or any Economics course**	
3 hours Geography**	
*PLSC 2003 American National Government	
*PSYC 2003 General Psychology	
Arkansas History	16
HIST 3383 Arkansas and the Southwest or any Arkansas history course	
History (select one of the following):	
*HIST 2003 Hist/American People to 1877	
*HIST 2013 Hist/American People, 1877 to Present	

### Pre-Education Core 18

†CIED 1002 Intro. to Education	
†CIED 1011 Intro. to Education Practicum	
†CIED 3023 Survey of Exceptionalities	
†CIED 3033 Classroom Learning Theory	
CIED 1003 Introduction to Technology in Education or any 3 hour computer course	
CIED 3103 Children's Literature	
CIED 3113 Emergent and Developmental Literacy	



<b>Aesthetics</b>	9
*3 hours University Core Fine Arts**	
*3 hours University Core Humanities**	
COMM 1313 Public Speaking	
TEED 4033 Introduction to STEM Education	
TEED 5023 Creativity and Innovation in STEM Education	
<b>Electives</b>	20-21
<b>Total for Childhood Education</b>	<b>124</b>

\*\* Students should meet with adviser to determine Core requirements

<b>Childhood Education B.S.E.</b>	
<b>Eight-Semester Degree Program</b>	
Students wishing to follow the eight-semester degree plan should see page 42 in the Academic Regulations chapter for university requirements of the program.	
<b>Fall Semester Year 1</b>	
3	†ENGL 1013 Composition I
3	†MATH 1203 College Algebra (or equivalent)
4	BIOL 1543/1541L Principles of Biology with lab
3	University Core Fine Arts
3	HIST 2013 U.S. History
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 1</b>	
3	†ENGL 1023 Composition II
3	MATH 2213 Survey of Math Structures I
3	COMM 1313 Public Speaking
2	†CIED 1002 Introduction to Education
1	†CIED 1011 Practicum
3	PSYC 2003 General Psychology
<b>15</b>	<b>Semester Hours</b>
<b>Fall Semester Year 2</b>	
4	University Core Physical Science with lab
3	University Core Humanities
3	MATH 2223 Survey of Math Structures II
3	PLSC 2003 American National Government
3	Electives
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 2</b>	
3	HESC 2433 Child Development
3	CIED 1003 Introduction to Technology in Education or any computer course
3	Electives
3	Any 3-hour GEOG course
3	HIST 3383 Arkansas and the Southwest or any 3-hour Arkansas History course
<b>15</b>	<b>Semester Hours</b>
<b>Fall Semester Year 3</b>	
4	GEOL 1113/1111L General Geology with lab
3	ECON 3053 Economics for Elem. Teachers or any economics course
3	†CIED 3263 Language Development/Educator
6	Electives
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	†CIED 3033 Classroom Learning Theory
3	†CIED 3023 Survey of Exceptionalities
3-4	†CIED 3003/3001 Early Childhood Education or HESC 3402/3401L Child Guidance/Lab
6	Electives
<b>15-16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	†*CIED 3103 Children's Literature
3	†*CIED 3113 Emergent & Developmental Literacy
3	†*CIED 3123 Math Methods
3	†*CIED 4153 Classroom Management
3	ESL Elective or Special Education Elective
<b>15</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	†*CIED 4113 Integrated Communication Skills
3	†*CIED 3133 Integrated Social Studies
1	†*CIED 4101 Practicum

3	†*CIED 3143 Teaching Science in the Elementary Grades
3	ESL Elective or Special Education Elective
3	Electives
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

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† A grade of C or better is required for these courses

\* 2.7 GPA cumulative and admission to Stage III required for these courses.

	<b>Hours</b>
<b>M.A.T. Degree Program Requirements</b>	<b>33</b>
ESL option	
Required Courses for the M.A.T. Core	10
CIED 5013 Measurement, Research, and Statistical Concepts in the Schools	
CIED 5022 Classroom Management Concepts	
CIED 5032 Curriculum Design Concepts for Teachers	
CIED 5053 Multicultural Issues in Elementary Education	
Additional Program Requirements	23
CIED 5003 Childhood Seminar	
CIED 5073 Case Study in Childhood Education	
CIED 5173 Literacy Assessment and Intervention	
CIED 5162 Applied Practicum	
CIED 508V Childhood Education Cohort Teaching Internship (6 hours)	
CIED 5953 Second Language Methodologies	
CIED 5953 Second Language Assessment	

	<b>Hours</b>
<b>M.A.T. Degree Program Requirements</b>	<b>33</b>
SPED option	
Required Courses for the M.A.T. Core	10
CIED 5013 Measurement, Research, and Statistical Concepts in the Schools	
CIED 5022 Classroom Management Concepts	
CIED 5032 Curriculum Design Concepts for Teachers	
CIED 5053 Multicultural Issues in Elementary Education	
Additional Program Requirements	23
CIED 5003 Childhood Seminar	
CIED 5073 Case Study in Childhood Education	
CIED 5183 Literacy Assessment and Intervention	
CIED 5162 Applied Practicum	
CIED 508V Childhood Education Cohort Teaching Internship (6 hours)	
CIED 5343 Analysis of Behavior for Teachers	
CIED 5773 Methods for Young Children with Disabilities	

	<b>Hours</b>
<b>M.A.T. Degree Program Requirements</b>	<b>33</b>
Grades 5/6 option	
Required Courses for the M.A.T. Core	10
CIED 5013 Measurement, Research, and Statistical Concepts in the Schools	
CIED 5022 Classroom Management Concepts	
CIED 5032 Curriculum Design Concepts for Teachers	
CIED 5053 Multicultural Issues in Elementary Education	
Additional Program Requirements	23
CIED 5003 Childhood Seminar	
CIED 5073 Case Study in Childhood Education	
CIED 5183 Literacy Assessment and Intervention	
CIED 5162 Applied Practicum	

CIED 508V Childhood Education Cohort Teaching Internship  
(6 hours)  
CIED 5353 Teaching Students with Diverse Needs in Middle  
Educatin Settings  
CIED 5113 Reading in Middle Schools

	<b>Hours</b>
<b>M.A.T. Degree Program Requirements</b>	33
STEM option	
Required Courses for the M.A.T. Core	10
CIED 5013 Measurement, Research, and Statistical Concepts in the Schools	
CIED 5022 Classroom Management Concepts	
CIED 5032 Curriculum Design Concepts for Teachers	
CIED 5053 Multicultural Issues in Elementary Education	
Additional Program Requirements	23
CIED 5003 Childhood Seminar	
CIED 5073 Case Study in Childhood Education	
CIED 5183 Literacy Assessment and Intervention	
CIED 5162 Applied Practicum	
CIED 508V Childhood Education Cohort Teaching Internship (6 hours)	
CIED 5203 Teaching Problem-Based Mathematics in the Elementary Grades	
CIED 5213 Teaching Problem-Based Science in the Elementary Grades	

NOTE: Enrollment in the M.A.T. with an emphasis in childhood education is limited. A passing score on the appropriate Praxis test is a requirement to begin the M.A.T. A passing score on an additional Praxis test is a requirement to graduate from the M.A.T. (Students must consult with their advisers to determine the appropriate Praxis exams to take for admission and graduation.) Other specific application procedures and selection criteria are available in the Department of Curriculum and Instruction, 214 Peabody Hall or from childhood education faculty advisers.

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## ELEMENTARY EDUCATION (EEL)

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The Department of Curriculum and Instruction offers programs that prepare candidates for initial teacher licensure in grades PreK-4th grade. Students enrolled in this program (BSE licensure) have two options. Students can (1) choose to enter the B.S.E. program on the University of Arkansas campus in Fayetteville, or (2) participate in this program through a partnership with NorthWest Arkansas Community College (NWACC) in Bentonville. The first two years of option 2 (NWACC/UA split) are offered at the community college and will culminate in an Associate's Degree. The University of Arkansas junior and senior level courses are held at the UA Global Campus which is housed in the Pinnacle Center One Building in Rogers.

Admission to the Elementary Licensure B.S.E. is competitive and consists of a three-stage process. Admission will be determined by the Childhood Education faculty based on the 5 items listed below in Stage II.

### Stage I: Pre-Childhood Education (PCHED) or NWACC Associate's Degree

1. Complete all program pre-requisites on the UA campus or at NWACC including the first 62 or 63 hours of the 8-semester plan (see 8-semester table below)
2. Obtain a minimum of 2.7 GPA on UA (NWACC coursework if choosing the off campus option) coursework

3. †Complete the following courses with a "C" or better: COMM 1313, MATH 1203 or equivalent, ENGL 1013, and ENGL 1023
4. Obtain a passing score on the Math, Reading, and Writing sections of the Praxis I

### Stage II: Admission to the Elementary Licensure BSE (ELEL)

Admission to the Elementary Licensure Program is competitive and occurs after completion of all Pre-Childhood Education requirements and prior to the beginning of the fall semester of the junior year. Not all applicants who meet the minimum requirements will be admitted to the program. Applications to the Elementary Licensure (ELEL) program must be submitted by January 30. At this point, applicants must decide which program option they will follow: either CHED BSE leading to MAT option or ELEL BSE licensure option. Both of these options are described on teh application which can be found on the College of Education and Health Professions website at <http://cied.uark.edu/2360.htm>.

The application process includes:

1. Submission of program application
2. Submission of transcripts for all coursework
3. Oral interview
4. Submission of Writing and Editing Samples
5. Submission of passing score on Math, Reading, and Writing sections of Praxis I Exam

### Stage III: Requirements for Program Continuation and Student Teaching/ Internship\*

1. Maintain a minimum cumulative GPA of 2.7
2. Passing score on Praxis II, Early Childhood: Content Knowledge (10022)
3. Passing score on Student Teaching entrance portfolio

\*This BSE (4-year) degree includes approximately 9 months of student teaching/internship experience in public elementary schools. Senior-level students must therefore attend full-time.

NOTE: Requirements for teacher licensure vary from state to state and may differ in teacher preparation programs. Please note that Arkansas requires all applicants to successfully complete a criminal background check. Arkansas Teacher Licensure requirements can be found at <http://arkansased.org/teachers/licensureinitial.html>

NOTE: All professional education courses in CIED must have a grade of "C" or better. No teaching methods courses may be taken by correspondence.

### Elementary Education Requirements

#### Pre-Requisites:

- Any 3 hour Core Fine Arts course  
BIOL 1543/1541L Principles of Biology with lab  
CIED 1002 Introduction to Education  
CIED 1001 Introduction to Education: Practicum  
COMM 1313 Public Speaking  
ENGL 1013 Composition I  
ENGL 1023 Composition II  
3 hour Core Humanities  
Any 3-hour Computer Course  
Any 3-hour Geography Course  
HESC 2433 Child Development  
HIST 2003 or 2013 U.S. History  
HIST 3383 Arkansas and the Southwest or any 3-hour Arkansas History course  
Any 3-hour Elective  
MATH 1203 College Algebra or equivalent  
MATH 2213 Survey of Math Structures I  
MATH 2223 Survey of Math Structures II  
PLSC 2003 American National Government  
PSYC 2003 General Psychology  
Any 4-hour physical science course with lab that satisfies University of Arkansas core

**University of Arkansas Childhood Education Courses**

Any 3-hour Elective

- CIED 3023 Survey of Exceptionalities
- CIED 3033 Classroom Learning Theory
- CIED 3003 Early Childhood Education
- CIED 3001 Early Childhood Education: Practicum
- CIED 3103 Children's Literature
- CIED 3123 Mathematics Methods
- CIED 3113 Emergent and Developmental Literacy
- CIED 4113 Integrated Communication Skills
- CIED 3143 Teaching Science
- CIED 3133 Integrated Social Studies
- CIED 4101 Practicum
- CIED 3263 Language Development for Educators
- CIED 4143 Curriculum Design
- CIED 4323 Instructional Design for Teachers
- CIED 4173 Student Teaching (two semesters)
- CIED 4153 Classroom Management
- CIED 4133 Measurement, Research, and Readings
- CIED 4163 Senior Project
- CIED 4003 Elementary Seminar
- CIED 4423 Teaching a Second Language

**Total 124 Hours****Elementary Education B.S.E.****Ten-Semester Degree Program**

Students completing this program have 2 options.

The first option involves students entering the ELEL program on the University of Arkansas campus in Fayetteville.

Students who choose the second option (NWACC/UA split) will participate in the ELEL program through a partnership with NorthWest Arkansas Community College (NWACC) in Bentonville. The first two years of the program are offered at the community college and will culminate in an Associate's Degree. The University of Arkansas junior and senior level courses are held at the UA Global Campus which is housed in the Pinnacle Center One Building in Rogers.

**Fall Semester Year 1**

- 3 ENGL 1013 English Composition I
- 3 MATH 1203 College Algebra or equivalent
- 4 BIOL 1544 Principles of Biology/Lab
- 3 HIST 2003 or 2013 U.S. History
- 3 University Core Fine Arts

**16 Semester hours****Spring Semester Year 1**

- 3 ENGL 1023 English Composition II
- 3 MATH 2213 Survey of Math Structures I
- 3 COMM 1313 Public Speaking
- 2 CIED 1002 Introduction to Education
- 1 CIED 1001 Introduction to Education: Practicum
- 3 PSYC 2003 General Psychology

**15 Semester hours****Fall Semester Year 2**

- 4 University Core Physical science course with lab
- 3 University Core Humanities
- 3 MATH 2223 Survey of Math Structures II
- 3 PLSC 2003 American National Government
- 3-4 Electives (additional science course suggested for on campus students; CHED 1003 suggested for off campus students)

**16-17 Semester hours****Spring Semester Year 2**

- 3 CIED 1003 Introduction to Technology in Education or any 3-hour computer course (ETEC 2003 Educational Technology w/lab recommended for off campus)
- 3 HIST 3383 Arkansas and the Southwest or any 3-hour Arkansas History course
- 3 Any Geography Course
- 3 HESC 2433 Child Development
- 3 Elective

**15 Semester hours\*****Summer Semester Year 2**

- 3 CIED 3023 Survey of Exceptionalities

**Fall Semester Year 3**

- 3 CIED 3033 Classroom Learning Theory
- 3 CIED 3263 Language Development for the Educator
- 3 CIED 3143 Teaching Science in the Elementary Grades
- 3 CIED 3003 Early Childhood Education
- 1 CIED 3001 Early Childhood Education: Practicum
- 3 CIED 3103 Children's Literature

**16 Semester hours****Spring Semester Year 3**

- 3 Elective
- 3 CIED 3123 Mathematics Methods
- 3 CIED 3113 Emergent and Develop Literature
- 3 CIED 3133 Integrated Social Studies
- 1 CIED 4101 Practicum
- 3 CIED 4153 Classroom Management

**16 Semester hours****Summer Semester Year 3**

- 3 CIED 4113 Integrated Communication Skills

**3 Semester hours****Fall Semester Year 4**

- 3 CIED 4173 Student Teaching
- 3 CIED 4133 Measurement, Research, and Readings
- 3 CIED 4143 Curriculum Design
- 3 CIED 4323 Instructional Design/Teachers

**12 Semester hours****Spring Semester Year 4**

- 3 CIED 4173 Student Teaching
- 3 CIED 4163 Senior Project
- 3 CIED 4003 Elementary Seminar
- 3 CIED 4423 Teaching a Second Language

**12 Semester hours****124-125 Total Hours**

\* B.S.E. students choosing the NWACC/UA split option will apply to the University of Arkansas and request the transfer of freshman and sophomore credits to UA during the semester before their junior year. UA accepts

transfers of no more than 68 lower division credit hours. Taking freshman or sophomore courses directly from UA (as a correspondence course) may prevent you from exceeding this 68 credit-hour transfer limit.

See Page 331 for Curriculum and Instruction (CIED) courses.

## ELEANOR MANN SCHOOL OF NURSING (NURS)

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Director

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**FACULTY**

- Professors Kippenbrock, Neighbors
- Associate Professors Barta, Smith-Blair
- Assistant Professors Jarrett, Larson, Odell, Osborne
- Instructors Agana, Gentry, Lee, Malm, Miller, Oelke, Scott, Sharp-McHenry, Sisson, Stroud, Patton, Vowell-Johnson, Wleklinski

The mission of the Eleanor Mann School of Nursing is to promote the health of

society through education of professional nurses, research, and service. In recognition of the interrelationship between teaching, research, service, and the practice of nursing, in the changing health care needs of society, the faculty aspires toward excellence in teaching, contributes to research in nursing, and promotes improved health care.

Professional nursing begins with a Bachelor of Science degree. Nursing education offers a research base for nursing practice that promotes the ability of the nurse to effect change needed to improve health. In the study of professional nursing, the student builds on a planned general education for the academic disciplines and acquires theoretical and specific knowledge to meet health care needs. In addition, the curriculum provides opportunity for students with technical nursing education to expand their knowledge and scope of practice. The baccalaureate program establishes a foundation for graduate education in nursing and for continued personal and professional development. The curriculum provides the student with a theoretical base to practice professional nursing with diverse clients in various settings through the roles of caregiver, manager, and teacher. The program of study has been designed to emphasize one or more of these roles in each nursing course.

Graduates of the program are eligible to apply to take the National Council Licensure Examination (NCLEX-RN) for licensure as a registered nurse (R.N.). Persons convicted of a crime may not be eligible to take the NCLEX-RN examination. A criminal background check is required before admission to the program and before graduation. A negative drug screen must be submitted prior to admission and each semester while in the program. The Bachelor of Science in Nursing degree (B.S.N.) is awarded after successful completion of the nursing curriculum.

## ADMISSION TO THE B.S.N. PROGRAM

### Admission Policies

#### Conditional Admission to the B.S.N. Program

Admission to the B.S.N. program is limited. Conditional admission will be determined by the Eleanor Mann School of Nursing faculty. Admission requirements for the professional program of study are as follows:

1. Overall minimum grade-point average (GPA) of 3.00. The GPA is the most important factor for admission selection.
2. Students will be ranked according to GPA and selected for conditional admission to the program based on GPA rank.
3. The GPA will be computed on all prerequisite courses for nursing only, whether they are from the University of Arkansas or transfer hours.
4. If the student is a second degree student, an additional 0.1 point will be added to the GPA for the student for admission ranking.
5. Applications for admission must be submitted between November 15 and January 15 to be considered for fall semester admission and between April 15 and June 1 for spring semester admission. Late applications will be considered on a space-available basis.
6. Students must meet the performance standards for the professional program of study.
7. Students transferring from another nursing program must provide a letter from the nursing program that they are eligible to return and are in good standing to be considered for admission.
8. Letter of Intent to be considered for admission must be received in the EMSON office by date specified in admission letter.

#### Full Admission to the B.S.N. Program

Full admission to the Eleanor Mann School of Nursing is contingent upon meeting the conditional requirements and successfully meeting the following requirements:

1. All prerequisite coursework for a fall admission into the Professional Program of Study in Nursing must be completed by the end of the spring semester with the exception of the three pre-nursing courses (NURS 2012, NURS 2022, NURS 2032; these courses are not required for the online RN-BSN Program), which may be taken in the summer session prior to entering the program of study in nursing in the fall. (All coursework for spring admission must be completed by the end of the fall semester prior to entering the Professional Program of Study in Nursing in the spring.)
2. Proof of the following:
  - a) CPR certification (American Heart Association Basic Certified Life Support

- and Automated Emergency Defibrillation CPR for Health Care Providers
- b) Completed Hepatitis B vaccine with dates of each injection or immune titer if vaccine received 10 years ago. Three (3) HBV injections are needed. Students are required to have obtained HBV Injection 1 within two weeks of the beginning of the scheduled semester, followed by Injection 2 in one month, and Injection 3 within six months of Injection 1, in order to enter the clinical setting. A student who fails to obtain the complete series (3 injections), according to the Center for Disease Control (CDC) established timeframe, will not be permitted to participate in patient care contact required in clinical experiences.
- c) Negative Tuberculin skin test or negative T-Spot test, if T-Spot is positive, a chest X-ray must be completed and updated yearly.
- d) Diphtheria-Tetanus (DT) required.
- e) Varicella required and (any other immunizations that may be required by clinical agencies)
- f) MMR required and (any other immunizations that may be required by clinical agencies)
- e) Health insurance: Students must submit proof of current coverage.
- f) Liability insurance is provided through an established student fee at the University of Arkansas.
- g) A criminal background check is required. Results will be reported to the college administration and school officials and any health-care facility in which the students are placed as part of the clinical education. An unsatisfactory background check result may lead to denial of admission to the nursing program. The criminal background check must be completed by prior to the first day of class.
- h) A negative drug screen is required within two weeks prior to entrance into the nursing program. Results are reported to the Eleanor Mann School of Nursing. A positive drug screen will lead to denial of admission to the nursing program. Student failure to submit to a drug screen, attempting to tamper with, contaminate, or switch a sample will result in the student not being admitted to the nursing program and will be referred to the Dean of Students in the Division of Student Affairs at the University of Arkansas.
 

Procedures for the criminal background check and the drug screen are available on the Eleanor Mann School of Nursing Web site: <http://nurs.uark.edu/4208.htm>.

### R.N. to B.S.N. Admission Policies

1. Complete university admission requirements.
2. Complete Eleanor Mann School of Nursing admission requirements.
3. Completion of the general education studies.
4. Graduation from an Arkansas State Board of Nursing approved program and NLNAC-accredited program.
5. Proof of, and maintenance of, unencumbered licensure to practice as a Registered Nurse in Arkansas and any other state.
6. Credit for courses listed below will be held in escrow. The student will receive credit for these courses upon successful completion of the program.
  - NURS 2032
  - NURS 3313
  - NURS 3422/3424
  - NURS 3634/3644
  - NURS 3742/3752
  - NURS 4154/4164
  - NURS 4262
  - NURS 4442/4452
  - Total Credit Hours of Escrow (37)
7. Professional nursing courses for R.N. to B.S.N. students are delivered online through Global Campus.

### L.P.N./L.P.T.N. to B.S.N. admission policies

1. College admission requirements.
2. Eleanor Mann School of Nursing admission policies.
3. All prerequisite coursework for a fall admission into the Professional Program

of Study in Nursing must be completed by the end of the spring semester with the exception of the three pre-nursing courses (NURS 2012, NURS 2022, NURS 2032), which may be taken in the summer session prior to entering the program of study in nursing in the fall. (All coursework for spring admission must be completed by the end of the fall semester prior to entering the Professional Program of Study in Nursing in the spring, as already required.)

4. Completion of an Arkansas State Board-approved L.P.N. or L.P.T.N. and an NLNAC accredited program.
5. Proof of, and maintenance of, an unencumbered license to practice as an L.P.N. or L.P.T.N. in the state of Arkansas or any other state.
6. Credit for courses listed below will be held in escrow. The student will receive credit for these courses upon successful completion of the program.  
NURS 3313  
NURS 2032  
NURS 3422/3424
7. L.P.N. students may receive credit for NURS 3634/3644 through validation examination.

**Progression, Withdrawal, and Dismissal**

1. For progression in the nursing program, only grades of “C” or above will be accepted. Students who make less than a “C” may not progress into courses for which that course is a prerequisite until the course is repeated and the required minimum grade attained.
2. Students may repeat a specific nursing course only once. If a “D,” “F” or “W” is earned on the second attempt, the student will be required to withdraw from the School of Nursing.
3. No more than two nursing courses within the program of study may be repeated. If the student does not earn a grade of at least “C” upon repeating the course, the student may not enroll in any nursing courses or continue in the School of Nursing.
4. Students who do not pass the medication calculation examination with a 100 percent on the third attempt will be administratively withdrawn from all clinical courses and a NURS 4712 Seminar in Nursing, if enrolled.
5. For students enrolled in NURS 3424 Professional Role Implementation 1: Caregiver - Failure to pass the Dosage Calculation Exam on the third attempt in NURS 3424 Professional Role Implementation 1 course will result in a failing grade for the course and will count in the 2 “D” policy.

**Professional Role Implementation Courses**

1. A student who needs to repeat a Professional Role Implementation Course must make petition to the Undergraduate Admission Committee and are encouraged to do so as soon as they are aware of the need to repeat a course.
2. Students will be readmitted on a space-available basis according to the following priority system:  
**Priority Groups for Placement in Required Clinical Courses**
  - a) First Priority – Continuing full-time students in good academic standing.
  - b) Second Priority – Continuing part-time students in good academic standing.
  - c) Third Priority – Students repeating a course due to an academic or clinical failure or were administratively withdrawn with a “W” for failing the medication calculation test who were unable to repeat a course for one or more semesters.
  - d) Fourth Priority – Students repeating a course due to an academic or clinical failure or were administratively withdrawn with a “W” for failing the medication calculation test who were in the preceding semester.
3. Spaces in clinical courses are limited and tightly controlled by accreditation, the Arkansas State Board of Nursing, and clinical agency policies. A student re-enrolling in a Professional Role Implementation Course (whether due to illness, course failure, part-time status, or other reasons) will not be assured a

clinical placement space in subsequent courses.

4. NOTE: A student dismissed from a Professional Role Implementation Course due to safety, ethical, or dishonesty issues will be administratively withdrawn from all clinical courses, and may be subject to administrative withdrawal from the School of Nursing following full review. Readmission is not guaranteed to these students.

**Readmission Policies**

Any student whose enrollment in the professional program of study has been interrupted may seek readmission following the steps below:

1. Seek readmission into the University of Arkansas (if applicable).
2. Complete Readmission Application to the School of Nursing during the application periods. (Readmission is limited by space availability).
3. Readmission will not be considered for any student dismissed from the School of Nursing who obtained a “D” or “F” from two (2) nursing courses or who was dismissed from a Professional Role Implementation Course due to safety, ethical, or dishonesty issues. Exceptions to this policy will be considered by the Undergraduate Admissions Committee on an individual basis.

**Exit Policies**

1. Students must complete the requirements for the degree within five years of enrolling in the first upper-division nursing course. If the student does not complete the Professional Program of Study within the five-year limit, nursing credits must be reevaluated.
2. All University of Arkansas requirements must be met.

NOTE: In addition to the program requirements, students must meet the University and college graduation requirements. This curriculum is subject to change to comply with national accreditation and the Arkansas State Board of Nursing Standards.

<b>Requirements for Bachelor of Science in Nursing</b>	<b>Hours</b>
University Core (State Minimum Core) See Page 41	35
*English (6 hours)	
*ENGL 1013 English Composition I	
*ENGL 1023 English Composition II	
*Mathematics (3 hours)	
*MATH 1203 College Algebra or equivalent	
*Sciences with Labs (8 hours) must include	
*4 hours of CHEM including a lab (Must be CHEM 1073/1071L or higher)	
*BIOL 2443/2441L Human Anatomy**	
*Fine Arts/Humanities (6 hours)	
Must include one of the following courses:	
*PHIL 2003 Intro to Philosophy; *PHIL 2103 Intro to Ethics; *PHIL 2203 Logic; or *PHIL 3103 Ethics and the Professions	
*3 hours Core History/Government	
*Social Sciences (9 hours)	
Must include *HESC 1403 Lifespan Development	
Additional General Studies	29
*BIOL 2213/2211L Human Physiology	
*EDFD 2403 Statistics in Nursing, or *PSYC 2013 Introduction to Statistics for Psychiatry, or *STAT 2303 Principles of Statistics or *STAT 2023 Biostatistics	
*BIOL 2013/2011L General Microbiology	
*NURS 2012 Nursing Informatics	
*NURS 2022 Intro. to Professional Nursing Concepts	
*NURS 2032 Therapeutic Comm.	
*12 elective hours (as needed)	
*Denotes pre-requisite nursing courses that GPA will be computed on for admission into the Eleanor Mann School of Nursing, whether they are from the University of Arkansas or transfer hours.	

\*\*BIOL 1543/1541L is a prerequisite for BIOL 2013/2011L and BIOL 2443/2441L and may be used as part of the elective hours.

**Professional Nursing Program**

**Role Development (Level I)**

- NURS 3313 Pharmacology in Nursing
- NURS 3314 Pathophysiology
- NURS 3321L Health Assessment
- NURS 3402 Nursing Concepts: Older Adult
- NURS 3422 Nursing Concepts: Foundations of Professional Practice
- NURS 3424 Professional Role Implementation I: Caregiver
- NURS 3634 Nursing Concepts: Adult Health and Illness
- NURS 3644 Professional Role Implementation II: Caregiver
- NURS 3742 Nursing Concepts: Mental Health/Illness
- NURS 3752 Professional Role Implementation III: Caregiver
- NURS 3842 Research in Nursing

**Role Concentration (Level II)**

- NURS 4112 Teaching and Health Promotion
- NURS 4154 Nursing Concepts: Children and Family
- NURS 4164 Professional Role Implementation IV: Teacher
- NURS 4242 Management in Nursing
- NURS 4252 Professional Role Implementation V: Manager
- NURS 4262 Nursing Concepts: Adult Health and Illness II
- NURS 4442 Nursing Concepts: Critical Care
- NURS 4452 Professional Role Implementation VI: Role Synthesis
- NURS 4603 Nursing Concepts: Community
- NURS 4613 Professional Role Implementation VII: Role Synthesis
- NURS 4712 Seminar in Nursing
- NURS 4722 Professional Role Implementation VIII: Role Synthesis

**Total for Nursing**

60

**R.N. to B.S.N. Requirements**

- University Core (State Minimum Core) See Page 41
- \*English (6 hours)
  - \*ENGL 1013 English Composition I
  - \*ENGL 1023 English Composition II
- \*Mathematics (3 hours)
  - \*MATH 1203 College Algebra or equivalent
- \*Sciences with Labs (8 hours) must include
  - \*4 hours of CHEM including a lab (Must be CHEM 1073/1071L or higher)
  - \*BIOL 2443/2441L Human Anatomy\*\*
- \*Fine Arts/Humanities (6 hours)
  - Must include one of the following courses:
    - \*PHIL 2003 Intro to Philosophy; \*PHIL 2103 Intro to Ethics; \*PHIL 2203 Logic; or \*PHIL 3103 Ethics and the Professions
- \*3 hours Core Fine Arts (selected from category "a")
- \*3 hours Core History/Government
- \*Social Sciences (9 hours)
  - Must include \*HESC 1403 Lifespan Development
- Additional General Studies
  - \*BIOL 2213/2211L Human Physiology
  - \*EDFD 2403 Statistics in Nursing, or \*PSYC 2013 Introduction to Statistics for Psychiatry, or \*STAT 2303 Principles of Statistics or \*STAT 2023 Biostatistics
  - \*BIOL 2013/2011L General Microbiology
  - \*NURS 2012 Nursing Informatics
  - \*NURS 2022 Intro. to Professional Nursing Concepts

Hours

35

\*NURS 2032 Therapeutic Comm.

29

\*12 elective hours (as needed)

\*Denotes pre-requisite nursing courses that GPA will be computed on for admission into the Eleanor Mann School of Nursing, whether they are from the University of Arkansas or transfer hours.

\*\*BIOL 1543/1541L is a prerequisite for BIOL 2013/2011L and BIOL 2443/2441L and may be used as part of the elective hours.

**R.N. to B.S.N. Professional Nursing Program**

27

(Pending approval from the Department of Higher Education)

- NURS 4003 Transition to Professional Nursing Practice
- NURS 4013 Informatics for Professional Nursing
- NURS 4112 Teaching and Health Promotion
- NURS 4203 Leading and Managing in Healthcare Microenvironments
- NURS 4323 Health Assessment and Clinical Reasoning for RNs
- NURS 4603 Nursing Concepts: Communities
- NURS 4701 Professional Nursing Synthesis
- NURS 5053 Evidence-based Practice
- NURS 5063 Health Care Policy
- NURS 5143 Advanced Pathophysiology

**Credits Granted from Escrow**

37

- NURS 2032 Therapeutic Communication
- NURS 3313 Pharmacology in Nursing
- NURS 3422 Nursing Concepts: Foundations of Professional Practice
- NURS 3424 Professional Role Implementation I: Caregiver
- NURS 3634 Nursing Concepts: Adult Health and Illness
- NURS 3644 Professional Role Implementation II: Caregiver
- NURS 3742 Nursing Concepts: Mental Health/Illness
- NURS 3752 Professional Role Implementation III: Caregiver
- NURS 4154 Nursing Concepts: Children and Family
- NURS 4164 Professional Role Implementation IV: Teacher
- NURS 4262 Nursing Concepts: Adult Health and Illness II
- NURS 4442 Nursing Concepts: Critical Care
- NURS 4452 Professional Role Implementation VI: Role Synthesis

**Total for Nursing**

124

NOTE: The minimum number of hours required to receive a baccalaureate degree at the University of Arkansas is 124 semester hours. The Nursing major is exempt from the eight-semester degree plan since the program is admissions-based. There is no guarantee that a student meeting the minimal GPA requirement will be admitted. Please refer to the College of Education and Health Profession's Web site at <http://nurs.uark.edu/index.htm> for specific information related to the admission criteria.

See Page 390 for Nursing (NURS) courses.

**HEALTH, HUMAN PERFORMANCE AND RECREATION**

Bart Hammig  
 Department Head  
 306 HPER Building  
 479-575-2857  
 bhammig@uark.edu

Dean Gorman  
 Assistant Department Head  
 308W HPER Building  
 479-575-2890  
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The department offers programs leading to the B.S.E. degree with major emphasis in community health promotion, kinesiology, or recreation and athletic training. The department also offers coursework in dance activity.

**DANCE ACTIVITY (DEAC)**

## FACULTY

- Instructor Mayes

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See Page 341 for Dance Activity (DEAC) courses.

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**COMMUNITY HEALTH PROMOTION (CHLP)**

## FACULTY

- Professor Jones (C.)
- Associate Professors Hammig, Henry
- Assistant Professor Jozkowski
- Visiting Assistant Professors Mink, Rausch, Wyandt-Heibert

The program in community health promotion is designed to prepare candidates for a variety of career options in the field of community health promotion. Career opportunities may include planning, development, and delivery of health programs in various settings. These settings may include hospitals, government agencies, nonprofit organizations, community organizations, corporations, and other places of occupation. Graduates of this program should be well prepared to enter the work force at an entry-level position in community health or graduate programs of study in such areas as health education and health promotion, corporate health, public health, health care administration, and other allied health professional schools.

The candidate for the Bachelor of Science in Education degree with a major in community health promotion will focus on community health. All students must complete the University Core requirements as listed on page 41. In addition, all students must take the courses listed below under required general studies for the community health promotion major and the additional community health promotion major requirements. A minimum of 124 semester hours is required for graduation in the major of community health promotion.

<b>Curriculum for a Major in Community Health Promotion</b>	<b>Hours</b>
<b>University Minimum Core (State Minimum Core) See page 41</b>	35
English (6-9 hours)	
ENGL 1013 Composition I	
ENGL 1023 Composition II	
Mathematics (3 hours)	
MATH 1203 College Algebra, equivalent or higher	
Science (8 hours)	
BIOL 1543/1541L Principles of Biology	
*CHEM 1103/1101L University Chemistry I and lab or CHEM 1123/1121L University Chemistry II and lab or CHEM 1073/1071L Fundamentals of Chemistry and lab	
See specific concentration requirements	
Fine Arts/Humanities (6 hours)	
See page 41 for listing of approved courses	
U.S. History (3 hours)	
HIST 2003 History of American People to 1877 or HIST 2013 History of American People 1877 to Present or PLSC 2003 American National Government	
Social Sciences (9 hours)	
PSYC 2003 General Psychology	
SOCI 2013 General Sociology	
3 hours Social Science core elective	
<b>Required general studies for the Health Science Major</b>	10
Literature Elective (3 hours)	
COMM 1313 Public Speaking	
CHLP 1103 Personal Health and Safety	
PEAC 1621 Fitness Concepts	

**Health Science Major Requirements**

79

- HESC 1213 Fundamentals of Nutrition
- CHLP 1203 Prevention of Drug Abuse
- CHLP 1303 Introduction to Human Sexuality
- CHLP 2613 Foundations of Community Health
- CHLP 2662 Terminology for the Health Professions
- CHLP 3643 Community Health Plan and Promotion
- CHLP 4043 Internship in Community Health
- CHLP 4553 Environmental Health
- CHLP 4603 Application of Health Behavior Theories in Health Education
- CHLP 4623 Human Diseases or CHLP 4613 Principles of Epidemiology
- CHLP 4643 Multicultural Health
- JOUR 1033 Fundamentals of Journalism or ENGL 3053 Technical and Report Writing
- BIOL 2013/2011L General Microbiology
- PSYC 3093 Developmental Psychology
- PSYC Elective except PSYC 2003 (3 hours)
- BIOL 2213/2211L Human Physiology and lab
- BIOL 2443/2441L Human Anatomy and lab
- SCWK 3163 On Death and Dying
- PSYC 4023 Adulthood and Aging, or SCWK 4183 Social Work with Elders

Community Health Promotion-related electives (20 hours) to include:

- 6 hours HHPR Departmental Electives
- 9 hours General Electives
- 5 hours health-related Discipline Electives selected from PSYC, STAT, SPAN, HESC, SCWK, COMM, CHLP

**Total Community Health Promotion degree**

124

**Community Health Promotion B.S.E.****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan for the Community

Health Promotion major should see page 42 in the Academic Regulations chapter for university core requirements.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra (equivalent or higher)
- 3 †U.S. History
- 3 †Social Science (except PSYC 2003 and SOCI 2013)
- 4 BIOL 1543/1541L Principles of Biology with lab

**16 Semester Hours****Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 †Fine Arts or Humanities
- 3 CHLP 1103 Personal Health and Safety
- 1 PEAC 1621 Fitness Concepts
- 3 CHLP 2613 Foundations of Community Health
- 3 HESC 1213 Fundamentals of Nutrition

**16 Semester Hours****Fall Semester Year 2**

- 3 CHLP 1203 Prevention of Drug Abuse or CHLP 3643 Community Health Planning and Promotion
- 3 JOUR 1033 Fundamentals of Journalism or ENGL 3053 Technical and Report Writing
- 4 CHEM 1103/1101L University Chemistry I with lab or CHEM 1132/1121L University Chemistry II with lab or CHEM 1073/1071L Fundamentals of Chemistry with lab
- 3 PSYC 2003 General Psychology
- 3 HKRD Elective

**16 Semester Hours****Spring Semester Year 2**

- 2 CHLP 2662 Terminology for the Health Professions
- 3 SOCI 2013 General Sociology

3	CHLP 1303 Introduction to Human Sexuality
3	COMM 1313 Public Speaking
3	General Electives
2	Health-related elective
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 3</b>	
3	CHLP 3643 Community Health Planning and Promotion or CHLP 1203 Prevention of Drug Abuse
3	CHLP 4623 Human Diseases or CHLP 4613 Principles of Epidemiology
3	PSYC 3093 Developmental Psychology
4	BIOL 2013/2011L General Microbiology with lab
3	Fine Arts or Humanities
<b>16</b>	<b>Semester Hours</b>
<b>Spring Semester Year 3</b>	
3	CHLP 4643 Multicultural Health or CHLP 4603 Applied Health Behavior Theory in Health Education
4	BIOL 2443/2441L Human Anatomy with lab
3	PSYC Elective (Adviser approved)
3	HKRD elective
3	General elective
<b>16</b>	<b>Semester Hours</b>
<b>Fall Semester Year 4</b>	
3	SCWK 3163 On Death and Dying
4	BIOL 2213/2211L Human Physiology with lab
3	CHLP 4553 Environmental Health Science Elective
3	Literature Elective
<b>13</b>	<b>Semester Hours</b>
<b>Spring Semester Year 4</b>	
3	CHLP 4043 Internship in Community
3	PSYC 4023 Adulthood and Aging or SCWK 4183 Social Work with Elders
3	CHLP 3683 Multicultural Health or CHLP 4603 Applied Health Behavior Theory in Health Education
3	Health-related Electives
3	General elective
<b>16</b>	<b>Semester Hours</b>
<b>124</b>	<b>Total Hours</b>

See Page 330 for Community Health Promotion (CHLP) courses.

## KINESIOLOGY (KINS)

### FACULTY

- University Professor Di Brezzo
- Professors Fort, Gorman, Hunt
- Associate Professor Lirgg
- Clinical Associate Professor Kern
- Assistant Professor Ganio, Gray, Washington
- Clinical Assistant Professors Bonacci, Calleja, Smith-Nix, Sullivan
- Instructors Forbess, Mayes

The program in kinesiology is designed to prepare candidates for a variety of career options in the vast field of movement science. Career opportunities may include teaching physical education, coaching, analyzing and prescribing fitness programs, athletic training, or preparation for professional programs in allied health. Graduates of this program should be well prepared to enter graduate programs of study in such areas as pedagogy or adapted physical education, exercise physiology, biomechanics, athletic training, sport management, medical school, physical therapy school, and other allied health professional schools.

The candidate for the Bachelor of Science in Education degree with a major in kinesiology must select one of three concentrations:

- P-12 Teaching Physical Education/Wellness & Leisure
- Exercise Science – Pre-Professional Science
- Applied Exercise Science

All students must complete the state minimum core requirements as listed in the University Core. In addition, all students must take the required general studies for the kinesiology major and the kinesiology core requirements listed below. As part

of the University Core requirements, specific math and science courses are required within the kinesiology major and concentrations. A student preparing to teach in the public schools must select the P-12 teaching concentration and is required to meet the following gate checks: have a 2.3 cumulative GPA and present passing scores for all three parts of Praxis I to their adviser prior to taking the following 3000-level PHED Teaching courses: PHED 3001, 3002, 3022, 3032, 3043, 3074, 3373, and 3903. Cut off dates for presenting passing Praxis scores are July 1st for the Fall semester, December 1st for the Spring semester, and May 1st for any Summer session. Students are required to (1) have a “C” or better in all KINS/PHED Teacher Education classes (does not include KINS 9 hour core) in order to be eligible to enroll in the Senior Block Internship semester, (2) must have a cumulative grade point average of 2.5 or greater or a minimum 2.75 grade point average in KINS/PHED Teacher Education classes (does not include KINS 9 hour core) in order to be eligible to enroll in the Senior Block Internship semester, and (3) completed or registered to take the Praxis II content knowledge exam for Physical Education, Wellness and Leisure in order to be eligible to enroll in the Senior Block Internship semester. Students interested in obtaining an endorsement in coaching should contact the Coordinator of Teacher Education. Students applying for other post-baccalaureate programs should inquire as to prerequisite requirements. Students majoring in kinesiology with a concentration in exercise science (concentrations II, III) must earn a grade of “C” or better in KINS 3153, KINS 3353, and KINS 3533, and meet the appropriate concentration requirements. A minimum of 124 semester hours is required for graduation in the major of kinesiology.

	<b>Hours</b>
<b>Curriculum for all Majors in Kinesiology</b>	
<b>University Core (State Minimum Core) See page 41</b>	35
<b>Required University Core for Kinesiology major</b>	
PSYC 2003 General Psychology	
<b>Required general studies for Kinesiology major</b>	9
COMM 1313 Public Speaking	
CHLP 1103 Personal Health and Safety	
3 hour Literature elective	
<b>Kinesiology Core for all Kinesiology Majors</b>	9
KINS 2223 Motor Development	
KINS 3163 Exercise Physiology: Theory and Application or KINS 3153 Exercise Physiology (for P-12 concentration I)	
KINS 3353 Mechanics of Human Movement	
<b>Concentration I: P-12 Teaching Physical Education/Wellness &amp; Leisure</b>	49
BIOL 1543/1541L Principles of Biology (hours counted in the state minimum core)	
BIOL 2443/2441L Human Anatomy or adviser-approved A&P 1 (hours could be counted in the state minimum core)	
PHED 1003 The P.E. Profession: An Overview	
PHED 2013 Teaching Progressions/Assessment of Basic Skills	
PHED 2023 Teaching Progressions/Assessment of Advanced Skills	
PHED 3001 Teaching Practicum	
PHED 3002 Teaching and Leading Outdoor Recreation and Experiential Activities	
PHED 3022 Teaching Stunts/Tumbling	
PHED 3032 Teaching Rhythms	
PHED 3043 Teaching Fitness	
PHED 3074 Secondary Physical Education	
PHED 3203 Principles and Problems of Coaching	
PHED 3373 Elementary Physical Education	
PHED 3702 Measurement Concepts in Kinesiology	
PHED 3903 PE for Special Populations	
KINS 3373 Phil/Soci Impact on Kinesiology	
KINS 4413 Org/Man/Mktt Skills for Kinesiology Professional	
CHLP 3633 First Responder & First Aid	
CIED 3033 Classroom Learning Theory	
CNED 4003 Classroom Human Relations Skills or CNED 3053 The Helping Relationship	



SENIOR BLOCK OF CLASSES (Internship Semester): Admission to Internship Semester - Must apply and be enrolled in PHED 3001 the semester prior to Senior Block; 2.5 overall College GPA or 2.75 KINS/PHED Teacher Education Classes; all parts of Praxis I passed; Completed or registered to take the Praxis II content knowledge exam in Physical Education/Welness and Leisure as required by the Arkansas State Department of Education for licensure.

PHED 4023 Class Management	16
PHED 407V Physical Education Teaching Internship (9 hrs)	
PHED 4263 Professional Issues in Teaching Physical Education	
PHED 4731 Senior Seminar	
<b>Health Electives (3 hours)</b>	3
See adviser for suggested coursework in CHLP/HESC to prepare for licensure exams	
<b>General Electives</b> – Needed for total hours based on waivers, exemptions and transfer inequalities	3
<b>Total hours P-12 degree</b>	124

Note: All students seeking licensure in the state of Arkansas are subject to a criminal background check. Forms for this procedure may be obtained at the office of the Teacher Certification Officer, at the State Department, or any police station, including the campus police. These background checks take up to six months to process; therefore, students are advised to complete and submit the forms to the proper authorities six months in advance of actually applying for a license. Arkansas will not certify anyone who has been convicted of a felony. Although not required for the KINSBS P-12 concentration, students seeking coaching endorsement will need to take PHED 4001 as well as appropriate PRAXIS exam(s) as designated by the Arkansas State Department of Education.

The following two concentrations are in the area of Exercise Science:

<b>Kinesiology Concentration II and III: Exercise Science</b>	<b>Hours</b>
<b>Pre-Professional Science (KINS EXPP)</b>	40
<b>University Cre (State Minimum Core) See page 41</b>	35
<b>Required University Core for Kinesiology major</b>	
PSYC 2003 General Psychology	
<b>Required general studies for Kinesiology EXPP major</b>	9
COMM 1313 Public Speaking	
CHLP 1103 Personal Health and Safety	
3 hour Literature elective	
<b>Kinesiology Courses for Kinesiology EXPP Majors</b>	9
KINS 2223 Motor Development	
KINS 3153 Exercise Physiology	
KINS 3353 Mechanics of Human Movement	
<b>Exercise Science Core</b>	42
BIOL 1543/5441L Principles of Biology (hours counted in the University minimum core)	
BIOL 2443/2441L Human Anatomy (hours counted in the University minimum core)	
BIOL 2213/2211L Human Physiology	
CHEM 1103/1101L University Chemistry I	
CHEM 1123/1121L University Chemistry II	
PHYS 2013/2011L College Physics I	
PSYC 3023 Abnormal Psychology	
HESC 1213 Nutrition in Health	
CHLP 2662 Terminology for Health Professions	
CNED 3053 The Helping Relationship	
KINS 2733 Seminar in Exercise Science	
KINS 3533 Laboratory Techniques	
KINS 405V Independent Study (3 hrs.) or KINS 4903 Internship or HNED 400VH (3 hrs.) Honors Education Thesis/Project if completing Honors Program	
KINS 4323 Analytical Basis of Movement Science	
KINS 4833 Exercise Appl/Spec Pops	

<b>Additional requirements Concentration II: EXPP</b>	18-19
BIOL 2013/2021L General Microbiology/Lab	
PSYC 2013 Intro to Statistics for Psychology or STAT 2303 Principles of Statistics or SOCI 3303 Social Data Collection or adviser-approved statistics course	
MATH 2043 Survey of Calculus (hours counted in the state minimum core) or MATH 2554 Calculus	
PHYS 2033/2031L College Physics II with lab	
CHEM 2613/2611L Organic Physiological Chemistry with lab or CHEM 3603/3601L Organic Chemistry I with lab	
<b>Electives</b>	10-11
<b>Total hours EXPP degree</b>	124

<b>Kinesiology Concentration III – Applied Exercise Science (KINS EXAS)</b>	Hours
<b>University Core (State Minimum Core) See page 41</b>	35
<b>Required University Core for Kinesiology major</b>	
PSYC 2003 General Psychology	
<b>Required general studies for Kinesiology EXAS major</b>	10
COMM 1313 Public Speaking	
HLSC 1103 Personal Health and Safety	
PEAC 1621 Fitness Concepts	
3 hour Literature elective	
<b>Kinesiology Courses for Kinesiology EXAS Majors</b>	9
KINS 2223 Motor Development	
KINS 3153 Exercise Physiology	
KINS 3353 Mechanics of Human Movement	
<b>Exercise Science Core</b>	40
BIOL 1543/5441L Principles of Biology (hours counted in University minimum core)	
BIOL 2443/2441L Human Anatomy (hours counted in University minimum core)	
BIOL 2213/2211L Human Physiology	
CHEM 1103/1101L University Chemistry I	
CHEM 1123/1121L University Chemistry II	
PHYS 2013/2011L College Physics I	
PSYC 3023 Abnormal Psychology	
HESC 1213 Nutrition in Health	
CNED 3053 The Helping Relationship	
KINS 2733 Seminar in Exercise Science	
KINS 3533 Laboratory Techniques	
KINS 405V Independent Study (3 hrs.) or KINS 4903 Internship or HNED 400VH (3 hrs.) Honors Education Thesis/Project if completing Honors Program	
KINS 4323 Analytical Basis of Movement Science	
KINS 4833 Exercise Appl/Spec Pops	
<b>Additional requirements Concentration III: EXAS</b>	11
MATH1203 College Algebra or equivalent (hours counted in the state minimum core)	
MATH 1213 Plane Trigonometry	
CHLP 2662 Terminology for Health Professionals	
CHLP 3633 First Responder-First Aid	
KINS 4773 Performance and Drugs	
<b>Electives</b>	21
<b>Total hours EXAS degree</b>	124

**Kinesiology B.S.E., P-12 Concentration I****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan in Kinesiology should see page 42 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 †Social Science (except PSYC 2003)
- 4 BIOL 1543/1541L Principles of Biology w/Lab
- 3 CHLP 1103 Personal Health and Safety
- 3 PHED 1003 The P.E. Profession: An Overview

**16 Semester Hours****Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 MATH 1203 College Algebra (or higher)
- 3 COMM 1313 Public Speaking
- 3 †U.S. History or American Nat. Government
- 3 PHED 2013 Tch Progress and Assess./Basic Skills

**15 Semester Hours****Fall Semester Year 2**

- 3 KINS 2223 Motor Development
- 3 PSYC 2003 General Psychology
- 3 Literature Elective
- 3 FA/Humanities
- 4 BIOL 2443/2241L Human Anatomy with lab or adviser-approved A&P 1 (which meets State Minimum Core)

**16 Semester Hours****Spring Semester Year 2**

- 2 PHED 3032 Teaching Rhythms
- 3 †Social Science (except PSYC 2003)
- 3 PHED 2023 Teaching Progression and Assessment/Adv. Skills
- 3 CIED 3033 Classroom Learning Theory
- 2 PHED 3002 Outdoor Recreation and Experiential Activities
- 3 †Fine Arts or Humanities

**16 Semester Hours****Fall Semester Year 3**

- 3 PHED 3373 Elementary Physical Education
- 3 PHED 3903 Physical Education for Special Populations
- 3 CNED 4003 Classroom Human Relationship Skills or CNED 3053 The Helping Relationship
- 3 KINS 3163 Exercise Physiology: Theory and Application or KINS 3153 Exercise Physiology
- 3 †CHLP Elective

**15 Semester Hours****Spring Semester Year 3**

- 4 PHED 3074 Secondary Physical Education (must take with PHED 3702)
- 2 PHED 3702 Measurement in Kinesiology (must take with PHED 3074)
- 3 PHED 3043 Teaching Fitness
- 2 PHED 3022 Teaching Stunts and Tumbling
- 3 KINS 3353 Mechanics of Human Movement
- 1 CHLP Elective

**15 Semester Hours****Fall Semester Year 4**

- 1 PHED 3001 Practicum
- 3 PHED 3203 Prin. of Coaching
- 3 KINS 4413 Org/Man/Mrkt Skills for the KINS Professional
- 3 HLSC 3633 First Responder 6 First Aid
- 3 KINS 3373 Philosophical/Sociocultural Impact of Kinesiology
- 2 CHLP Elective

**15 Semester Hours****Spring Semester Year 4**

- 3 PHED 4023 Class Management
- 9 PHED 407V Physical Education Teaching Internship
- 3 PHED 4263 Professional Issues in Physical Ed.
- 1 PHED 4731 Senior Seminar

**16 Semester Hours****124 Total Hours**

† Core areas must be completed as outlined in University Core – See page 41.

**Kinesiology B.S.E., Pre-Professional Concentration II****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan in Kinesiology should see page 42 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 CHEM 1103/1101L University Chemistry I with lab
- 3 CHLP 1103 Personal Health & Safety
- 3 †Fine Arts or Humanities
- 4 BIOL 1543/1541L Principles of Biology with lab

**17 Semester Hours****Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3-4 MATH 2043 Survey of Calculus; Math 2554 Calculus I
- 3 †Fine Arts or Humanities
- 4 CHEM 1123/1121L University Chemistry II with lab
- 3 †Social Science (except PSYC 2003)

**16-17 Semester Hours****Fall Semester Year 2**

- 3 COMM 1313 Public Speaking
- 3 KINS 2733 Seminar in Exercise Science
- 3 KINS 2223 Motor Development
- 3-4 Electives or \*\*\*CHEM 3603/3601L Organic Chemistry I
- 4 BIOL 2443/2241L Human Anatomy with lab

**16-17 Semester Hours****Spring Semester Year 2**

- 3 Approved elective
- 3 PSYC 2003 General Psychology
- 3 †U.S. History or American National Government
- 3-4 Approved Electives or \*\*\*CHEM 2613/2611L Organic Physiological Chemistry
- 4 BIOL 2213/2211L Human Physiology with lab

**16-17 Semester Hours****Fall Semester Year 3**

- 4 PHYS 2013/2011L College Physics I with lab
- 3 KINS 3153 Exercise Physiology
- 3 CNED 3053 The Helping Relationship
- 4 BIOL 2013/2011L General Microbiology with lab

**14 Semester Hours****Spring Semester Year 3**

- 4 PHYS 2033/2031L College Physics II with lab
- 3 KINS 3533 Laboratory Techniques
- 3 HESC 1213 Nutrition and Health
- 3 KINS 3353 Mechanics of Human Movement
- 2 CHLP 2662 Terminology for Health Professions

**15 Semester Hours****Fall Semester Year 4**

- 3 PSYC 2013 Statistics or STAT 2303 or SOCI 3303
- 3 KINS 4833 Exercise Application/Special Populations
- 3 PSYC 4183 Behavioral Neuroscience or POSC 4923 Brain and Behavior or BIOL4793 Into to Neurobiology
- 3-6 Electives
- 3 Literature Elective (recommend WLIT I)

**15-16 Semester Hours****Spring Semester Year 4**

- 3 KINS 4323 Analytical Basis/Movement
- 3 KINS 405V Independent Study or 4903 Internship or \*\*HNED 4003H Honors Education Thesis/Project
- 3 PSYC Abnormal Psychology
- 3 †Social Science (recommend HIST 1003)

**12-13 Semester Hours****124 Total Hours**

† Core areas must be completed as outlined in University Core – See page 41.

\* BIOL 1543/1541L is a prerequisite for BIOL 2443/2441L

\*\* Only for students completing the College of Education and Health Professions Honors Program.

\*\*\* Preprofessional program requires either CHEM 2613/2611L or CHEM 3603/3601L. Must be taken fall or spring semester of second year.

**Kinesiology B.S.E., Applied Exercise Science Concentration III****Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan in Kinesiology should see page 42 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 CHEM 1103/1101L University Chemistry I with lab
- 3 MATH 1203 College Algebra
- 3 †Fine Arts or Humanities
- 4 BIOL 1543/1541L Principles of Biology with lab

**17 Semester Hours****Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 MATH 1213 Plane Trigonometry
- 3 †Fine Arts or Humanities
- 4 CHEM 1123/1121L University Chemistry II with lab
- 3 †Social Science (except PSYC 2003)

**16 Semester Hours****Fall Semester Year 2**

- 3 COMM 1313 Public Speaking
- 3 KINS 2733 Seminar in Exercise Science
- 3 KINS 2223 Motor Development
- 3 CHLP 1103 Personal Health and Safety
- 4 BIOL 2443/2241L Human Anatomy with lab

**16 Semester Hours****Spring Semester Year 2**

- 3 PSYC 2003 General Psychology
- 3 †U.S. History or American National Government
- 2 CHLP 2662 Terminology for Health Professions
- 4-6 Approved Electives
- 4 BIOL 2213/2211L Human Physiology with lab

**16-18 Semester Hours****Fall Semester Year 3**

- 4 PHYS 2013/2011L College Physics I with lab
- 3 KINS 3153 Exercise Physiology
- 3 CNED 3053 The Helping Relationship
- 1 PEAC 1621 Fitness Concepts
- 3-4 Elective

**14-15 Semester Hours****Spring Semester Year 3**

- 3 KINS 3533 Laboratory Techniques
- 3 HESC 1213 Nutrition and Health
- 3 KINS 3353 Mechanics of Human Mvmt
- 3 Literature Elective (recommend WLIT I)
- 3 Elective

**15 Semester Hours****Fall Semester Year 4**

- 3 KINS 4903 Internship or KINS 405V Independent Study or \*\*HNED 4003H Honors Education Thesis/Project
- 3 KINS 4833 Exercise Application/Special Populations
- 3 PSYC Abnormal Psychology
- 3 †Social Science
- 4 Elective

**16 Semester Hours****Spring Semester Year 4**

- 3 KINS 4323 Analytical Basis/Movement
- 3 KINS 4773 Performance and Drugs
- 3 CHLP 3633 First Responder-First Aid
- 0-6 Electives

**9-15 Semester Hours****124 Total Hours**

† Core areas must be completed as outlined in University Core – See page 41.

\* BIOL 1543/1541L is a prerequisite for BIOL 2443/2441L

\*\* Only for students completing the College of Education and Health Professions Honors Program.

**RECREATION AND SPORT MANAGEMENT (RESM)****FACULTY**

- Professor Moiseichik
- Associate Professor Langsner
- Assistant Professors Benton, Dittmore

The program in recreation and sport management is designed to prepare candidates for a variety of career opportunities in the field of recreation and sport management. Career opportunities may include park and recreation directors for a city, college and professional sports management, fitness center managers, state and national park managers, camp administrators, or work in YMCAs, Boys and Girls Clubs, or other youth-serving agencies. Graduates of this program should be well prepared to enter the recreation and sport workforce at an entry level position or pursue graduate studies in such areas as recreation management, sport management, or other allied health professional schools.

The candidate for the Bachelor of Science in Education degree with a major in recreation and sport management must select professional electives in an area of interest with help from an academic adviser from the recreation and sport management faculty. Each set of professional electives is developed individually to meet specific career goals. Professional electives are 24 hours, generally in academic areas other than the recreation and sport management program. Examples of professional electives include, but are not limited to, public recreation, children and families, fitness club management, commercial recreation, special event management, camp administration, outdoor leadership, community sports, sport management, youth at risk, and outdoor recreation.

All students must complete the University Core requirements as listed on page 41. In addition, all students must take the required general studies for the recreation and sport management core requirements listed below. Recreation and sport management majors must obtain a “C” or better in all courses beginning with the alpha code RESM. To enroll in RESM 440V, students must have a 2.50 GPA or better in RESM core and professional elective courses.

There are several experiential requirements within the recreation and sport management core. Students are required to do three practicum experiences (RESM 201V) in three different agencies. Each experience totals 45 hours. A more intense experience of an internship (RESM 440V) requires a minimum of 400 hours or work full time for 12-15 weeks in an agency with a qualified park, recreation or sport management professional. Students in the recreation and sport management program must obtain one instructor-level certification and a second certification in another area of expertise, which must be appropriate to recreation and sport management and be pre-approved by the program. For additional information regarding these certifications see a recreation and sport management faculty adviser. Certifications must be valid at the time of graduation and be completed before a grade will be assigned in RESM 4013 Contemporary Issues in Leisure Sport. A minimum of 124 hours are required for graduation in the major of recreation and sport management.

An undergraduate minor in recreation and sport management is also available to students enrolled in other majors. Students with interests related to the recreation and sport management profession such as business, biology, human environmental science, or horticulture may elect the 15-hour minor. This minor could enhance future career opportunities.

<b>Curriculum for a Major in Recreation and Sport Management</b>	<b>Hours</b>
<b>University Minimum Core (State Minimum Core)</b>	35

<b>Required University Core for Major in Recreation and Sport Management</b>	
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- PLSC 2003 American National Government
- PSYC 2003 General Psychology
- SOCI 2013 General Sociology

<b>Required General Studies for the Recreation and Sport Management Major</b>	<b>10</b>
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- 3-hour Literature/History/Western Civilization elective
- COMM 1313 Public Speaking

See Page 373 for Kinesiology (KINS) courses.

CHLP 1103 Personal Health and Safety  
 PEAC 1621 Fitness Concepts

**Recreation and Sport Management program requirements** 51

RESM 1003 Professional Foundations of Leisure  
 RESM 1023 Recreation and Natural Resources  
 RESM 201V Recreation and Sport Practicum (three 1-credit experiences)  
 RESM 2063 The Commercial Recreation and Tourism Enterprise  
 RESM 2093 Inclusive and Special Recreation and Sport  
 RESM 2813 Recreation and Sport Leadership  
 RESM 2853 Leisure and Society  
 RESM 3833 Program Planning in Recreation and Sport  
 RESM 3843 Recreation and Sport Facilities  
 RESM 3873 Sport and Recreation Risk Management  
 RESM 4003 Innovative Practices in Recreation and Sport  
 RESM 4013 Contemporary Issues in Leisure and Sport  
 RESM 4083 Research and Evaluation in Recreation and Sport Management  
 RESM 440V Internship (9 hours)  
 CHLP 3633 First Responder-First Aid

**Directed Study Professional Electives** 24  
 (Selected with help from a recreation and sport management faculty adviser.)

**Adviser approved electives** 4  
**Total Hours for Recreation and Sport Management degree** 124

Note: The minimum number of hours required to receive a baccalaureate degree at the University of Arkansas is 124 semester hours.

The Recreation and Sport Management major is exempt from Act 1014, which requires eight-semester degree plans for most majors, because students are recommended to register for RESM 440V (Internship) after the completion of their course work. This is necessary because the recreation and sport management agencies have their busiest season in the summer. For a recommended nine-semester plan, however, please refer to the College of Education and Health Profession's Web site at <http://coehp.uark.edu/>.

**Curriculum Requirements for a Minor in Recreation and Sport Management**

15 hours to include:  
 RESM 1003 Professional Foundations of Leisure  
 RESM 2813 Leadership Techniques in Recreation  
 RESM 3833 Program Planning in Recreation  
 RESM 3873 Sport and Recreation Risk Management  
 RESM elective course selected to complement major (see adviser)

See Page 400 for Recreation and Sport Management (RESM) courses.  
 See Page 393 for Physical Education Activities (PEAC) courses.

**REHABILITATION, HUMAN RESOURCES, AND COMMUNICATION DISORDERS (RHRC)**

Fran Hagstrom  
 Department Head  
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The Department of Rehabilitation, Human Resources, and Communication Disorders offers the B.S.E. in Human Resource Development and the B.S.E. in Communication Disorders. The M.S. with an emphasis in speech-language pathology, M.S. and Ed.D. in higher education, M.S. and Ed.D. in workforce development, M.S. and Ph.D. in counselor education, and Ph.D. in rehabilitation are also offered.

**COMMUNICATION DISORDERS (CDIS)**

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Speech and Hearing Clinic  
 Epley Center for Health Professions  
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 479-575-4509

**FACULTY**

- University Professor Emeritus Shadden
- Associate Professors Toner, Hagstrom
- Assistant Professor Baker
- Clinical Assistant Professors Agan, Hunter
- Research Associate Aslin
- Instructor McGehee

An undergraduate major in communication disorders leads to the B.S.E. degree and prepares students for graduate studies (master's level) in speech-language pathology and/or the professional doctorate in audiology. The minimum requirements for all students in the college are listed under general studies on page 240.

**Admission to the B.S.E. Major Degree Program in Communication Disorders**

All students declaring an undergraduate major in communication disorders are accepted as tentative candidates to the undergraduate program and assigned the pre-communication disorders code (PCDIS). However, formal admission to the program is limited. Students must apply for admission to the undergraduate B.S.E. degree program in communication disorders prior to taking junior- and senior-level classes in the major. Requirements for admission include the following:

- Completion of the admission application form.
- Junior status at the time that 3000-level courses will be taken.
- An overall minimum GPA of 3.0 over the first four semesters (50-60 hours) of college course work.
- Satisfactory completion of an admission interview with designated members of the faculty.

Students who do not meet admission criteria for the B.S.E. degree program in communication disorders in any given year may reapply in subsequent years.

**Requirements for the program in Communication Disorders** **Hours**  
**University Core (State Minimum Core)** 35

Of which Communications Disorders requires the following specific courses:

- BIOL 1543/1541L Principles of Biology with lab
- PSYC 2003 General Psychology
- ANTH 1023 Introduction to Cultural Anthropology
- And choose one of the following:  
 PHYS 1023/1021L Physics and Human Affairs with lab  
 PHYS 2013/2011L College Physics I with lab  
 CHEM 1073/1071L Fundamentals of Chemistry with lab

**Additional General Studies course requirements for Communication Disorders** 8

- ENGL 2003 Advanced Composition or ENGL 2013 Essay Writing or ENGL 3053 Technical and Report Writing or HNEC 400VH(3), if honors student
- COMM 1313 Public Speaking
- CHLP 2662 Terminology for the Health Professions

**Communication Disorders Major Requirements**

41

- CDIS 2253 Introduction to Communicative Disorders
- CDIS 3103 Introduction to Audiology
- CDIS 3124 Normal Phonology and Articulatory Process
- CDIS 3203 Articulation Disorders
- CDIS 3213 Anatomy and Physiology of the Speech and Hearing Mechanisms
- CDIS 3224 Language Development in Children
- CDIS 3233 Introduction to Clinical Practice
- CDIS 4133 Intro. to Aural Rehab
- CDIS 4213 Intro. to Speech and Hearing Science
- CDIS 4183 Clinical Assessment of Speech and Language Disorders
- CDIS 4223 Language Disorders in Children
- CDIS 4253 Neurological Bases of Communication
- CDIS 4273 Communication Behavior and Aging

**Electives**

40

**Total for Communication Disorders**

124

**Communication Disorders B.S.E.**

**Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan in Communication Disorders should see page 42 in the Academic Regulations chapter for university requirements of the program. An eight-semester plan for the Honors Option is available at the College of Education and Health Profession's Web site.

ALL CDIS students are accepted as tentative candidates. Students must apply for formal admission to the undergraduate B.S.E. degree program in CDIS prior to taking junior- and senior-level classes in the major. Refer to page 237 for admission criteria.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 3 MATH 1203 College Algebra (or higher)
- 4 BIOL 1543/1541L Principles of Biology w/lab
- 3 †U.S. History/Government
- 3 Elective

**16 Semester Hours**

**Spring Semester Year 1**

- 3 ENGL 1023 Composition II
- 3 †Fine Arts or Humanities
- 3 †Social Science
- 6 Electives

**15 Semester Hours**

**Fall Semester Year 2**

- 3 ANTH 1023 Introduction to Cultural Anthropology
- 3 CDIS 2253 Intro to Communicative Disorders
- 3 PSYC 2003 General Psychology
- 4 PHYS 1023/1021L Physics and Human Affairs or CHEM 1073/1071L Fundamentals of Chemistry or PHYS 2013/2011L College Physics I
- 3 Elective

**16 Semester Hours**

**Spring Semester Year 2**

- 2 CHLP 2662 Terminology for the Health Professions
- 3 COMM 1313 Public Speaking
- 3 Fine Arts/Humanities
- 7 Electives

**15 Semester hours**

**Fall Semester Year 3**

- 4 CDIS 3124 Normal Phonology & Articulation
- 3 CDIS 3213 Anatomy of Speech and Hearing Mechanism
- 4 CDIS 3224 Language Development in Children
- 5 Electives

**16 Semester hours**

**Spring Semester Year 3**

- 3 CDIS 3203 Articulation Disorders
- 3 CDIS 3233 Introduction to Clinical Practice
- 3 CDIS 4223 Language Disorders in Children
- 3 ENGL 2003 Advanced Composition or ENGL 2013 Essay Writing or ENGL 3053 Technical and Report Writing or HNEE 400VH (if honors program student)

- 4 Elective
- 16 Semester hours**

**Fall Semester Year 4**

- 3 CDIS 3103 Intro. To Audiology
- 3 CDIS 4253 Neurological Bases of Communication
- 3 CDIS 4273 Communication Behavior and Aging
- 6 Electives (Recommend: CDIS 4001 Clinical Practicum: Undergraduate)

**15 Semester hours**

**Spring Semester Year 4**

- 3 CDIS 4133 Intro. to Aural Rehab.
- 3 CDIS 4213 Intro to Speech and Hearing Science
- 3 CDIS 4183 Assessment of Speech and Language Disorders
- 6 Electives (Recommend: CDIS 4001 Clinical Practicum: Undergraduate)

**15 Semester hours**

**124 Total hours**

† Must meet University Core. See Page 41

See Page 326 for Communication Disorders (CDIS) courses.

**HUMAN RESOURCE DEVELOPMENT (HRDV)**

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 Program Coordinator  
 255 Graduate Education Building  
 479-575-2047  
 chbanks@uark.edu

Phil Gerke  
 Adviser  
 116A Graduate Education Building  
 479-575-4690  
 pgerke@uark.edu

**FACULTY**

- Professor Biggs
- Associate Professors Hughes, Thompson
- Clinical Assistant Professors Beck, Schmidtke

The HRDV major is specifically designed for career adults needing to complete a bachelor's degree that opens doors to opportunity and personal growth. HRDV curriculum uncovers the people skills and development strategies effective leaders use to facilitate performance improvements in individuals, teams, and organizations. The plan of study accelerates degree-completion by awarding technical credit for professional certifications and knowledge gained by experience. Online courses are offered on a traditional 15-week semester schedule in cooperation with the UA Global Campus. Undergraduates also obtain a solid academic base to pursue a graduate degree. This major does not lead to a traditional licensure for teachers in Arkansas.

Career adults who have satisfied a total of 43 or more hours of University Core and HRDV General Education requirements, who are members of the work force (even if temporarily unemployed); and who have three years of full-time work experience or equivalent are eligible to enter an HRDV program. If not previously completed, PSYC 2003 General Psychology (or its transfer equivalent) must be taken along with HRDV Concept courses in the first fall semester. All HRDV courses are offered online and are open for HRDV majors only.

**Human Resource Development (HRDV) Major** **Hours**  
**University Core Requirements** 35

3 hours must be PSYC 2003 General Psychology (pre- or corequisite for HRDV 4113 and HRDV 3213)

**HRDV General Education Requirements** 20

COMM 1313 Public Speaking, or similar course (pre- or corequisites for HRDV 3133 and HRDV 4133)

Health/Wellness/Safety: CHLP 1103 Personal Health and Safety, TEED 1603 Industrial Safety, or PEAC 1621 Fitness Concepts, and similar course(s) (pre or corequisites for HRDV 4213)  
 11 hours of electives or as needed to total 20 hours of credits in HRDV General Education requirements

**HRDV Technical Requirements** 33

Required: HRDV 3403 Employment Law in HRD plus any combination of the following  
 Appropriate occupation-related, adviser-approved credits from UA coursework, transfers from accredited institutions of higher learning (within limits), or College Level Examination Program (CLEP) exams  
 Credit by advanced standing examination for job knowledge as measured by selected National Occupational Competency Testing Institute (NOCTI) assessments, transcribed as HRDV 200V Work Experience credit.  
 HDV 3503 Workforce Behavior  
 Additional HRDV 4603-4693 Applied HRDV coursework, up to 18 additional hours, beyond the HRDV Applied Requirement described below.  
 HRDV 450V Experiential Learning. Credit for certain professional certifications or occupational training based on either the Council for the Advancement of Experiential Learning (CAEL) format or American Council on Education (ACE) guidelines. Tuition is charged for these credit hours. Prerequisite: HRDV 3503 Workforce Behavior

**HRDV Concept Courses:** 24

HRDV 3113, HRDV 3123, HRDV 3133, HRDV 3213, HRDV 4113, HRDV 4133, HRDV 4213, HRDV 4233

**HRDV Applied Requirements** 12

Students must complete two General and two Specific Applied courses of their choice. General: HRDV 4603, HRDV 4613, HRDV 4663, or HRDV 4673. Specific: HRDV 4623, HRDV 4633, HRDV 4643, HRDV 4653, HRDV 4683, or HRDV 4693. Students in HRDV Cohort 8 (Catalog Year 2003) and earlier may use credit from HRDV 3403 Employment Law and HRDV 3503 Workforce Behavior toward HRDV Applied requirements if desired.

**Total** 124

**Human Resource Development Concentration**

**Five-Semester Degree Completion Program**

The nature of the Human Resource Development major excludes it from ACT 1014 eight-semester degree-completion program requirements. Additional information regarding this major is available on the College Web site.

Presented below is a typical plan for completing this degree in five semesters; individual student plans may vary significantly. Courses in bold must be taken that semester. Credit from Human Resource Development academic adviser-approved National Occupational Competency Testing Institute (NOCTI) assessments accelerate completion of technical requirements. If fewer credits than needed are earned by exam, completing additional appropriate coursework will require heavier course loads and/or additional semesters to graduate.

**Earned Prior to Fall Semester Year 1**

43 University Core and HRDV General Education credits  
 10 Appropriate HRDV Technical credits  
**53 Semester Hours**

**Fall Semester Year 1**

3 **HRDV 3213** Intro to HRD  
 3 **HRDV 4113** Theories/Principles of Adult Education  
 6 HRDV General Education courses as required  
 Begin taking all planned NOCTI tests, if any, approved by HRDV adviser  
**12 Semester Hours**

**Spring Semester Year 1**

3 **HRDV 3133** Communication in HRD  
 3 **HRDV 3113** Skills and Strategies in HRD  
 6 HRDV General Education courses as required  
 If planned, complete all HRDV adviser-approved NOCT tests by March  
 14 Credit by NOCTI examination(s) for job knowledge posted to transcript  
**26 Semester Hours**

**Summer Semester Year 1**

3 Adviser-approved HRDV Technical Electives  
 3 HRDV 3503 Workforce Behavior\*\*\*  
 3 HRDV Applied General choice 1 of 2\*\* or HRDV 3403 Employment Law\*  
**9 Semester Hours**

**Fall Semester Year 2**

(This example shows a distant transfer student in the "A" and "C" groups; the "B" rotation swaps the HRDV courses in bold in Fall Semester Year 2 with those in Spring Semester Year 2. Bold courses are for cohort group "A" or "C"; cohort group "B" take the bold HRDV courses in Fall Semester Year 2 instead.)

3 **HRDV 3123** Needs Assessment and Evaluation  
 3 **HRDV 4133** Group Dynamics  
 3 HRDV 3403 Employment Law\* or HRDV Applied General choice 2 of 2\*\*  
 3 HRDV Applied Specific course 1 of 2\*\*  
**12 Semester Hours**

**Spring Semester Year 2**

3 **HRDV 4233** Leadership in HRD  
 3 **HRDV 4213** Professional Development  
 3 HRDV Applied General choice 2 of 2\*\* or HRDV 3403 Employment Law\*  
 3 HRDV Applied Specific course 2 of 2\*\*  
**12 Semester Hours**  
**124 Total Hours**

\* HRDV 3403 Employment Law, a Technical requirement for graduation, can be taken with Department approval in any fall or spring semester if all University Core and HRDV General Education requirements are complete or in progress.

\*\* After all General Education and HRDV Technical requirements are complete or in progress, and after completing the prerequisite HRDV Concept courses, students must complete two General and two Specific Applied courses of their choice. General: HRDV 4603, HRDV 4613, HRDV 4663, or HRDV 4673. Specific: HRDV 4623, HRDV 4633, HRDV 4643, HRDV 4653, HRDV 4683, or HRDV 4693.

\*\*\* HRDV 3503 Workforce Behavior, available in spring and summer only, can be taken as an option for HRDV Technical credit with Department approval. HRDV 3503 is a prerequisite for HRDV 450V Experiential Learning. Any HRDV 450V credit would be applied in subsequent semesters in consultation with an HRD academic adviser.

See Page 366 for Human Resource Development (HRDV) courses.

# College of Engineering

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## Office of the Dean of the College

4183 Bell Engineering Center, 479-575-7455

### Interim Dean

Terry Martin

### Associate Dean

Terry Martin

### Assistant Dean for Finance

Colleen Briney

### Assistant Dean for Recruitment

Bryan Hill

### Assistant Dean for Research

Shannon Davis

### Assistant Dean for Student Affairs

Thomas Carter, III

### Academic Programs Office

3189 Bell Engineering, 479-575-3052

### World Wide Web

<http://www.engr.uark.edu/>

**E-mail:** [engrinfo@uark.edu](mailto:engrinfo@uark.edu)

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## MISSION AND OBJECTIVES

Ever since people first began to use tools and manipulate their surroundings, engineering has been a vital aspect of human life, and these days, engineering is as important as it ever was. Society turns to engineers to solve a range of social, economic and environmental problems, and an engineering degree can prepare students to work as managers and leaders, in the public or private spheres. Engineering education combines math and science with creativity, innovation and a passion to change the world.

The College of Engineering adds personal, social and economic value to the region, the state, the nation, and the world through engineering education and cutting-edge research in emerging technologies.

Recognizing that the University of Arkansas, Fayetteville, is a land-grant institution with consequent responsibilities in teaching, research, and service, and realizing that these are mutually dependent and necessary responsibilities, the College of Engineering adopts and seeks to fulfill the following statements of purpose.

**Undergraduate Education** — Offer a high-quality and fully accredited course of instruction involving classroom, laboratory, and extracurricular activities that will result in professionals qualified to begin careers in the field of engineering and prepared to assume responsible places of leadership in society.

**Graduate Education and Research** — Offer state-of-the-art coursework and research experiences that result in all graduates being capable of independent analysis

and design, and all Ph.D. graduates capable of extending the state-of-the-art in their areas of expertise.

**Continuing Education** — Provide local, regional, national, and international seminars, symposia, short courses, and credit courses to engineers and others in the technical community to help them further their formal education and keep abreast of new developments in technology.

**Technology Development and Job Creation** — Assist actively and vigorously in the growth and development of the state of Arkansas and the nation by performing research and developing innovative new technology, by updating the existing technology within industrial circles, by providing educational support services, and by attracting and creating new industry.

The College of Engineering focuses on research, teaching and outreach in the following areas:

- Biological, chemical and food processing
- Biomedical engineering
- Database
- Electric power systems and advanced power electronics
- Electronics manufacturing
- Environmental and ecosystems analysis
- Mixed signal electric systems
- Nanotechnologies
- Transportation, logistics and infrastructure
- Homeland security

More information about the College of Engineering can be found at <http://www.engr.uark.edu/>.

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## COLLEGE OF ENGINEERING STRATEGIC PLAN

### “Engineering the Future – Today”

For more than 100 years, the College of Engineering has successfully fulfilled its primary mission: to provide an excellent engineering education to undergraduate and graduate students at the University of Arkansas.

The College of Engineering faculty, staff, alumni and students decided to accept the challenge to become one of the best. Specifically, the college’s collective goal is:

*To become and be recognized as one of the top tier graduate and undergraduate engineering programs in the U.S.*

The College’s strategic plan encompasses five main goals. By successfully accomplishing these objectives, the College of Engineering will contribute to the University of Arkansas becoming a nationally competitive, student-centered research institution serving Arkansas and the world, effectively fulfilling its purpose.

### Six Strategic Goals

1. Provide a student-centered educational experience that attracts diverse, high-quality students, helps them to realize their potential, inspires them to pursue excellence at all degree levels and grooms them to become leaders in their profession.

2. Create a supportive research environment that enhances and recognizes scholarship while stimulating entrepreneurship and economic development within Arkansas, the nation and world.
3. Recruit, mentor and retain high-quality and diverse faculty members who value and promote world-class scholarship.
4. Attract, develop and retain well-qualified, diverse and skilled staff members who are equipped to support the growth and potential of the College of Engineering.
5. Implement service and outreach to enhance the impact of the College of Engineering both within and outside the university through service and outreach.
6. Become a catalyst for economic development to achieve the long-term economic goals of Arkansas through entrepreneurship, research and collaboration with industry and government.

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## DEGREES OFFERED

The College of Engineering offers programs leading to the following eight undergraduate degrees:

- Bachelor of Science in Biological Engineering (B.S.B.E.)
- Bachelor of Science in Biomedical Engineering (B.S.Bm.E.)
- Bachelor of Science in Chemical Engineering (B.S.Ch.E.)
- Bachelor of Science in Civil Engineering (B.S.C.E.)
- Bachelor of Science in Computer Engineering (B.S.Cmp.E.)
- Bachelor of Science in Computer Science (B.S.)
- Bachelor of Arts in Computer Science (B.A.)
- Bachelor of Science in Electrical Engineering (B.S.E.E.)
- Bachelor of Science in Industrial Engineering (B.S.I.E.)
- Bachelor of Science in Mechanical Engineering (B.S.M.E.)

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## COLLEGE ADMISSION REQUIREMENTS

### Undergraduate Students

Freshmen admitted to the University of Arkansas, Fayetteville, are eligible to enroll in the College of Engineering. The freshman curriculum stresses a basic foundation in mathematics, physics, and chemistry, which will be required in later years. The sophomore, junior, and senior years are spent in a strong concentration on the student's chosen field, with emphasis on industrial applications of classroom and laboratory work. By the selection of electives, a student can concentrate in depth in a particular subject, have the flexibility to study several subjects, and minor in an area of interest. Provisions are made for electives in the humanities and social sciences as a means of providing a well-rounded education.

### International Students

Before being admitted all computer engineering applicants must submit a Test of Spoken English (TSE) score of at least 5.0, or a 7.0 on the spoken section of the IELTS, and an ACT score of 25 (or SAT score of 1140(R)) or above, to be eligible for admission.

### Transfer Students

In addition to the University policies controlling the granting of credit for course work taken at other institutions, the College of Engineering specifies that advanced (3000- and 4000-level at the University of Arkansas) engineering courses may not normally be transferred from institutions that do not have engineering programs accredited by the Engineering Accreditation Commission or the Computing Accreditation Commission of ABET.

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## HONORS PROGRAM

The College of Engineering has established an honors program to challenge superior students with a more in-depth academic program and research experience

and to provide a structure for working more closely with faculty members and other students in a team environment. An honors program is highly recommended for individuals planning academic or research related careers that require considerable critical and original independent thinking. Admission requirements for the college's Honors Program are as follows: entering freshmen must have at least a 3.5 high school GPA and at least a 28 composite score on the ACT; entering transfer students must have at least a 3.5 GPA on their transfer work. Students not initially qualifying for the Engineering Honors Program are eligible if they earn a 3.500 cumulative GPA at the University of Arkansas.

Students must formally apply for admission to the Engineering Honors Program. Once accepted into the program, Honors students take a minimum of 12 hours of Honors courses (a minimum of 6 of these 12 hours must be in engineering), participate in undergraduate research and write an undergraduate thesis, and must fulfill any additional departmental requirements. To receive Latin honors distinction at graduation, a student must hold a cumulative GPA of 3.500 or better (for all course work, computed at graduation).

Deadlines related to the Honors Program are as follows:

1. A Thesis/Project Proposal is to be completed prior to a student earning 90 semester hours.
2. Honors College Graduation Certification is to be completed prior to one week before the last day of classes of the student's last semester.

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## OTHER PROGRAMS

### Off-Campus Programs

The College of Engineering at the University of Arkansas (UofA) is offering the Bachelor of Science degrees in Electrical Engineering and Mechanical Engineering at the University of Arkansas at Fort Smith (UAFS). Upper-division courses are taught in person or through distance-learning technology by UAF faculty, and lower-division courses are taught by UAFS faculty. The degree is awarded by University of Arkansas (UofA), but all classes are offered at the UAFS campus.

### Cooperative Education

George Winter

Career Development Center, College of Engineering, Bell 3158

(479) 575-6201, Fax: (479) 575-7744, gwinter@uark.edu

Cooperative education (co-op) is an academic program that allows students to gain practical work experience prior to graduation. Over the years thousands of engineering students have participated in the co-op program at the University of Arkansas, gaining experience related to their major locally, within the state, across the nation, and internationally. Students work either full- or part-time in paid, degree-related jobs, and the skills they acquire allow them to step into their first full-time positions ready to contribute in ways that other students cannot. The material below will give more information about the co-op program.

### Forms of Cooperative Education: Alternating and Parallel

In an alternating plan, students alternate between semesters of on-campus study and semesters off-campus at their co-op work site. In a parallel co-op, students work part-time for a local company (15 to 25 hours each week) and attend school at least half-time. In either plan the student is considered a full-time student.

By participating in Cooperative Education, students have the chance to:

- Gain hands-on experience in a real world setting
- Confirm the choice of their major
- Make valuable industry contacts
- Enhance their communication skills
- Make money while also taking classes
- Lay the foundations for a future full-time job

### Requirements and Conditions

Undergraduate students must have completed 30 hours toward an engineering degree and must have a minimum 2.25 cumulative GPA. Students participating in a full-time co-op must have 12 hours of course work remaining upon return to campus.



Graduate students must have completed 6 hours toward an engineering degree and must have a minimum 3.0 cumulative GPA. Students participating in a full-time co-op must have 3 hours of course work remaining (not thesis, dissertation, or research). They must also have approval of the departmental graduate adviser prior to interviewing for co-op positions.

Transfer students must have completed one semester of full-time study in the College of Engineering and must meet all other co-op requirements.

Students in F-1 non-immigration status must have completed nine months of study in the United States and must meet all other Co-op requirements. Full-time co-op assignments consist of the following scenarios:

- One semester away from campus (Spring, Summer, or Fall).
- One summer and one semester away from campus (Spring & Summer OR Summer & Fall).
- Alternating Semesters between Spring, Summer, and Fall.

Students who are away from campus for 2 semesters in one year, are eligible for only one semester away the following year with no more than three co-op semesters in a 24-month period. (Exceptions to this must be approved in advance by their departmental co-op representative.) Students who are going to be away from campus for the Fall and Spring semester in the same academic must receive prior approval from their departmental co-op representative.

### Study Abroad Programs

The College of Engineering actively encourages engineering students to obtain an international experience while pursuing an engineering degree. Students have several opportunities to join engineering faculty-led programs in India, Belize and Spain as well as opportunities within the Southeastern Conference Academic Consortium (SECAC). For more information on study abroad opportunities, contact the Assistant Dean for International Programs, 479-575-7236.

### Dual-Degree Transfer Programs

The College of Engineering recognizes that a graduate engineer, to be of full service to community, must be educated in the social sciences and humanities as well as in technical subjects. The practice of industry to elevate engineers to managerial and administrative positions elevates the desirability of a broad educational background. Likewise, most universities within Arkansas do not offer a degree in engineering. Accordingly, the College of Engineering of the University of Arkansas has entered into a cooperative program with several Arkansas "partner" universities to provide for dual-degree programs that lead to a Bachelor of Science degree from the partner university and an engineering degree from the University of Arkansas. Typically, a student spends two to three years at the partner university and then completes an engineering curriculum in two to three years at the University of Arkansas. The student is awarded the Bachelor of Art/Bachelor of Science degree by the partner university and the Bachelor of Science in an engineering discipline by the University of Arkansas. More information is available at <http://www.engr.uark.edu/transfer.php>

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## COLLEGE SCHOLARSHIPS

The College of Engineering awards numerous scholarships, and most are based primarily on academic performance. However, scholarships may also be awarded on the basis of financial need and diversity. Scholarships are available from both the college and its individual departments. College scholarships are available to any engineering student, and departmental scholarships are meant for students enrolled in a particular discipline of engineering. College and departmental scholarships are not available for entering freshmen. Students must be admitted to the University of Arkansas and enrolled in the College of Engineering to qualify and receive either a college or departmental scholarship. The college has a one-step application process that allows a student to be considered for all college-level and departmental scholarships.

For more information concerning scholarship and diversity opportunities, contact the Engineering Student Affairs Office at 575-3051 or e-mail [engrdean@uark.edu](mailto:engrdean@uark.edu).

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## FACILITIES AND RESOURCES

### Instructional, Computer, and Laboratory Facilities

Undergraduate instruction in engineering takes place in Bell Engineering Center, Engineering Hall, J.B. Hunt Center for Academic Excellence, and the Mechanical Engineering building. These facilities contain state-of-the-art classrooms and instructional equipment. Undergraduate laboratories are located both on the main campus as well as at the Engineering Research Center. Laboratories offer students hands-on experience relating to the subject matter addressed in the classroom.

The College of Engineering utilizes a wide variety of computing equipment to assist in engineering education. Students have easy access to computers through general computer laboratories or computer facilities located in specialized laboratories within the college. The computers are networked so that all the computing power of the university, including the mainframe computers, can be accessed from the PCs or workstations provided for engineering students. Owning a personal computer is not required; however, it is beneficial.

### Laboratory Fee

In order to maintain the college's state-of-the-art instructional and computer laboratories, each student enrolled in an engineering course is assessed a laboratory fee for that term. This fee is used only to purchase and maintain equipment and staff the engineering laboratories to assist students.

### Library

The books and references used by engineering students and faculty are housed principally in the University of Arkansas Mullins Library. This collection is the most useful and comprehensive engineering library in the state. Many publications pertinent to the engineering profession are being added continuously. Mullins Library is the depository for water resources papers, geological survey materials, and NASA publications, as well as other governmental and industrial series.

### Engineering Research Center

The 178,000-square-foot Engineering Research Center is located approximately two miles south of the main campus. The center provides the facilities and support services for a wide variety of research activities. It houses the Engineering Experiment Station through which the research of individual departments in the college is administered. Centers and laboratories located at the Engineering Research Center include GENESIS, the High Density Electronics Center, the Center for Training Transportation Professionals, and the Chemical Hazards Research Center.

### Distance Learning

A Master of Science in Engineering (M.S.E.) degree is available for students who wish to take a broad range of engineering courses. See the Graduate School Catalog for details.

Professional development and continuing education credits can be earned through the College of Engineering's Center for Distance Learning. These courses provide ongoing training on technical and engineering topics for professional engineers, land surveyors, and others in the technical and engineering professions.

The Master of Science in Operations Management (MSOM) degree program at the University of Arkansas offers students the philosophy, concepts, and techniques needed to manage available resources to achieve maximum efficiency and effectiveness in meeting operational goals. It provides the tools needed for successful management in industrial and/or military settings. Geared toward the working student, classes meet in the evenings in five 8-week terms per year. The program is offered at military installations at Little Rock Air Force Base (Jacksonville, Ark.), Naval Support Activity Mid-South (Millington, Tenn.), Hurlburt Field, Fla., and at in-state sites at Fayetteville, Camden, and Blytheville. Students in remote locations may also earn the MSOM degree by taking video courses. This is a non-engineering degree that is open to students from all undergraduate backgrounds. See the Graduate School catalog for details.

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## STUDENT ORGANIZATIONS

The following are honor societies and professional societies to which engineering students at the University of Arkansas may aspire:

- Alpha Chi Sigma (a professional chemistry fraternity)
- Alpha Epsilon (Biological/Agricultural Engineering)
- Alpha Pi Mu (Industrial Engineering)
- Chi Epsilon (Civil Engineering)
- Eta Kappa Nu (Electrical Engineering)
- Omega Chi Epsilon (Chemical Engineering)
- Order of the Engineer (professional engineering society)
- Phi Eta Sigma (freshmen)
- Phi Kappa Phi (juniors and seniors)
- Phi Sigma Rho, (professional engineering sorority)
- Pi Mu Epsilon (Mathematics)
- Pi Tau Sigma (Mechanical Engineering)
- Tau Beta Pi (Engineering)
- Theta Tau, (A professional engineering fraternity, it maintains a chapter house on the campus and is active in university and college affairs.)

Several national engineering societies are listed below and maintain student branches in the College of Engineering, each under the auspices of a professor in a related department.

- American Chemical Society
- American Concrete Institute
- American Ecological Engineering Society
- American Indian Science and Engineering Society
- American Institute of Aeronautics and Astronautics
- American Institute of Chemical Engineers
- American Nuclear Society
- Amateur Radio Club of the University of Arkansas
- American Society of Agricultural and Biological Engineers
- American Society of Civil Engineers
- American Society of Heating, Refrigeration, and Air-Conditioning
- American Society of Mechanical Engineers
- Association for Computing Machinery
- Biomedical Engineering Society
- Engineers Without Borders
- Institute of Biological Engineering
- Institute of Electrical and Electronics Engineers
- Institute of Electrical and Electronics Engineers, Components, Packaging, and Manufacturing Technology Society
- Institute of Electrical and Electronics Engineers, Power Electronics Society
- Institute of Industrial Engineers
- Institute of Transportation Engineers
- International Microelectronics and Packaging Society
- Materials Research Society
- National Association of Professional Engineers
- National Society of Black Engineers
- Society of Automotive Engineers Assoc. for Computing Machinery
- Society of Hispanic Professional Engineers
- Society of Manufacturing Engineers
- Society of Women Engineers
- Transportation and Logistics Association

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## COLLEGE ACADEMIC REGULATIONS

Students are expected to keep themselves informed concerning current regulations, policies, and program requirements in their fields of study and must meet all requirements of the degree programs in which they are enrolled. Courses that are modified or added to a curriculum and that are incorporated into the curriculum at a level beyond that at which a student is enrolled may become graduation requirements

for that student. Courses that are incorporated into the curriculum at a level lower than the one at which the student is enrolled are not required for that student.

### Eligibility

Only students enrolled in the College of Engineering or enrolled in programs in which curricula require engineering courses will be allowed to take engineering courses. Exceptions to this requirement must be approved by the dean of engineering. This does not apply to graduate students.

### Code of Ethics

Students in the College of Engineering are obligated to comply with pertinent provisions of the Code of Ethics applicable to professional practice following graduation. The Code requires “honesty, impartiality, fairness, and equity,” and “adherence to the highest principles of ethical conduct.” Most particularly, it states that engineers shall:

1. Be objective and truthful in professional reports, statements, or testimony;
2. Not falsify or permit misrepresentation of their academic or professional qualifications;
3. Give credit for engineering work to those whom credit is due;
4. Not compete unfairly with other engineers by attempting to obtain employment or advancement by improper or questionable methods;
5. Avoid any act tending to promote their own interest at the expense of the dignity and integrity of the profession.

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## DEGREE REQUIREMENTS

The basic requirement for a Bachelor of Science degree in engineering is 124-132 semester hours of academic work, depending on the career field chosen. Students coming from high school with adequate preparation will be able to satisfy this requirement in eight semesters; however, some students require preparatory courses, and others choose to enroll in slightly lighter loads and graduate in nine or ten semesters. Students enrolled in ROTC require an additional 19 semester hours to meet all graduation requirements and graduate in ten semesters (five years).

Engineering is a rapidly changing profession, and the departmental curricula are updated continuously to keep pace with these changes. Students entering under this catalog will be required to comply with such curriculum changes to earn their degree. However, the total number of semester hours required for the degree may not be increased, and all work completed in accordance with this catalog prior to the curriculum change will be applied toward the student's degree requirements. Former students of the college must meet the curriculum requirements in effect at the time of their readmission.

### Graduation Requirements

In addition to the specific departmental requirements for degree plans, students should refer to the Academic Regulations chapter of this catalog for general university requirements, beginning on page 41. A portion of that information is listed here for convenience.

1. **Grade-Point Average** – A candidate for a degree from the College of Engineering must have earned a grade-point average of no less than 2.00 on all courses in the student's major area of study, all engineering courses, and all work completed at the university and presented for the degree. Grades on work taken at other colleges and presented for transfer credit must also meet this standard.
2. **Courses That Do Not Count Toward a Degree** – The following courses do not count toward degree credit: ANTH 0003, PHSC 0003, ENGL 0003, MATH 0003, CIED 0003, MATH 1203, MATH 1213, and MATH 1285.
3. **“D” Rule** – No student will be allowed to graduate if the student has “D” grades in more than 15 percent of all credit earned in this institution and presented to meet the requirements for a degree.
4. **Transfer of Courses**
  - a) Students should consult with an academic advisor in the College of Engineering to determine how their transfer credit will apply to fulfilling requirements for a degree in engineering.

- b) Advanced (3000- and 4000-level at the University of Arkansas) engineering courses may not normally be transferred from institutions that do not have programs accredited by the Engineering Accreditation Commission or Computing Accreditation Commission of the ABET.
- c) A maximum of six hours of “D” grades can be transferred for degree credit. These courses must be part of the General Education Core or an elective course in the degree program (see Transfer of Credit section general education requirements of this catalog for more information).

**5. 68 Hour Rule** – Students who transfer into the University may present for degree credit no more than 68 hours of lower division course work (1000 and 2000 level).

**6. University Core (State Minimum Core)** –The University of Arkansas has adopted a University Core of 35 semester-credit-hours of general education courses that are required of all baccalaureate degree candidates. This is in compliance with Arkansas Act 98 of 1989 and the subsequent action of the Arkansas State Board of Higher Education. Beginning in the fall semester of 1991, all state institutions of higher education in Arkansas have a 35-hour minimum core requirement with specified hours in each of six academic areas. The University and the College of Engineering have identified those courses that meet the minimum requirement, and they are listed in the chart below.

### Specific University Core Requirements for Engineering Students

	Hours
English	6
ENGL 1013 Composition I	
ENGL 1023 Technical Composition II (ENGL 1023 Composition II may be taken in lieu of Technical Composition II)	
Mathematics	4
MATH 2554 Calculus I	
Science	8
PHYS 2054 University Physics I	
PHYS 2074 University Physics II or	
CHEM 1123, 1121L University Chemistry II or	
BIOL 1543, 1541L Principles of Biology	
U.S. History or Government	3
HIST 2003 History of American People to 1877	
HIST 2013 History of American People 1877 to Present	
PLSC 2003 American National Government	
Fine Arts, Humanities and Social Sciences	
Fine Arts and Humanities	6
Social Sciences	9

### Minors in Other Colleges and Schools

Students in the College of Engineering may pursue an academic minor in other colleges. For example, a minor in business is popular among engineering students. For requirements regarding minors, check the catalog listing for the department offering the minor. Students must notify the College of Engineering dean’s office of their intent to pursue a minor.

### Requirements to Graduate with Honors

Students who have demonstrated exceptional academic performance in baccalaureate degree programs will be recognized at graduation by the honors designation of *cum laude*, *magna cum laude*, or *summa cum laude*. To earn this designation, the student must meet the following criteria:

1. Must have completed at least one-half of his or her degree work at the University of Arkansas;
2. Must have at least a 3.50 GPA on University of Arkansas course work, computed at graduation (students with grade-point averages lower than 3.50 do not receive honors designation at graduation);
3. Must successfully complete the Engineering Honors Program, which

includes a minimum of 12 hours of honors courses (at least 6 of these hours in engineering), an undergraduate research experience and thesis, and any additional departmental requirements;

4. Research and thesis material shall be evaluated by each department;
5. For *cum laude*, the student must achieve a GPA of 3.50 or higher and have good or better performance on the undergraduate research and thesis;
6. For *magna cum laude*, the student must achieve a GPA of 3.75 or higher and have good or better performance on the undergraduate research and thesis;
7. For *summa cum laude*, the student must achieve a GPA of 3.90 or higher and have outstanding performance on the undergraduate research and thesis.

The criteria may be evaluated and changed periodically by the College of Engineering.

### Requirements to Graduate with Distinction

Students who have not completed the Engineering Honors Program but have demonstrated excellent academic performance in baccalaureate degree programs will be recognized at graduation by the designation of “with distinction,” “with high distinction,” or “with highest distinction.” To earn these designations, the student must meet the following criteria on his or her University of Arkansas course work:

1. Must have completed at least one-half of his or her degree work at the University of Arkansas;
2. For “with distinction,” the student must achieve a GPA of 3.60 or higher;
3. For “with high distinction,” the student must achieve a GPA of 3.75 or higher;
4. For “with highest distinction,” the student must achieve a GPA of 3.90 or higher.

The criteria may be evaluated and changed periodically by the College of Engineering.

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## GRADUATE STUDIES

The College of Engineering, in cooperation with the UA Graduate School, offers programs leading to the following graduate degrees:

- Master of Science in Biological Engineering (M.S.B.E.)
- Master of Science in Biomedical Engineering (M.S.B.M.E.)
- Master of Science in Chemical Engineering (M.S.Ch.E.)
- Master of Science in Civil Engineering (M.S.C.E.)
- Master of Science in Computer Engineering (M.S.Cmp.E.)
- Master of Science in Computer Science (M.S.)
- Master of Science in Electrical Engineering (M.S.E.E.)
- Master of Science in Engineering (M.S.E.)
- Master of Science in Environmental Engineering (M.S.En.E.)
- Master of Science in Industrial Engineering (M.S.I.E.)
- Master of Science in Mechanical Engineering (M.S.M.E.)
- Master of Science in Operations Management (M.S.O.M.)
- Doctor of Philosophy in Computer Science (Ph.D.)
- Doctor of Philosophy in Engineering (Ph.D.)

In addition, the College of Engineering supports the following interdisciplinary graduate programs:

- Master of Science in Cellular and Molecular Biology (M.S.)
- Master of Science in Microelectronics-Photonics (M.S.)
- Master of Science in Space and Planetary Sciences (M.S.)
- Doctor of Philosophy in Cellular and Molecular Biology (Ph.D.)
- Doctor of Philosophy in Microelectronics-Photonics (Ph.D.)
- Doctor of Philosophy in Space and Planetary Sciences (Ph.D.)

Further information concerning these programs may be found in the Graduate School Catalog or in the office of the dean of the Graduate School.

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## ACCREDITATIONS

As the only comprehensive engineering program in Arkansas, the College of

Engineering offers undergraduate, graduate, and doctoral degrees through seven academic departments. UA engineering programs have been continuously accredited by ABET since 1936.

The College of Engineering offers the following programs accredited by the Engineering Accreditation Commission of ABET. Visit <http://www.abet.org>.

- Bachelor of Science in Biological Engineering (B.S.B.E.)
- Bachelor of Science in Chemical Engineering (B.S.Ch.E.)
- Bachelor of Science in Civil Engineering (B.S.C.E.)
- Bachelor of Science in Computer Engineering (B.S.Cmp.E.)
- Bachelor of Science in Electrical Engineering (B.S.E.E.)
- Bachelor of Science in Industrial Engineering (B.S.I.E.)
- Bachelor of Science in Mechanical Engineering (B.S.M.E.)
- Master of Science in Biomedical Engineering (M.S.Bm.E.)
- Master of Science in Environmental Engineering (M.S.En.E.)

The College Engineering offers the following program accredited by the Computing Accreditation Commission of ABET. Visit <http://www.abet.org>.

- Bachelor of Science in Computer Science (B.S.)

## DEPARTMENTAL MAJORS

### BIOLOGICAL AND AGRICULTURAL ENGINEERING (BAEG)

Lalit Verma  
Head of the Department  
203 Engineering Hall  
479-575-2351

#### FACULTY

- Professors Carrier, Haggard, Kim, Li, Loewer, Matlock, VanDevender, Verma
- Associate Professors Costello, Osborn, Saraswat, Ye
- Assistant Professors Jin, Liang, Sadaka, Zaharoff
- Adjunct Professors Ang, Beitle, Clausen, Deaton, Ingels, Raper
- Adjunct Associate Professors Bajwa, Shafirstein, Yang
- Adjunct Assistant Professors Hestekin (C.), Howell, Thorbole, Wimberly

The department's mission is: Healthy People, Healthy Planet. Biological Engineers improve people's lives today and help assure a sustainable quality of life for tomorrow. They create solutions to problems by coupling living systems (human, plant, animal, environmental, food, and microbial) with the tools of engineering and biotechnology. Biological engineers improve human health; ensure a safe, nutritious food supply; and secure a healthy and safe environment. The department focuses on engineering design that promotes sustainable production, processing and management of food, water and energy. A bachelor of science degree in biological engineering is a job-ready degree with opportunities in many industries, government agencies, and consulting firms. It is also excellent preparation for medical, veterinary, dental or other health science professional school as well as M.S. or Ph.D. studies in engineering or other areas.

Biological Engineering is an ABET accredited program leading to the B.S. degree. The M.S. and Ph.D. degrees are also offered. The curriculum is under the joint supervision of the dean of the College of Engineering and the dean of the Dale Bumpers College of Agricultural, Food and Life Sciences. The B.S. in Biological Engineering degree is conferred by the College of Engineering and is granted after the successful completion of 128 hours of approved course work.

The educational objectives of the Biological Engineering program are to produce graduates who 1) effectively apply engineering to biological systems and phenomena (plant, animal, human, microbes, and the environment) with demonstrated proficiency in basic professional and personal skills, and 2) are well prepared for diverse

careers in biological engineering, life-long learning, and professional and ethical contributions to society through sustained accomplishments in the numerous areas of application for biological engineering.

Diverse applications of biological engineering can be pursued through elective coursework such as:

- Integrating ecological principles into the design of sustainable systems to treat, remediate, and prevent pollution to the environment. Applications include stream restoration, watershed management, water and wastewater treatment design, ecological services management, urban greenway design and enclosed ecosystem design.
- Food processing, food safety and security, biosensing and bioinstrumentation, biotechnology at the micro and nanoscale, developing new products from biomaterials, and biotransformation to synthesize industrial and pharmaceutical products.
- Sustainable design and management of finite resources with a broad perspective — local to global and cradle to grave — life cycle analysis of resource utilization, environmental impacts with a view toward long-term prosperity.

Nanomedicine, tissue engineering, organ regeneration and its clinical application, bioinstrumentation, biosensing/ medical imaging, medical electronics, physiological modeling, biomechanics, and rehabilitation engineering.

**The B.S. in Biological Engineering** – degree can lead to careers in consulting, ecological engineering and design, environmental engineering, sustainable agriculture and food production, low impact development, water quality and watershed management, human health, biotechnology, natural resource engineering, nanotechnology, and biofuels development to name but a few.

Each student is required to complete 6 semester hours of technical/engineering electives that are relevant to their career goals. At least 3 hours must be engineering courses within BENG or other engineering programs. The other three hours can be selected from math, science and other technical areas. Suggested electives are listed below. Students may petition adviser for other electives that are not explicitly on this list. Course must provide engineering or technical content that is value-added (i.e., not duplicating or remedial courses) and meets career goals of the student.

#### Suggested Engineering Electives:

- BENG 4113, Risk Analysis for Biological Systems
- BENG 4123, Biosensors
- CHEG 3153, Non-Equilibrium Mass Transfer
- CHEG 3333, Chemical Engineering Reactor Design
- CHEG 4423, Automatic Process Control
- CVEG 2053/2051L, Surveying Systems w/Lab
- CVEG 3243, Environmental Engineering
- CVEG 4243, Environmental Engineering Design
- INEG 2313, Applied Probability and Statistics for Engineers I
- INEG 2413, Engineering Economic Analysis
- MEEG 2013, Dynamics
- MEEG 3013, Mechanics of Materials
- MEEG 4413, Heat Transfer

#### Suggested Technical Electives:

- BIOL 2443/2441L, Human Anatomy w/Lab
  - BIOL 2213/2211L, Human Physiology w/Lab
  - CSES 2203, Soil Science
  - ENSC 4034, Analysis of Environmental Contaminates
  - FDSC 3103, Food Processing
  - FDSC 4123, Food Microbiology
  - FDSC 4304, Food Chemistry
  - GEOL 1113/1101L, General Geology w/Lab
- (Or any engineering electives listed above)

**Biological Engineering B.S.B.E.****Eight-Semester Degree Program**

The Bachelor of Science in Biological Engineering program is eligible for students who want to participate in an Eight Semester Degree Program. The plan below lists a semester-by-semester sequence of courses to finish the degree in eight semesters. University core courses for engineering are listed at the bottom of this page. Students may submit a maximum of four (4) hours of "D" in BENG Courses for their degree.

Some courses are not offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course pre-requisites. Students should note the BIOL 1543/1541L is a pre or co-requisite to BENG 2632 in Fall 2 semester. Students should earn advanced college credit for BIOL 1543/1541L, obtain placement permission from the Biological Sciences Department, or take the course for non-degree credit.

**Fall Semester Year 1**

- 1 GNEG 1111 Introduction to Engineering I
- 3 ENGL 1013 Composition I
- 3 CHEM 1113 University Chemistry for Engineers I (or CHEM 1103)
- 4 MATH 2554 Calculus I
- 4 PHYS 2054 University Physics I
- 15 Semester hours**

**Spring Semester Year 1**

- 1 GNEG 1121 Introduction to Engineering II
- 3 ENGL 1023 Technical Composition II
- 4 Freshman Engineering Science Elective\*
- 4 MATH 2564 Calculus II
- 3 U.S. History Requirement
- 15 Semester hours**

**Fall Semester Year 2**

- 2 BENG 2612 Biological Engr Design Studio II
- 4 Sophomore Science Elective\*\*
- 4 MATH 2574 Calculus III
- 4 CHEM 3603/3601L Organic Chemistry I with lab
- 2 MEEG 2003 Statics
- 16 Semester hours**

**Spring Semester Year 2**

- 3 BENG 2643 Biological Engineering Methods
- 4 MATH 3404 Differential Equations
- 4 CHEM 3613/CHEM 3611L Organic Chemistry II with lab
- 3 CVEG 3213 Hydraulics, (or MEEG 3503 or CHEG 2133)
- 3 MEEG 2403 Thermodynamics (Or CHEG 2133)
- 17 Semester hours**

**Fall Semester Year 3**

- 3 BENG 3723 Unit Operations in Biological Engr
- 3 BENG 3733 Kinetics and Transport Phenomena in Biological Systems
- 3 CHEM 3813 Introduction to Biochemistry
- 4 BIOL 2013/2011L General Microbiology with lab
- 3 CVEG 3223 Hydrology
- 16 Semester hours**

**Spring Semester Year 3**

- 3 BENG 3653 Global Bio-Energy Engineering
- 3 BENG 3743, Food and Bio-Product Systems Engineering
- 3 BENG 3933 Sustainable Watershed Engineering
- 4 BIOL 3863/3861L General Ecology with lab
- 3 ELEG 3903 Electric Circuits and Machines
- 16 Semester hours**

**Fall Semester Year 4**

- 3 BENG 4813 Senior Biological Engineering Design I
- 3 BENG 4663 Sustainable Biosystems Design
- 3 BENG 4103 Measurements and Controls for Biological Systems
- 6 Humanities/Social Science Electives
- 15 Semester hours**

**Spring Semester Year 4**

- 2 BENG 4822 Senior Biological Engr Design II
- 3 Engineering Elective
- 9 Humanities/Social Science Electives
- 3 Technical Elective
- 17 Semester hours**
- 128 Total hours**

\* The Freshman Engineering Science Elective must be chosen from either CHEM 1123/1121L (or CHEM 1133/1131L) or PHYS 2074.

\*\* The sophomore Science Elective must be PHYS 2074 (if CHEM 1123/1121L or CHEM 1133/1131L was chosen as the Freshman Engineering Elective) or CHEM 1123/1121L (or CHEM 1133/1131L) if PHYS 2074 was chosen as the Freshman Engineering Science Elective. That is, both courses are required for the degree.

See Page 320 for Biological Engineering (BENG) courses.

**BIOMEDICAL ENGINEERING (BMEG)**

Terry Martin  
Interim Head of the Department  
Bell Engineering 4183  
479-575-7455

**FACULTY**

- Distinguished Professors Rardin, Saxena, Vasundhara Varadan, Vijay Varadan
- Professors Ang, Beitle, Carrier, Deaton, El-Shenawee, Kim, Verma, Wickramsinghe
- Associate Professors Roper, Tung, Ye
- Assistant Professors Hestekin (C.), Jin, Servoss, Wejinya, Wolchok, Zaharoff

Biomedical engineering encompasses the creation, design, and operation, of processes / technology related to the broad field of human healthcare. The profession traditionally has focused on applications related to the development of instrumentation and diagnostic equipment, discovery of novel treatment options, production of new therapeutics, and the elucidation of underlying biophysical phenomena. Newer applications of bioengineering take advantage of the ever deepening understanding of human physiology and molecular genetics, as related to prevention, detection, and treatment of medical conditions. The program objectives of the Biomedical Engineering undergraduate program are to produce graduates who are capable of:

- succeeding in the practice of engineering or other professional activities, and
- succeeding in post baccalaureate studies.

Completion of the degree requirements provides for the following educational outcomes:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in global, economic, environmental, and societal contexts
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

These educational outcomes are experienced within the context of biology and physiology appropriate to solving problems at the interface of engineering and biology.

**Biomedical Engineering B.S.Bm.E.****Eight-Semester Degree Program**

The following section contains the list of courses required for the Bachelor of Science in Biomedical Engineering degree and a suggested sequence for students who enter the College through the Freshman Engineering Program. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see page 42 in the Academic Regulations chapter for university requirements of the program.

**Fall Semester Year 1**

- 3 ENGL 1013 Composition I
- 4 MATH 2554 Calculus I
- 3 CHEM 1103 University Chemistry I
- 4 PHYS 2054 University Physics I
- 0 PHYS 2050L University Physics I Lab
- 1 GNEG 1111 Introduction to Engineering I

**15 Semester hours****Spring Semester Year 1**

- 3 ENGL 1023 Technical Composition II
- 4 Freshman Science Elective \*
- 0 Freshman Science Elective Lab \*
- 4 MATH 2564 Calculus II
- 3 HIST 2003 or HIST 2013 or PLSC 2003
- 1 GNEG 1121 Introduction to Engineering II

**15 Semester hours****Fall Semester Year 2**

- 3 BMEG 2613 Introduction to Biomedical Engineering
- 4 MATH 2574 Calculus III
- 4 Sophomore Science Elective \*\*
- 0 Sophomore Science Elective Lab \*\*
- 4 BIOL 1543/1541L Principles of Biology

**15 Semester hours****Spring Semester Year 2**

- 3 BMEG 2813 Biomechanics
- 4 BMEG 2903/2901L Biomedical Instrumentation
- 4 MATH 3404 Differential Equations
- 3 BIOL 2533 Cell Biology
- 3 Fine Arts Elective (from Univ/State Core List)

**17 Semester hours****Fall Semester Year 3**

- 3 BMEG 2633 Biomaterials
- 4 CHEM 3603/3601L Organic Chemistry I
- 4 BIOL 2213/2211L Human Physiology
- 3 CHEG 2313 Thermodynamics
- 4 ELEG 3124 Systems and Signal Analysis

**18 Semester hours****Spring Semester Year 3**

- 3 BMEG 3653 Biomedical Modeling and Numerical Methods
- 4 BMEG 3823/3811L Biomolecular Engineering
- 4 CHEM 3613/3611L Organic Chemistry II
- 3 CHEG 2133 or MEEG 3503 Fluid Mechanics
- 3 Social Science Elective (from Univ/State Core List)

**17 Semester hours****Fall Semester Year 4**

- 3 BMEG 4813 Biomedical Engineering Design I
- 3 BMEG 4623 Biomedical Transport Phenomenon
- 3 BMEG Elective
- 3 Science Elective
- 3 Social Science Elective (from Univ/State Core List)

**15 Semester hours****Spring Semester Year 4**

- 3 BMEG 4923 Biomedical Engineering Design II
- 3 BMEG Elective
- 3 BMEG or Science Elective
- 3 Social Science Elective (from Univ/State Core List)
- 3 Humanities Elective (from Univ/State Core List)

**15 Semester hours****127 Total hours**

\* The Freshman Engineering Science Elective must be chosen from either CHEM 1123/1121L or PHYS 2074.

\*\* The sophomore Science Elective must be PHYS 2074 (if CHEM 1123/1121L was

chosen as the Freshman Engineering Elective) or CHEM 1123/1121L (if PHYS 2074 was chosen as the Freshman Engineering Science Elective. That is, both courses are required for the degree.

**Technical Options in Biomedical Engineering**

Elective courses must be selected from a faculty-approved list of courses found in the department's Undergraduate Advising Handbook, which is available on the department's website at <http://www.bmeg.uark.edu>. Elective courses are chosen with the aid of an academic adviser to better prepare for employment or further study in areas such as:

- Bioengineering
- Pharmaceutical manufacturing or pharmacology
- Biomedical device design
- Medicine
- Business
- Law

Each student in biomedical engineering is required to complete six semester hours of biomedical engineering technical electives (see Undergraduate Advising Handbook for a list of courses), and four semester hours of Organic Chemistry (3 hour with 1 hour laboratory). Students interested in pursuing an undergraduate biomedical degree as a lead to medical school should be aware that a total of 8 hours of organic chemistry (6 hour with 2 hour laboratory) may be required (please see your adviser for more specific details).

**Technical Elective Courses**

Six hours of upper level technical electives will be chosen from upper division (3000 and above) courses in mathematics, engineering, and the sciences with the approval of their adviser. The department maintains a list of approved technical electives which may be found in the department's Undergraduate Advising Handbook, which is available on the department's web site at <http://www.bmeg.uark.edu>.

**Honors Program Requirements**

Students enrolled in the Honors College who are to receive the Bachelor of Science in Biomedical Engineering must complete a minimum of 12 hours of honors credit. At least 6 hours must be completed within the Biomedical Engineering program including at least 3 hours resulting in an Honors Thesis. The BMEG honors courses are acceptable as engineering electives and in some cases may be substituted for required courses.

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See Page 325 for Biomedical Engineering (BMEG) courses.

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**CHEMICAL ENGINEERING (CHEG),  
RALPH E. MARTIN DEPARTMENT OF**

Thomas O. Spicer, III  
Head of the Department  
3202 Bell Engineering Center  
479-575-4951

**FACULTY**

- Distinguished Professor Havens
- Distinguished Professors Emeriti Gaddy, Thatcher
- University Professor Emeritus Turpin
- Professors Babcock, Beitle, Clausen, Penney, Spicer, Thoma, Ulrich, Wickramasinghe
- Professors Emeriti Couper, Cross
- Research Professor Silano
- Associate Professors Ackerson, Hestekin (J.), Qian, Roper
- Assistant Professors Hestekin (C.), Servoss
- Instructor Emeritus Myers
- Adjunct Associate Professor Tian
- Adjunct Assistant Professor Leftwich

Chemical engineering deals with the creation, design, operation, and optimization of processes that derive practical benefits from chemical or physical changes principally involving chemical and biochemical reactions. The profession is quite broad and has traditionally provided the technology for: supplying energy and fuel; synthesizing materials such as plastics, chemicals, fertilizers, and pharmaceuticals; and managing environmental and safety concerns of physical and chemical processes. Some new applications of the principles of chemical engineering at nanoscales are being made in sustainable energy production and detection of gene mutations, protein configurations, and virus serotypes as well as thermal destruction of cancer cells.

Chemical engineers have a variety of traditional job opportunities in industries such as petroleum production and processing, chemical manufacturing, food processing, pharmaceutical production, and process equipment manufacturing. Job opportunities may involve research, development, design, manufacturing, sales, or teaching as professional activities. The chemical engineer can also move easily into environmental engineering, nuclear engineering, oceanography, biomedical engineering, pharmacology, law, medicine, or other multidisciplinary fields.

In chemical engineering, students obtain a broad foundation in chemistry, mathematics, physics, communication skills, economics, and the humanities. Courses in material and energy balances, thermodynamics, reaction kinetics, fluid mechanics, heat and mass transfer, process control, computer methods, safety, and design provide students with the background and learning skills required of the practicing chemical engineer. The curriculum includes elective courses that enable a student to prepare for immediate employment or further study at the graduate level or the professional level, such as for medical school. The chemical engineering program also serves as an excellent preparation for dental, pharmacy, or law school.

The educational objective of the chemical engineering undergraduate program is to prepare students for careers and professional accomplishment after graduating, including:

- Successful practice as an engineer or in some other professional pursuit, including traditional or emerging fields of chemical engineering.
- Entrance and successful participation in a graduate or professional program (such as medical school) that continues their career development.

The program prepares graduates to achieve these educational objectives through development of their skills as outlined in our educational outcomes and taught in our curriculum.

By the time of graduation, students have the opportunity to attain the following educational outcomes:

- An ability to apply knowledge of mathematics, science, and engineering;
- An ability to design and conduct experiments, as well as analyze and interpret data;
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams;
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility;
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in global, economic, environmental, and societal contexts.
- A recognition of the need for, and an ability to engage in, life-long learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

These outcomes are reinforced and demonstrated in a senior capstone safety, design, and laboratory course sequence.

## Chemical Engineering B.S.Ch.E.

### Eight-Semester Degree Program

The following section contains the list of courses required for the Bachelor of Science in Chemical Engineering degree and a suggested sequence for students who do not enter the College through the Freshman Engineering Program. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see page 42 in the Academic Regulations chapter for university requirements of the program. Entering freshmen will be required to participate in selected Freshman Engineering Student Services.

#### Fall Semester Year 1

- 4 MATH 2554 Calculus I
- 3 CHEM 1103 University Chemistry II
- 2 CHEG 1212L Chemical Engineering Lab I
- 3 ENGL 1013 Composition I
- 3 HIST 2003 Hist./American People to 1877 (HIST 2013 or PLSC 2003 may be substituted.)

#### 15 Semester hours

#### Spring Semester Year 1

- 4 MATH 2564 Calculus II
- 3 CHEM 1123 University Chemistry II
- 1 CHEG 1121L University Chemistry II Lab
- 3 ENGL 1023 Composition II
- 3 CHEG 1113 Introduction to Chemical Engineering I
- 3 Humanities/social science core elective

#### 17 Semester hours

#### Fall Semester Year 2

- 4 MATH 2574 Calculus III
- 3 CHEM 3603 Organic Chemistry I
- 1 CHEM 3601L Organic Chemistry I Lab
- 4 PHYS 2054 University Physics I
- 3 CHEG 2123 Introduction to Chemical Engineering II
- 3 CHEG 2133 Fluid Mechanics

#### 18 Semester hours

#### Spring Semester Year 2

- 4 MATH 3404 Differential Equations
- 3 CHEM 3613 Organic Chemistry II
- 1 CHEM 3611L Organic Chemistry II Lab
- 4 PHYS 2074 University Physics II
- 3 CHEG 2313 Thermodynamics of Single Component Systems
- 3 Humanities/social science core elective

#### 18 Semester hours

#### Fall Semester Year 3

- 3 Advanced Science Elective
- 3 CHEM 3813 Biochemistry or CHEM 4813H Honors Biochemistry I
- 3 CHEG 3143 Heat Transport
- 2 CHEG 3232L Chemical Engr Lab II
- 3 CHEG 3253 Chem Engr Computer Methods
- 3 CHEG 3323 Thermodynamics of Multicomponent Systems

#### 17 Semester hours

#### Spring Semester Year 3

- 3 Advanced Science or Chemical Engineering Elective
- 3 CHEG 3713 Materials Technology
- 3 CHEG 3333 Chem Engr Reactor Design
- 3 CHEG 3153 Non-Equil Mass Transfer
- 3 ECON 2143 Basic Economics (ECON 2013 Principles of Macro-economics may be substituted.)

#### 16 Semester hours

#### Fall Semester Year 4

- 3 CHEG 4163 Equil Stage Mass Transfer
- 3 CHEG 4413 Chem Engr Design I
- 3 CHEG 4813 Chemical Process Safety
- 3 Technical elective
- 3 Humanities/social science core elective

#### 15 Semester hours

#### Spring Semester Year 4

- 2 CHEG 4332L Chem Engr Lab III
- 3 CHEG 4443 Chem Engr Design II
- 3 ELEG 3903 Electric Circuits and Machines
- 3 CHEG 4423 Auto Process Control
- 3 Technical elective

3	Humanities/social science core elective
17	Semester hours
132	Total hours

### Technical Elective Options in Chemical Engineering

Each student in chemical engineering is required to complete six semester hours of technical electives, three semester hours of Advanced Science electives, and three semester hours of Advanced Science or Chemical Engineering electives. Students may select technical elective courses from upper division (3000 and above) courses in mathematics, engineering, and the sciences with the approval of their adviser. Advanced Science and Chemical Engineering elective courses must be selected from a faculty-approved list of courses found in the department's Undergraduate Advising Manual, which is available on the department's Web site at <http://www.cheq.ark.edu>. An undergraduate education in chemical engineering provides a firm foundation for many areas of expertise. As discussed in the department's Undergraduate Advising Manual, students can select elective courses to better prepare for employment or further study in areas such as:

- Biotechnology
- Biomedical engineering
- Environmental engineering
- Food process engineering
- Materials engineering
- Microelectronics
- Nuclear engineering
- Pre-medicine
- Simulation and optimization

Additional opportunities are available to enhance the educational experience of students in these areas. Students should consult their academic adviser for recommendations.

### Honors Program Requirements

Chemical engineering students enrolled in the Honors College are encouraged to complete the requirements to graduate with honors. In addition to grade point requirements, Honors College students must complete a total of at least 12 hours of honors course credits including a minimum of 6 hours of honors course credits in chemical engineering. The student must also participate in a design or research project culminating in an Honors Thesis. Thesis credit in the department will be satisfied by Honors College students in one of the following ways:

- Completion of the American Institute of Chemical Engineers Design Competition Problem individually following contest rules as part of CHEG 4443 Design II;
- Completion of a design contest problem as part of a team, such as the WERC competition in CHEG 4443 Design II; or
- Completion of CHEG 488V Special Problems at the direction of a faculty mentor.

Regardless of the thesis project, an Honors Thesis and oral presentation will be prepared by the student and approved by the Department Honors Committee and the faculty mentor.

See Page 327 for Chemical Engineering (CHEG) courses.

## CIVIL ENGINEERING (CVEG)

Kevin D. Hall  
Head of the Department  
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479-575-4954

### FACULTY

- University Professors Dennis, Selvam
- Professors Gattis, Hall
- Associate Professors Cox, Edwards, Hale, Heymsfield, Soerens
- Research Associate Professor Williams (S.)
- Assistant Professors Braham, Coffman, Fairey, Grimmelsman, Williams (R.), Zhang
- Instructor Becknell

Civil engineering is the oldest of all the engineering fields, yet it is as contemporary as the need to provide solutions to today's environmental problems and to develop advanced transportation systems. The civil engineer plans, designs, builds, and operates projects for the advancement and wellbeing of society while coordinating and conserving human and natural resources. Civil engineering projects range from small to monumental and include public water systems, buildings, bridges, rail and highway networks, wastewater treatment plants, solid and hazardous waste disposal facilities, airports, and soil conservation and flood diversion controls.

The civil engineering profession offers a vast array of opportunities. Civil engineers may work in private employment or with public agencies. They may work indoors in activities such as planning and design, or outdoors in areas such as construction supervision. Employment is possible anywhere in the world.

The objectives of the civil engineering program are to produce graduates who are:

1. employable in any of the following fields: foundation, earthwork, and embankment design and analysis; water, wastewater, and waste handling and treatment; highway facility design and operation; and structural design and analysis.
2. academically prepared to pursue licensure as a Professional Engineer.
3. prepared to pursue an advanced education.

To fulfill these objectives, all students must take courses in geotechnical, environmental, transportation, and structural engineering. Courses are designed to present "real world" applications without sacrificing conceptual and theoretical basics. Students complete design problems in each of these areas; and, as part of the senior year, they participate in two major design projects.

### Civil Engineering B.S.C.E.

#### Eight-Semester Degree Program

The Civil Engineering B.S.C.E. program is eligible for freshman students who want to participate in an Eight-Semester Degree Program.

The following section contains the list of courses required for the Bachelor of Science in Civil Engineering degree and a suggested sequence. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites.

The university core courses for engineering students are listed at the bottom of this section.

#### Fall Semester Year 1

3	ENGL 1013 Composition I
4	MATH 2554 Calculus I
3	CHEM 1113 University Chemistry for Engineers I
4	PHYS 2054 University Physics I
0	PHYS 2050L University Physics I Lab
1	GNEG 1111 Introduction to Engineering I
15	Semester hours

#### Spring Semester Year 1

3	ENGL 1023 Technical Composition II
4	Freshman Science Elective
0	Freshman Science Elective Lab
4	MATH 2564 Calculus II
3	HIST 2003, HIST 2013, or PLSC 2003
1	GNEG 1121 Introduction to Engineering II
15	Semester hours



**Fall Semester Year 2**

- 3 MATH 3083 Linear Algebra
- 4 CVEG 2014 Civil Engineering Mechanics
- 1 CVEG 2011L Civil Engineering Mechanics Lab
- 3 Fine Arts Elective (from University/State Core list)
- 3 CVEG 2053 Surveying Systems
- 1 CVEG 2051L Surveying Systems Lab

**15 Semester hours****Spring Semester Year 2**

- 3 CVEG 2113 Structural Materials
- 3 INEG 2313 Applied Probability and Statistics for Engineers I
- 4 MATH 3404 Differential Equations
- 3 GEOL 1113 General Geology
- 1 GEOL 1111L General Geology Lab
- 2 CVEG 2002 Introduction to Plans and CADD

**16 Semester hours****Fall Semester Year 3**

- 4 CVEG 3304 Structural Analysis
- 3 CVEG 3133 Soil Mechanics
- 1 CVEG 3131L Soil Mechanics Lab
- 3 CVEG 3213 Hydraulics
- 3 CVEG 3413 Transportation Engineering
- 4 Humanities elective (from University/State Core list)

**17 Semester hours****Spring Semester Year 3**

- 3 INEG 2413 Engineering Economic Analysis
- 3 CVEG 3223 Hydrology
- 3 CVEG 3243 Environmental Engineering
- 3 CVEG 4303 Reinforced Concrete Design I
- 3 Social Science elective (from University/State Core list)
- 3 Engineering Elective

**18 Semester hours****Fall Semester Year 4**

- 3 CVEG 4143 Foundation Engineering
- 3 CVEG 4423 Geometric Design
- 1 CVEG 4851 Professional Practice Issues
- 3 Civil Engineering Elective
- 3 Social Science elective (from University/State Core list)
- 2 Civil Engineering design elective

**15 Semester hours****Spring Semester Year 4**

- 3 CVEG 4243 Environmental Engineering Design
- 3 CVEG 4513 Construction Management
- 6 Civil Engineering electives
- 1 Civil Engineering design elective
- 3 Social Science elective (from University/State Core list)

**17 Semester hours****128 Total hours****Elective Courses**

Students must select four 3-hour engineering elective courses in conference with their adviser. The selection must include three civil engineering courses. The fourth course must be selected from one of the following: MEEG 2013 Dynamics, MEEG 2403 Thermodynamics, or ELEG 3903 Electric Circuits and Machines. Normally, the civil engineering courses are selected from among the 4000-level elective CVEG courses. Exceptional students may be allowed to choose from the 5000 (graduate-level) course series. Humanities and social science electives are selected from courses approved by the college. Lists of approved electives are on file in the department office.

**Civil Engineering Design Electives**

Students must complete two of the following four CVEG design project electives: CVEG 4812 Environmental Design Project, CVEG 4822 Geotechnical Design Project, CVEG 4832 Structural Design Project, and CVEG 4842 Transportation Design Project. Each design project elective is associated with a specific design-oriented course. The associated course must be taken at the same time as the design project elective. The associated courses may be taken alone but the design electives cannot.

**Honors Program Requirements**

Students enrolled in the Honors College who are to receive the Bachelor of Science in Civil Engineering must complete a minimum of 12 hours of honors credit. At least 6 hours must be completed within the Civil Engineering program including at least 3 hours resulting in an Honors Thesis. The CVEG honors courses are acceptable as engineering electives and in some cases may be substituted for required courses. The following Civil Engineering courses are offered for honors credit: CVEG 491VH Honors Studies in Geotechnical Engineering, CVEG 492VH Honors Studies in Environmental Engineering, CVEG 493VH Honors Studies in Structural Engineering, CVEG 494VH Honors Studies in Transportation Engineering, and CVEG 4983H Undergraduate Honors Thesis.

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See Page 340 for Civil Engineering (CVEG) courses.

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**COMPUTER SCIENCE AND COMPUTER ENGINEERING (CSCE)**

Susan Gauch  
Head of the Department  
504 JB Hunt Center for Academic Excellence  
479-575-6197

**FACULTY**

- Professors Andrews, Deaton, Gauch (J.), Gauch (S.), Li, Panda, Thompson (C.)
- Associate Professors Beavers, Bobda, Di, Parkerson, Thompson (D.)
- Assistant Professors Banerjee, Huang

The faculty of the Computer Science and Computer Engineering Department is engaged in multidisciplinary academic research, course offerings, and student projects in areas such as: networking, data security, low power chip design, Web search, embedded systems, and graphics.

The educational objectives of the department are to produce graduates who are recruited in a competitive market and make valuable contributions to a wide variety of industries, particularly in computer and information technology; succeed in graduate or professional studies; pursue life-long learning and continued professional development; and undertake leadership roles in their profession, in their communities, and in the global society.

The computer engineering degree has required sequences of courses in both hardware and software aspects of computer applications and design. Since almost all of today's complex systems encompass hardware and software elements, computer engineering graduates must acquire the skills required to design, build, and test complex digital systems. At the advanced level, students are exposed to hands-on experience with open-ended problems with opportunities for research and design.

A degree in computer science provides a wide variety of career choices. Computer science graduates can design, implement, or manage computer systems, as well as adapt computers to new applications. Computer science core courses include the fundamentals of programming concepts, data structures, operating systems, algorithms, formal languages, and database management systems.

The Bachelor of Science programs in Computer Engineering and Computer Science culminate in a capstone project completed in two consecutive semesters. In the first semester, students form teams and develop a project proposal. In the second semester, students develop, implement, and present the final project.

Humanities and social science electives are selected from the University Core Requirements listed in the Catalog of Studies. To satisfy the University Core, all CSCE students are required to take the following 18 hours of humanities/social science courses:

- 3 hours: PHIL 3103 Ethics and the Professions
- 3 hours of Fine Arts from category "a"

3 hours of U.S. History  
9 hours of Social Science

The Undergraduate Handbook has a list of approved basic science, mathematics, and technical electives. Any course not included in these lists requires faculty approval.

The Bachelor of Arts in Computer Science degree has the same educational objectives as the Bachelor of Science degree. However, the course requirements differ greatly to allow students to double major or pursue interests in Geosciences, Information Systems or Mathematics.

### Computer Engineering B.S.Cmp.E.

#### Eight-Semester Degree Program

The following sections contain the list of courses required for the Bachelor of Science in Computer Engineering (B.S.Cmp.E.) with a suggested sequence below.

Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see Page 42 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

4 MATH 2554 Calculus I  
3 CHEM 1113 University Chemistry I for Engineers  
4 PHYS 2054 University Physics I  
1 GNEG 1111 Introduction to Engineering I  
3 ENGL 1013 English Composition  
**15 Semester hours**

#### Spring Semester Year 1

4 MATH 2564 Calculus II  
4 Freshman Science elective\*  
3 History/Government elective  
1 GNEG 1121 Introduction to Engineering II  
3 ENGL 1023 Composition II  
**15 Semester hours**

#### Fall Semester Year 2

4 MATH 2574 Calculus III  
4 C SCE 2004 Programming Foundations I  
4 C SCE 2114 Digital Design  
3 MATH 2603 Discrete Math  
**15 Semester hours**

#### Spring Semester Year 2

4 MATH 2584 Differential Equations  
4 C SCE 2214 Computer Organization  
4 C SCE 2014 Programming Foundations II  
3 Social Science elective  
3 Social Science elective  
**18 Semester hours**

#### Fall Semester Year 3

3 C SCE 3953 System Synthesis and Modeling  
3 C SCE 3193 Programming Paradigms  
3 PHIL 3103 Ethics & the Professions  
4 Basic Science elective with lab\*\*  
3 COMM 1313 Public Speaking  
**16 Semester hours**

#### Spring Semester Year 3

3 C SCE 3613 Operating Systems  
3 C SCE 3513 Software Engineering  
3 ELEG 3933 Circuits and Electronics  
3 Free Elective  
3 STAT 3013 Introduction to Probability and Statistics or INEG 2313 Applied Probability and Statistics for Engineers I  
**15 Semester hours**

#### Fall Semester Year 4

1 C SCE 4561 Capstone I  
4 C SCE 4114 Embedded Systems  
3 C SCE Elective  
3 C SCE Elective  
3 Fine Arts elective  
3 Free Elective  
**17 Semester hours**

#### Spring Semester Year 4

3 C SCE 4963 Capstone II

3 C SCE 4213 Computer Architecture  
3 C SCE elective  
3 C SCE elective  
3 Social Science elective  
**15 Semester hours**  
**126 Total hours**

\* Either the science elective in the second semester of Year 1 or the science elective in the fall of Year 3 must be PHYS 2074 University Physics II

### Computer Science B.S.

#### Eight-Semester Degree Program

The following sections contain the list of courses required for the Bachelor of Science in Computer Science (B.S.) degrees with a suggested sequences below.

Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see Page 42 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

4 MATH 2554 Calculus I  
4 PHYS 2054 University Physics I  
3 CHEM 1103 University Chemistry I  
1 GNEG 1111 Introduction to Engineering I  
3 ENGL 1013 English Composition  
**15 Semester hours**

#### Spring Semester Year 1

4 MATH 2564 Calculus II  
4 Freshman Science elective\*  
1 GNEG 1121 Intro to Engineering II  
3 ENGL 1023 Composition II  
3 History/Government elective  
**15 Semester hours**

#### Fall Semester Year 2

3 MATH 2103 Discrete Math  
4 Basic Science elective with lab\*\*  
4 C SCE 2004 Programming Foundations I  
4 C SCE 2114 Digital Design  
3 Social Science elective  
**18 Semester hours**

#### Spring Semester Year 2

3 MATH 3103 Combinatorics  
4 C SCE 2014 Programming Foundations II  
4 C SCE 2214 Computer Organization  
3 Humanities elective  
3 Social Science elective  
**17 Semester hours**

#### Fall Semester Year 3

3 C SCE 3193 Programming Paradigms  
3 C SCE 3313 Algorithms  
3 COMM 1313 Public Speaking  
3 MATH 3083 Linear Algebra  
3 PHIL 3103 Ethics and the Profession  
**15 Semester hours**

#### Spring Semester Year 3

3 C SCE 3613 Operating Systems  
3 C SCE 3513 Software Engineering  
3 Free elective  
3 STAT 3013 Introduction to Probability and Statistics (INEG 2313 can be substituted)  
3 Social Science elective  
**15 Semester hours**

#### Fall Semester Year 4

1 C SCE 4561 Capstone I  
3 C SCE 4523 Database Management  
3 C SCE elective  
3 C SCE elective  
3 C SCE elective  
3 Humanities/social sciences elective  
**16 Semester hours**

#### Spring Semester Year 4

3 C SCE 4963 Capstone II

3	CSCE elective
3	CSCE 4323 Formal Languages
3	Free elective
3	CSCE elective
<b>15</b>	<b>Semester hours</b>
<b>126</b>	<b>Total hours</b>

\* Choose between PHYS 2074 University Physics II or CHEM 1133/1131L University Chemistry II and lab

\*\* If a student does not take CHEM 1131L, a lab will be required with the basic science elective

### Computer Science B.A.

#### Eight-Semester Degree Program

The following sections contain the list of courses required for the Bachelor of Arts in Computer Science (B.A.) degrees with a suggested sequences below.

Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see Page 42 in the Academic Regulations chapter for university requirements of the program.

#### Fall Semester Year 1

3	CSCE 1013 Explorations in Computing*
3	ENGL 1013 English Composition I
4	MATH 2554 Calculus I
3	HIST 2003 or HIST 2013 or PLSC 2003
3	Social Science elective

**15-16 Semester Hours**

#### Spring Semester Year 1

4	CSCE 2004 Programming Foundations I
3	ENGL 1023 Technical Composition II
3	Free elective
3	Free elective
3	Fine Arts elective (from University core)

**16-17 Semester Hours**

#### Fall Semester Year 2

4	CSCE 2014 Programming Foundations II
3	MATH 2603 Discrete Mathematics
3	Social Science elective (from University core)
3	Free elective
3	Free elective

**16 Semester Hours**

#### Spring Semester Year 2

3	ENGL 2003 Advanced Composition
3	STAT 2303 Principles of Statistics
3	Social Science elective
3	Free elective
3	Free elective

**15 Semester Hours**

#### Fall Semester Year 3

3	CSCE 3193 Programming Paradigms
3	COMM 1313 Public Speaking
4	Science elective (from University core)
3	Free elective
3	Free elective

**16 Semester Hours**

#### Spring Semester Year 3

3	CSCE elective (1)
3	Study Area (1st course)
3	PHIL 2203 Logic
3	Free elective (3000-level or higher)
3	Free elective

**15 Semester Hours**

#### Fall Semester Year 4

3	CSCE elective (2)
3	Study Area (2nd course)
4	Science elective (from University core)
3	Free elective (3000-level or higher)
3	Free elective

**16 Semester Hours**

#### Spring Semester Year 4

3	CSCE elective (3)
3	Study Area (3rd course)
3	CSCE elective (3000-level or above)
3	Free elective
3	CSCE elective (3000-level or above)

**15 Semester Hours**

**124 Total Hours**

\* Students who have sufficient background in programming may substitute three hours of CSCE 2000+ coursework for CSCE 1013.

\*\* Students who complete the Enterprise Resource Planning sequence will receive a SAP certificate

#### Study Areas (must meet all requirements of one and only one study area):

Computer Science – additional CSCE courses 2000-level or above  
 Enterprise Resource Planning – WCOB 4213, WCOB 4223, ISYS 4233\*\*  
 Enterprise Systems – WCOB 4213, ISYS 4453, ISYS 4463  
 Business Applications WCOB 4213, ISYS 3293, ISYS 3393  
 Mathematics – MATH 3083, MATH 3103, MATH 4253, MATH 4353, or MATH 4363  
 Geoinformatics – GEOS 3543 and two of the following: GEOS 4413, GEOS 4553, GEOS 4583, GEOS 4593, GEOS 4863

## Degree Program Changes

Students must meet all requirements of their degree programs and are expected to keep informed concerning current regulations, policies, and program requirements in their fields of study. Changes made in the curriculum at a level beyond that at which a student is enrolled might become graduation requirements for that student. Changes made in the curriculum at a level lower than the one at which a student is enrolled are not required of that student. Students should consult their departmental adviser for additional information.

## Requirements for Departmental Honors in Computer Science and Computer Engineering

The Honors Program in Computer Science and Computer Engineering is designed for the superior student and is intended to help the student develop a more comprehensive view of Computer Science and Computer Engineering. The program provides a vehicle for the recognition of achievements beyond the usual course of study. Higher degree distinctions are recommended only in truly exceptional cases and are based upon the candidate's whole program of honors studies. A minimum of 12 hours of honors coursework is required.

The following requirements are necessary for graduation with honors in either the Computer Engineering or Computer Science Bachelor of Science program:

1. The candidate must satisfy the requirements set forth by the College of Engineering.
2. A student must obtain at least a 3.50 grade-point average in required Computer Engineering and/or Computer Science courses.
3. The student must complete 7 hours of Honors credit in the major, which includes 4 hours of Honors Thesis taken as two successive semesters of CSCE 4912H and 3 hours of CSCE coursework.

## Requirements for a Minor in Computer Science:

CSCE 2004, CSCE 2014, CSCE 3193, and three additional CSCE courses numbered above 2000.

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See Page 338 for Computer Science and Computer Engineering (CSCE) courses.

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## ELECTRICAL ENGINEERING (ELEG)

Samir El-Ghazaly  
Head of the Department  
3217 Bell Engineering Center  
479-575-3009

### FACULTY

- Distinguished Professors El-Ghazaly, Mantooth, Vasundara Varadan, Vijay Varadan
- Professors Ang, Balda, El-Shenawee, Manasreh, Martin, McCann, Naseem
- Associate Professors Brown (R.L.), Smith
- Assistant Professors Yu, Wu
- Distinguished Professors Emeriti Brown (W.D.), Yeagan
- University Professor Emeritus Schmitt
- Professors Emeriti Jones, Mix, Schaper, Stephenson, Waite
- Associate Professors Emeriti Caldwell, Gattis

Electrical engineering is a professional engineering discipline that in its broader sense covers the study and application of electricity, electronics and electromagnetism. Electrical engineers are in charge of designing and utilizing electrical and electronic components, integrated circuits and computer chips, and electronic assemblies to benefit mankind. Fields of electrical engineering include analog and mixed-signal circuit design/test, biomedical, communications, computer hardware and digital circuit design, control systems, electronic packaging, embedded systems design, microwave and radar engineering, nanophotonics, nanotechnology/microelectronics/optoelectronics, pattern recognition and artificial intelligence, power electronics, and renewable energy/power.

The electrical engineering graduate is at the forefront of technologies leading to accelerated use of electric power, applications of real time embedded control systems for smart highways, smart vehicles and smart gadgets, global communications, the dominating influence of the computer and electronics on modern society, the use of electronic equipment for medical diagnosis, the use of wireless chemical and biological nanosensors for hazard detection, the miniaturization of electronics, microwave and optical technology for national defense, and a host of other developments. Therefore, the use of electrical and electronic equipment has spread into such diverse areas as agricultural production, automobiles, computer hardware and networks, health care, information technology, manufacturing, marketing, recreation, renewable energy resources, outer space and underwater exploration, transportation, and many others. As a result, electrical engineering is the largest of all scientific disciplines and assures a continuing demand for electrical engineering graduates throughout private industry and government.

The University of Arkansas, the state land-grant university, is a nationally competitive, student-centered, research university serving Arkansas and the world. As such, the department's mission is education, research, and service. Hence, the electrical engineering program is designed to offer a high-quality course of instruction involving classroom, laboratory, and extracurricular activities that results in graduates qualified and prepared to meet the demands of a professional career in the present and future work places as well as to assume a responsible role of leadership in a complex technological society.

The educational mission of the department is conducted through both the undergraduate and graduate programs.

### Undergraduate Program in Electrical Engineering

The educational objectives for the undergraduate program, which leads to a Bachelor of Science degree in electrical engineering, are to produce graduates who:

1. Are recruited in a competitive market and valued as reliable and competent employees by a wide variety of industries, in particular, electrical and computer engineering industries;
2. Succeed, if pursued, in graduate studies such as engineering, science, law, medicine, business, and other professions;
3. Understand the need for life-long learning and continued professional devel-

opment for a successful and rewarding career; and

4. Accept responsibility for leadership roles in their profession, in their communities, and in the global society.

Therefore, the electrical engineering curriculum is designed to provide students with knowledge of scientific principles and methods of engineering analysis to form a solid foundation for a career in design, research and development, manufacturing and processing, measurement and characterization, or management. Students progressively build their design experience throughout the curriculum and demonstrate this ability in the senior electrical engineering design laboratories. The curriculum also introduces students to subjects in the humanities, social sciences, and ethics so they may better understand the interaction of technology and society.

The electrical engineering curriculum is divided into three phases. The first year concentrates on the development of a sound understanding of basic sciences and mathematics. The second and third years further develop scientific principles and cover the basic core of electrical engineering. The fourth year is composed primarily of senior-level elective courses. At this time, the students in consultation with their advisers may choose classes related to one or more of the major areas of electrical engineering detailed (e.g., analog and mixed-signal circuit design/test, biomedical, communications, computer hardware and digital circuit design, control systems, electronic packaging, embedded systems design, microwave and radar engineering, nanophotonics, nanotechnology/microelectronics/optoelectronics, pattern recognition and artificial intelligence, power electronics, and renewable energy and power). This final year permits the student to tailor a program suited to her or his individual career objectives. The graduation requirement in electrical engineering is 126 semester hours as given below.

The department also actively participates in the Honors Program to challenge superior students with a more in-depth academic program and research experience. The Honors program enables students to work more closely with faculty members and other students in a team environment. Please see the requirements given below.

### Graduate Program in Electrical Engineering

The graduate program offers a Master of Science degree in Electrical Engineering and a Doctor of Philosophy degree in Engineering. The graduate program provides additional instruction and hands-on experience beyond the undergraduate level, and produces graduates who are prepared to promptly address critical issues and assume advanced positions in the profession, including management, design, teaching, research and development.

The research mission of the department is conducted mainly through the graduate program. Internal and external funded research projects serve to:

1. Discover new knowledge, address technical problems, and develop new electrical/electronic technologies;
2. Provide the tools and resources which keep the faculty at the cutting edge of electrical engineering;
3. Provide financial support for graduate students and gifted undergraduate students; and
4. Improve the quality of life for citizens of Arkansas and the world.

The graduate program supports the undergraduate program by giving top undergraduate students access to research laboratories with state-of-the-art equipment and software. Topics covered in graduate courses often migrate into senior undergraduate technical elective courses and eventually into required undergraduate courses.

### Departmental Service Mission

Faculty, students, administrators, and staff conduct the service mission of the department and serve as a major resource for the state, the region, the nation and the world. Faculty members are encouraged to provide services to both the community and the profession. Hence, they are active in local, state, national, and international professional and service organizations, as well as public and private schools involving grades K-12.

**Electrical Engineering B.S.E.E.****Eight-Semester Degree Program**

The following section contains the list of courses required for the Bachelor of Science in Electrical Engineering and a suggested eight-semester sequence. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites.

**Fall Semester Year 1**

- 1 GNEG 1111 Introduction to Engineering I
- 3 ENGL 1013 Composition I
- 4 MATH 2554 Calculus I
- 3 CHEM 1113 Chemistry for Engineers I
- 4 PHYS 2054 University Physics I

**15 Semester hours****Spring Semester Year 1**

- 1 GNEG 1121 Introduction to Engineering II
- 3 ENGL 1023 Composition II
- 4 MATH 2564 Calculus II
- 3 HIST 2003 or HIST 2013 or PLSC 2003
- 4 Freshman Science Elective II\*

**15 Semester hours****Fall Semester Year 2**

- 4 ELEG 2104 Electric Circuits I with lab
- 4 ELEG 2904 Digital Design I with lab
- 4 MATH 3404 Differential Equations
- 4 Sophomore Science Elective\*\*

**16 Semester hours****Spring Semester Year 2**

- 4 CSCE 2004 Programming Foundations I
- 4 ELEG 2114 Electric Circuits II with lab
- 4 MATH 2574 Calculus III
- 3 Humanities Elective (from University/State Core list)

**15 Semester hours****Fall Semester Year 3**

- 4 ELEG 3124 Systems and Signals with lab
- 4 ELEG 3214 Electronics I with lab
- 4 ELEG 3924 Microprocessor Systems Design with lab
- 4 ELEG 3704 Applied Electromagnetics with lab

**16 Semester hours****Spring Semester Year 3**

- 4 ELEG 3224 Electronics II with lab
- 4 ELEG 3303 Energy Systems with lab
- 3 ELEG 3143 Probability and Stochastic Processes
- 3 Social Science Elective (from University/State Core list)
- 3 Math/Science/Technical Elective

**17 Semester hours****Fall Semester Year 4**

- 1 ELEG 4061 Electrical Engineering Design I
- 3 Electrical Engineering Technical Elective
- 3 Electrical Engineering Technical Elective
- 3 Engineering Science/Technical Elective
- 3 ECON 2013 or ECON 2023 or ECON 2143
- 3 Fine Arts Elective (from University/State Core list)

**16 Semester hours****Spring Semester Year 4**

- 3 ELEG 4073 Electrical Engineering Design II
- 3 Electrical Engineering Technical Elective
- 3 Technical Elective
- 3 Technical Elective
- 3 Social Science Elective (from University/State Core list)

**15 Semester hours****125 Total hours**

\* Freshman Science Elective - CHEM 1133/1131L Chemistry for Engineers II or PHYS 2074 University Physics II

\*\* Sophomore Science Elective

If CHEM 1133/1131L Chemistry for Engineers II was taken for Freshman Science Elective, then PHYS 2074 University Physics II

If PHYS 2074 University Physics II was taken for the Freshman Science Elective, then CHEM 1133/1131L Chemistry for Engineers II or BIOL 1543/1541L Principles of Biology or BIOL 2213/2211L Human Physiology

Students should become very familiar with the Academic Regulations chapter for university requirements that apply to the electrical engineering program as well as the College of Engineering requirements (in particular the “D rule” and the “Transfer of Credit” for courses taken at another institution). In addition to these graduation requirements, candidates for an electrical engineering degree must have earned a grade-point average of no less than 2.00 on all ELEG courses.

**Degree Program Changes**

A student must meet all requirements of the degree program and is expected to stay informed concerning current regulations, policies, and program requirements in a chosen field of study. Changes made in the electrical engineering curriculum at a level beyond that at which a student is enrolled may become graduation requirements for that student. Changes made in the curriculum at a level lower than the one at which a student is enrolled are not normally required for that student. Students should consult their adviser for additional information.

**Electrical Engineering Honors Program**

To graduate with Honors in electrical engineering, students must be a member of the Honors College, have a minimum cumulative GPA of 3.50, and complete a minimum of 12 hours of honors credit of which 6 hours must be Electrical Engineering courses that include the following: ELEG 4061H – Honors Electrical Engineering Design I, ELEG 4073H – Honors Electrical Engineering Design II, and ELEG 400VH – Senior Thesis.

**Recommended Technical Studies**

Students in electrical engineering are required to complete 21 semester hours of technical electives of which a minimum of 9 semester hours must be 4000- or 5000-level electrical engineering elective courses. A student may select the remaining 12 semester hours from 4000- or 5000-level electrical engineering elective courses or upper-division technical courses in mathematics, engineering, and the sciences with the approval of an adviser. One of these courses may be an approved Math/Science Elective and another may be an approved Engineering Science Elective. History and social science courses taught by Math and Science departments are not eligible for technical elective credit. Not more than 6 semester hours total of ELEG 488V and ELEG 400V may be credited toward technical electives. Students who have taken 3 full-time co-op experiences under GNEG 3811, and whose grades in these courses were A or B, may get credit for three hours of non-ELEG technical electives if the work performed is of comparable quality to a technical elective; consult with the Department Co-op Coordinator. Descriptions of all electrical engineering courses are in the Course Descriptions chapter of this Catalog of Studies. The schedule of technical electives offered in a given semester is determined the previous semester since the selection depends on a number of varying factors such as student interest in a particular topic, the importance of a particular technology for the student’s professional career, and teaching faculty availability.

**Potential Minors**

Although ELEG students can pursue any minor they desire, there are several minors that require a minimal number of extra courses, such as Computer Science, Mathematics, Microelectronics-Photonics, Physics, etc. Students are advised to review the specific rules pertaining to the minor of interest in the section of the UA Catalog of Studies corresponding to the department granting that minor.

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See Page 346 for Electrical Engineering (ELEG) courses.

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## INDUSTRIAL ENGINEERING (INEG)

Kim LaScola Needy  
Head of the Department  
4207 Bell Engineering Center  
479-575-3156

### FACULTY

- Distinguished Professors Rardin, White
- Professors Cassady, Johnson, Meller, Needy, Rossetti
- Associate Professors Buyurgan, Chimka, Fant, Nachtmann, Pohl
- Assistant Professors Milburn, Rainwater, Root, Zhang
- Adjunct Associate Professor Gattis

The mission of the industrial engineering department at the University of Arkansas is to be a nationally competitive, student-centered industrial engineering program serving Arkansas and the world through undergraduate and graduate studies and leading-edge research programs.

Industrial engineers are concerned with improving organized activity. The physical arrangement of people, equipment, and material significantly influences the effectiveness of any organization – whether the organization is industrial, governmental, or commercial.

Today's industrial engineers develop applications of new processing automation and control technology; install data processing systems, performance measures and standards, job evaluation and wage and salary programs; research new products and product applications; devise ways to improve productivity through application of technology and human factors; select operating processes and methods to accomplish a given task using proper tools and equipment; design facilities, management systems, operations procedures, storage systems; improve allocation of resources, planning and control systems for distribution of goods and services, production, inventory, quality and plant maintenance; enhance plant environment and the quality of working life; evaluate reliability and quality performance; implement office systems, procedures, and policies; analyze complex business problems through operations research; conduct long-range organization studies, plant location surveys, system effectiveness studies; and study potential markets for goods and services, raw material sources, labor supply, energy resources, financing and taxes.

Industrial engineers integrate engineering skills with mathematics and computer science tools, providing systematic ways to maximize productivity and quality while minimizing time and cost.

The goal of the Industrial Engineering Undergraduate Program at the University of Arkansas is to prepare men and women for professional careers and graduate studies in Industrial Engineering. We provide a foundation in mathematics, science, humanities and social sciences, engineering science, and engineering design to produce Industrial Engineers with the intellectual, technical, and professional competence to develop, implement, and manage industrial engineering solutions to complex problems in industry, government, and society.

The IE Program Objectives represent and describe the expected accomplishments of graduates resulting from participation within the program within the first few years after graduation. The department's objectives have been developed to address the needs of departmental constituencies and to be consistent with and support the mission and programmatic goals. The University of Arkansas undergraduate program in industrial engineering has the objective of producing graduates who can:

1. Demonstrate successful application of core industrial engineering knowledge and skills for industrial or public sector organizations.
2. Successfully pursue advanced professional degrees, graduate studies in industrial engineering, professional training, or engineering certification.
3. Demonstrate professional and intellectual growth as managers and leaders in industrial engineering, society, and their communities.

These specific objectives are reinforced by a senior capstone design course in which the student must apply the skills to a comprehensive design problem for an industry setting. This course integrates preceding courses through development of physical systems and organizational characteristics, financial aspects, product analysis,

equipment selection, production layout, distribution systems, and overall economic analysis.

The total graduation requirement in industrial engineering is 129 hours. For further information please visit the department at <http://www.ineg.uark.edu/>.

### Industrial Engineering B.S.I.E. Eight-Semester Degree Program

The following section contains the list of courses required for the Bachelor of Science in Industrial Engineering degree and a suggested sequence. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see page 42 in the Academic Regulations chapter for university requirements of the program.

At least 12 hours of technical electives must be selected from INEG courses.

#### Fall Semester Year 1

- 4 MATH 2554 Calculus I
- 3 CHEM 1103 Chemistry for Engineers I
- 4 PHYS 2054 University Physics I
- 1 GNEG 1111 Introduction to Engineering I
- 3 ENGL 1013 Composition I

#### 15 Semester hours

#### Spring Semester Year 1

- 4 MATH 2564 Calculus II
- 4 Freshman Science elective\*
- 3 HIST 2003 or HIST 2013 or PLSC 2003
- 1 GNEG 1121 Introduction to Engineering II
- 3 ENGL 1023 Technical Composition II

#### 15 Semester hours

#### Fall Semester Year 2

- 2 INEG 2102 Intro to Industrial Engineering
- 3 INEG 2313 Applied Probability and Statistics for Engineers I
- 3 INEG 2413 Engineering Economic Analysis
- 4 MATH 2574 Calculus III
- 4 CSCE 2004 Programming Foundations I

#### 16 Semester hours

#### Spring Semester Year 2

- 3 INEG 2403 Industrial Cost Analysis
- 3 INEG 2333 Applied Probability and Statistics for Engineers II
- 3 INEG 2513 Manufacturing Design
- 4 MATH 3404 Differential Equations
- 3 Science Requirement\*\*

#### 16 Semester hours

#### Fall Semester Year 3

- 3 INEG 3623 Simulation
- 3 INEG 3713 Methods and Standards
- 3 MEEG 2003 Statics
- 3 ELEG 3903 Electric Circuits and Machines
- 3 Fine Arts (from University/State Core list)
- 3 Technical Elective

#### 18 Semester hours

#### Spring Semester Year 3

- 3 INEG 3613 Introduction to Operations Research
- 3 INEG 4723 Ergonomics
- 3 Engineering Science 1: Select one from
  - MEEG 2303 Introduction to Materials
  - MEEG 2013 Dynamics
  - MEEG 3013 Mechanics of Materials
- 3 Engineering Science Elective 2: Select one from
  - CHEG 2133 Fluid Mech.
  - MEEG 2403 Thermo
- 3 ECON 2143 Basic Economics
- 3 Technical Elective

#### 18 Semester hours

#### Fall Semester Year 4

- 3 INEG 4433 Systems Engineering & Management
- 3 INEG 4553 Production Planning and Control
- 3 Technical elective
- 3 Technical elective
- 3 Social Science (from University/State Core list)

#### 15 Semester hours

**Spring Semester Year 4**

4	INEG 4904 Industrial Engineering Design
3	Technical elective
3	Technical elective
3	Humanities (from University/State Core list)
3	Social Science (from University/State Core list)
<b>16</b>	<b>Semester hours</b>
<b>129</b>	<b>Total hours required</b>

\* CHEM 1133/1131L Chemistry for Engineers II or PHYS 2074 University Physics II

\*\* If the student selected CHEM 1133/1131L as their freshman science elective then this course must be PHYS 2074 University Physics II; otherwise see the approved list of IE science electives.

**Technical Electives**

The purpose of technical electives is to provide students with the opportunity to expand their education along lines of particular interest to them. The approved list of technical electives is available in the industrial engineering department. At least 12 hours must be selected from INEG courses.

**Humanities/Social Science Electives**

Although any elective included on the humanities/social science list may be selected, PSYC 2003 General Psychology is recommended for industrial engineers.

**Science Electives**

The approved list of science electives is available in the industrial engineering departmental office.

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See Page 368 for Industrial Engineering (INEG) courses.

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**MECHANICAL ENGINEERING (MEEG)**

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Undergraduate Coordinator and Assistant Department Head  
204 Mechanical Engineering Building  
479-575-3603  
E-mail: jad03@uark.edu

Web: <http://www.meeg.uark.edu/>

**FACULTY**

- Distinguished Professors Malshe, Saxena
- Professors Jong, Leylek, West
- Associate Professors Couvillion, Nutter, Roe, Spearot, Springer, Tung, Zou
- Assistant Professors Huang, Wejinya
- Instructors Davis, Roberts
- Adjunct Professor Cole
- Adjunct Associate Professors Myers, Paulus, Reynolds
- Adjunct Assistant Professors Batzer, Chaffin, Hamilton
- Emeritus Professor Schmidt

The mechanical engineering program is designed to offer a high-quality course of instruction involving classroom, laboratory, and extracurricular activities that results in graduates who are qualified and prepared to meet the demands of a professional career in the present and future work place and be able to assume a responsible place of leadership in a complex technological society.

The mission of the department is three-fold:

- Teaching — To provide a high-quality educational experience for undergraduate and graduate students that enables them to become leaders in their chosen professions.
- Research — To create, explore, and develop innovations in engineering and science through undergraduate and graduate research.
- Service — To provide beneficial service to the local, state, national, and international industries and communities via educational, technical, entrepreneurial, and professional activities.

The courses offered in mechanical engineering provide the student with a broad understanding of fundamental scientific principles that serve as a background for many fields of specialization. The undergraduate curriculum is designed to stress basic engineering principles and to assist in developing creative thinking. Emphasis is placed on the science and art of designing machines and systems, of converting energy into useful forms, and developing a basic understanding of engineering mechanics. The undergraduate program leads to a Bachelor of Science degree in Mechanical Engineering; its educational objectives are to produce graduates who:

1. effectively analyze and design mechanical systems and energy systems;
2. contribute to the economic development of Arkansas and the world through the practice of mechanical engineering;
3. meet or exceed the needs and expectations of mechanical engineering employers in industry, government, and private practice;
4. engage in professional activities that promote the mechanical engineering profession and provide continuing self-development, and
5. succeed in graduate study and research, if pursued.

The Bachelor of Science in Mechanical Engineering curriculum includes, in addition to the required 15 hours of fine arts/humanities/social science elective courses, a total of 12 hours of technical and science electives. A student must select all electives with the approval of his or her adviser. The fine arts/humanities/social science electives must be selected from the University Core Curriculum listed on page 41 in the Academic Regulations chapter for university requirements for the program. It is expected that technical and science electives will be chosen to provide a coherent program within one or more areas of specialization or options available to mechanical engineers. Traditional areas of specialization are available in mechanical systems, materials, and energy systems. Other areas include pre-medical, management, and aerospace.

The first-year curriculum is essentially the same as prescribed for all engineering freshmen. The full curriculum follows, with the number of credit hours at the left, preceding course numbers and titles.

**Mechanical Engineering B.S.M.E.****Eight-Semester Degree Program**

The following section contains the list of courses required for the Bachelor of Science in Mechanical Engineering degree and a suggested sequence. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students interested in obtaining a sequencing schedule of courses may contact the Mechanical Engineering office.

Students wishing to follow the eight-semester degree plan should see page 42 in the Academic Regulations chapter for university requirements of the program.

Either the science elective in the second semester of Year 1 or the science elective in the first semester of Year 2 must include PHYS 2074. Other science electives should be chosen from an approved list. See the mechanical engineering office.

**Fall Semester Year 1**

3	ENGL 1013 Composition I
3	CHEM 1113 Chemistry for Engineers I
4	PHYS 2054 University Physics I
4	MATH 2554 Calculus I
1	GNEG 1111 Introduction to Engineering I
<b>15</b>	<b>Semester Hours</b>

**Spring Semester Year 1**

- 3 HIST 2003 or HIST 2013 or PLSC 2003
- 1 GNEG 1121 Introduction to Engineering II
- 4 MATH 2564 Calculus II
- 4 Freshman Science Elective (See above)
- 3 ENGL 1023 Technical Composition II

**15 Semester Hours****Fall Semester Year 2**

- 0 MEEG 2100 Computer-Aided Design Competency
- 4 Science Elective (See note above)
- 4 MATH 2574 Calculus III
- 3 MEEG 2303 Introduction to Materials
- 3 MEEG 2003 Statics

**14 Semester Hours****Spring Semester Year 2**

- 4 MATH 2584 Differential Equations
- 3 MEEG 2013 Dynamics
- 3 MEEG 2403 Thermodynamics
- 3 MEEG 2703 Computer Methods in Mechanical Engineering
- 3 MEEG 2103 Introduction to Machine Analysis

**16 Semester Hours****Fall Semester Year 3**

- 3 MEEG 3013 Mechanics of Materials
- 3 MEEG 3113 Machine Dynamics and Control
- 2 MEEG 3202L Mechanical Engineering Laboratory I
- 3 MEEG 3503 Mechanics of Fluids
- 3 ELEG 3903 Circuits & Machines
- 3 ECON 2013 or ECON 2143

**17 Semester Hours****Spring Semester Year 3**

- 2 MEEG 3212L Mechanical Engineering Laboratory II
- 3 MEEG 4413 Heat Transfer
- 4 MEEG 4104 Machine Element Design
- 3 ELEG 3933 Circuits and Electronics
- 3 Technical/Science Elective
- 3 PHIL 3103

**18 Semester Hours****Fall Semester Year 4**

- 2 MEEG 4132 Professional Engineering Practices
- 1 MEEG 4131 Creative Project Design I
- 2 MEEG 4202L Mechanical Engineering Laboratory III
- 3 MEEG 4483 Thermal Systems Analysis and Design
- 3 Technical/Science Elective
- 3 Fine Arts Elective (from University/State Core list)

**14 Semester Hours****Spring Semester Year 4**

- 3 MEEG 4133 Creative Project Design II
- 3 Technical/Science Elective
- 3 Technical/Science Elective
- 3 Social Science Elective (from University/State Core list)
- 3 Social Science Elective (from University/State Core list)

**15 Semester Hours****124 Total Hours****Technical/Science Electives**

The purpose of technical/science electives is to provide students with the opportunity to expand their education along lines of particular interest to them. The approved list of technical/science electives and selected courses for various options is available in the Mechanical Engineering department office.

**Fine Arts/Humanities/Social Science Electives**

Students must follow the University/State Core curriculum in selecting their fine arts and social science electives. See mechanical engineering office for details.

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See Page 380 for Mechanical Engineering (MEEG) courses.

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# School of Law

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## **Office of the Dean of the School**

162 Leflar Law Center, 479-575-4504

### **Dean**

Stacy L. Leeds

### **Associate Dean for Academic Affairs**

Carl Circo

### **Associate Dean for Faculty Research and Development**

Ned Snow

### **Associate Dean for Students**

James K. Miller

### **Law School Admissions**

479-575-3102

### **World Wide Web**

<http://law.uark.edu/>

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## **MISSION AND OBJECTIVES**

The primary goal of the University of Arkansas School of Law is to prepare lawyers who will render high-quality professional service to their clients, who are interested in and capable of advancing legal progress and reform, and who are prepared to be leaders in their communities. These objectives can best be realized by a talented and dedicated full-time faculty working in partnership with an interested and involved bench and bar. The faculty and administrative staff at the School of Law strive to maintain mutually beneficial relationships with judges and practicing lawyers. Appellate courts regularly schedule cases at the School of Law, and the judges meet with students informally after the arguments. Full-time faculty members teach first-year courses and other required substantive law courses, while practice skill courses such as legal clinic and activities such as moot court and client counseling depend on the assistance of the practicing bar.

The University of Arkansas School of Law also has a strong sense of responsibility to the people of Arkansas. Members of the faculty and student body are active in numerous public service activities. Legal counsel to the indigent is provided through the clinical education program and by special court appointments from time to time. Students and faculty also serve on the bar, in civic and legislative committees, and on task forces. A number of faculty and students contribute time and expertise to state agencies and law reform groups. All of these activities offer students real legal work, serving the people of Arkansas.

### **Teaching Methods**

Legal training teaches principles through discussion and skills through practice. The student must be, by definition, an active participant in that process.

The Socratic “case method” is the basic tool of traditional American legal education. This method involves the study and discussion of litigated cases. The teacher calls upon students to respond in a stimulating question-and-answer dialogue, frequently involving several class members and often including more questions than answers. The learning experience occurs not only in the interchange between teacher and student, but also among the students themselves. This process, applied skillfully by expert teachers and by students possessing a sense of awareness and curiosity, hones the minds of students, develops their respect for facts, and creates a sensitivity to essential differences among issues, policies, reasons, and arguments. Intensive and consistent daily preparation is necessary for students to participate effectively in this process.

In some of the first-year courses, and in many later courses, students are given practical legal problems to solve. These problems may involve drafting legal documents or formulating a course of action for a hypothetical client.

By the time students reach their third year, they will be prepared to engage in significant legal research in selected areas of specialization. A primary source for such experience will be seminars taught informally in small groups by professors who are experts in selected subjects. Frequently, a student will be expected to defend a seminar paper before classmates under circumstances that provide lively and constructive discussion. During the second and third years, students are also permitted to engage in research and writing projects for credit under the supervision and consultation of a selected faculty member, in an area of particular interest to the student.

Of increasing importance in legal education is the role of practical, on-the-job training involving legal problems of actual clients. Legal clinic courses provide valuable client counseling experience, as well as participation in actual trials and appeals under the supervision of a member of the faculty who is also a licensed attorney. Representation is provided for students and indigent local residents. Both civil and certain referred criminal cases are accepted by the clinic.

Many classes in the School of Law involve a significant skills component in which students are placed in a simulated client-based situation and asked to respond appropriately. The curriculum includes a number of specially designated-skills classes that focus on practice skills. All law students are required to take at least one skills class prior to graduation.

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## **FACILITIES AND RESOURCES**

### **Robert A. Leflar Law Center**

Additions to the Robert A. Leflar Law Center were completed in spring 2008, and the building was dedicated in October 2008 by former Associate Supreme Court Justice Sandra Day O'Connor. A new addition was opened for students in fall 2006, and faculty and staff moved into new offices in August 2007. The expanded facilities include a new entry hall facing the Arkansas Union and Mullins Library, a two-story lobby, four state-of-the-art classrooms on the third floor, a gourmet coffee shop on the second floor, the 203-seat E.J. Ball Courtroom and a new Student Services office. The Richard B. Atkinson Memorial Courtyard, designed by world-renowned artist and sculptor Jesús Moroles, was completed in fall 2008.

### Robert A. and Vivian Young Law Library

The Robert A. and Vivian Young Law Library includes more than 300,000 volumes, including cases and statutes from every American jurisdiction. The law library also contains a current and complete collection of legal encyclopedia, digests, tests, treatises, law reviews, reports of administrative agencies, and other government publications.

The Young Law Library is a depository for federal, state, and United Nations documents. It is the only U.N. documents library in the state and one of a few in the Midwest. The library includes a growing collection of agricultural law materials developed with assistance from the National Agricultural Law Center.

Students researching legal problems use traditional printed resources and electronic resources available across the Internet. Portals such as Loislaw.com, LEXIS, WESTLAW, the State of Arkansas Web page, the National Agriculture Law Center Web page, and the Young Law Library's Web page help students identify and use appropriate resources. Computer labs are available for student use. The School of Law also has a wireless network accessible to all students, faculty, and staff.

While primarily designed for the use of Arkansas students, the Young Law Library also serves the research needs of the bench, the bar, and the University community. The Young Law Library provides an attractive and comfortable atmosphere for study and research. Included within the Young Law Library is the Barrett Hamilton Law Library Mezzanine, a particularly attractive study and shelf space area. In addition, the main campus library, Mullins Library, is located near the Young Law Library. The two libraries work closely together to identify, acquire, and share resources throughout the campus.

### Law Faculty

- Robert A. Leflar Professor Bailey (C.)
- Vincent Foster University Professor of Legal Ethics and Professional Responsibility Brill
- Clayton N. Little Professor Goforth
- E.J. Ball Professor Judges
- Wylie H. Davis Distinguished Professor Killenbeck (M.)
- Ben J. Altheimer Professor of Legal Advocacy Leflar
- Sidney Parker Davis Jr. Professor of Business and Commercial Law Matthews
- Nathan G. Gordon Professor Nance
- William H. Enfield Distinguished Professor Sheppard
- Professors Beard, Brummer, Circo, Ewelukwa, Flaccus, Leeds, Moberly, Norvell, Schneider
- Associate Professors Buehler, Foster, Gallini, Hughes, Kelley, Killenbeck (A.), Sacharoff, Tarvin, Thompson, Young
- Assistant Professor Sampson
- Visiting Clinical Assistant Professors Doss, Gaithe
- Professor of Law Emeritus Witte

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## OTHER PROGRAMS

### Joint J.D./M.B.A. Program (Business Administration)

The School of Law and the Sam M. Walton College of Business offer students a juris doctor (J.D.) degree and a master's of business administration (M.B.A.) degree concurrently. Students working to pursue their degrees in this joint program must gain admission to both the School of Law and the Graduate School and be accepted into the program of study leading to the M.B.A. degree. If the student is accepted into both programs, a maximum of six hours of approved upper-level elective law courses may be used as duplicate credit toward the M.B.A. degree and a maximum of six hours of approved graduate courses in business administration may be used as duplicate credit toward the J.D. degree, thus reducing the total time necessary for completion of the degrees.

### Joint J.D./M.P.A. Program (Public Administration)

The department of political science, the Graduate School, and the School of Law cooperate in a dual-degree program that allows a student to pursue a juris doctor

(J.D.) degree and a master's of public administration (M.P.A.) degree concurrently. Students must be admitted to the M.P.A. program, the School of Law, and the dual-degree program. If students enter the dual-degree program after enrolling in either the School of Law or the M.P.A. program, they must obtain admission to the other degree program and the dual-degree program during the first year of study.

The School of Law accepts a maximum of nine hours of M.P.A. courses to satisfy requirements for the J.D. degree. To qualify for J.D. credit, the M.P.A. courses must come from a set of core courses and must be approved by the School of Law. For purposes of the M.P.A. degree, 15 hours of elective courses may be taken in the School of Law, provided they are in an area of concentration approved by the director of the M.P.A. program. Students must earn a grade of B or higher in any M.P.A. course offered for credit toward the J.D.

Students admitted to the dual-degree program may commence their studies in either the School of Law or in the M.P.A. program but must complete first year course requirements before taking courses in the other degree program. If they do not maintain the academic or ethical standards of either degree program, students may be terminated from the dual degree program. Students in good standing in one degree program but not the other may be allowed to continue in the program in which they have good standing and must meet the degree requirements of that program. If for any reason a student admitted to the dual degree program does not complete the M.P.A. degree, he or she cannot count any hours of M.P.A. courses toward the J.D. degree. Likewise, M.P.A. students may not be able to count certain law courses if they decide to discontinue their studies in the School of Law. The J.D. degree will be awarded upon completion of all degree requirements; the M.P.A. will be awarded upon completion of the comprehensive examination and the internship (and internship report), or alternately, six hours of additional coursework.

### Joint J.D./M.A. Program

The School of Law and the Department of Political Science provide a dual J.D./M.A. in International Law and Politics. This program's students must be admitted both to the School of Law and the Graduate School in the Department of Political Science.

A maximum of 12 hours of approved, upper-level elective law courses may be used as credit toward the M.A. and a maximum of nine hours of approved graduate courses in political science may be used as credit toward the J.D. degree, reducing the time necessary to complete both degrees by about one academic year. The M.A. program offers a six-hour thesis or a paid, six-month internship option designed to prepare students for a career in international politics or law.

The 12 hours of M.A. courses taken in the School of Law must relate to the study of international law and be approved by the student's M.A. adviser and the Law School's Associate Dean of Academic Affairs. The nine hours of approved graduate courses in political science may include: Comparative Political Analysis; Seminar in International Politics; Seminar in Contemporary Problems; International Political Economy; and International Trade Policy. Other political science and graduate-level courses may be taken by permission. Paid internship credits cannot be applied toward the juris doctorate.

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## SCHOOL ADMISSION REQUIREMENTS

For complete details concerning admission to the School of Law, visit us at <http://law.uark.edu/admissions.php> or write to School of Law Office of Admissions, Leflar Law Center, University of Arkansas, Fayetteville, AR 72701, or telephone 479-575-3102 for a University of Arkansas School of Law Catalog of Studies or download a Catalog at <http://law.uark.edu>.

### General Information

The School of Law's deadline for receiving a completed application is April 1. The school does not charge an application fee. Admission is only for the fall of each year, and only a full-time program is offered.

The School of Law prefers online applications. The school may request more information than is listed below, but please do not send additional materials unless requested. Each student application file will be reviewed when it is completed.

## Prerequisites

Except for students in the 3/3 programs, applicants must have completed all requirements for a bachelor's degree from an accredited institution prior to the date of enrolling in the School of Law.

## CAS

Applicants must participate in the Credential Assembly Service (CAS) and be registered with CAS during the application year. Through CAS, applicants are required to send the Law School Admission Council (LSAC) official transcripts from all higher education institutions that the applicant has attended.

## LSAT

Applicants also must take the Law School Admission Test (LSAT) before the end of February and within the five years preceding the date of application. Applications may be submitted prior to taking the LSAT. The School of Law will use an applicant's highest LSAT score in calculating the applicant's prediction index.

## Prediction Index

The School of Law will grant index admission to non-residents who have a prediction index of 205 or above and to Arkansas residents who have a prediction index of 200 or above. If space permits, we may offer index admissions to other applicants. All admitted students must satisfy the legal profession's character and fitness requirements.

The prediction index is calculated as follows:  $(\text{LSAT score}) + (13.4 \times \text{UGPA}) = \text{Prediction Index}$ . For example, if you have an LSAT score of 160 and a 3.00 UGPA, your prediction index would be 202.

## Transfer Students

A law student who has completed one year of legal studies with satisfactory scholarship in a law school accredited by the American Bar Association is eligible to be considered for transfer to the University of Arkansas School of Law. The amount of transfer credit to be granted will depend on the quality of performance and the relation of completed courses to this school's program. A maximum of 30 credits may be accepted for transfer credit. Credit or units only (not grades) are transferable. Credits will not be accepted for any course or other work in which a grade below 2.00 or equivalent is given at another law school. Failure to disclose attendance at another college or law school or expulsion or suspension is sufficient grounds to require withdrawal from the School of Law.

## Pre-Law Study

No pre-law curriculum is prescribed at the University of Arkansas School of Law or at any other American law school. Experience has shown that students do equally well in law school and in law practice regardless of their differing educational backgrounds. As a result, no single "pre-law major" is required or even recommended. Students in a position to structure their college curricula should select courses that emphasize analytical and problem-solving skills and courses in which written work is vigorously edited. Arkansas admits applicants from a wide variety of college majors. The resulting diversity enhances and enriches the educational experience of all students.

**LSAT:** The Law School Admission Test (LSAT) is given four times per year in Fayetteville and at other locations throughout Arkansas and in other states. Registration may be arranged online at [www.lsat.org](http://www.lsat.org). Applicants for admission are urged to take the test at least nine months prior to expected entrance in the School of Law.

## 3/3 Programs

The School of Law and the J. William Fulbright College of Arts and Sciences have collaborated in developing a program that will enable outstanding students to enter the School of Law after their third year of undergraduate studies. A student enrolled in the Fulbright College is eligible to begin study in the UA School of Law after the completion of at least 94 hours of college work if the following criteria are met:

1. Completion of all University, college, and major course requirements for their undergraduate degrees;
2. A cumulative grade-point average of at least 3.50; and
3. A score of at least 159 on the LSAT.

Such students will receive a Bachelor of Arts or a Bachelor of Science after the completion of sufficient hours at the School of Law in order to meet the regular requirements of Fulbright College. These students will then receive a juris doctor (J.D.) degree after completing the required number of hours at the School of Law.

In addition to the 3/3 program with the J. William Fulbright College of Arts and Sciences, the School of Law has a similar program with the department of agricultural economics and agribusiness in the Dale Bumpers College of Agricultural, Food, and Life Sciences. Exceptional students may enroll in the Law School in their fourth year of undergraduate study. Students will be required to have (1) completed at least 95 credit hours in the pre-law program, (2) a cumulative grade-point average in all college or University course work of at least 3.50 without grade renewal, and (3) an LSAT score of at least 159. The B.S.A. Agricultural Business degree will be granted after successfully completing 29 credit hours from the first-year School of Law course work.

It is a requirement of the School of Law's accreditation standards that no student be admitted to the University of Arkansas School of Law until they have completed at least three-fourths of the work necessary for the baccalaureate degree. The requirements embodied in these 3/3 programs satisfy this requirement.

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## COLLEGE SCHOLARSHIPS

Students are expected to make sufficient financial arrangements for the first year of study without the necessity of seeking employment. All law students are required to be full-time students, and no law student is permitted more than 20 hours per week of employment. First-year students are strongly discouraged from working while enrolled in classes. First-year students are expected to adhere to a standard curriculum; some courses in the upper-division curriculum are also required.

Applications for financial aid may be obtained from the Office of Financial Aid, University of Arkansas, Hunt Hall 114, Fayetteville, AR 72701, 479-575-3806. You may also find more information about financial aid opportunities online at <http://www.uark.edu/admin/fininfo/index.html>. Applications for financial aid must be submitted to the Office of Financial Aid by April 1. Specific fees and costs are listed in the School of Law Catalog.

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## DEGREE REQUIREMENTS

For course information and degree requirements, see the School of Law Catalog online at <http://catalogofstudies.uark.edu/2692.php> or by writing or calling the University of Arkansas School of Law, Leflar Law Center, Waterman Hall 147, Fayetteville, AR 72701, 479-575-7645.

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## GRADUATE STUDIES

The University of Arkansas School of Law is a professional degree program. In addition to the law degree, the Law School offers a graduate degree in agricultural law. The Graduate Program in Agricultural Law at the University of Arkansas is the only program in the United States that offers a Master of Laws (LL.M.) degree in agricultural law. Students enrolled in this unique and selective program have the opportunity for advanced study, creative research, and specialized professional training in the legal issues involved with agricultural production, marketing, and distribution. Graduates of the program are among the leaders of today's agricultural law community, working in private practice, government, agribusiness, public policy, and academia. For more information, visit [http://law.uark.edu/llm\\_program.php](http://law.uark.edu/llm_program.php) or e-mail the graduate program at [llm@uark.edu](mailto:llm@uark.edu).

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## ACCREDITATIONS

The degree programs in the School of Law on the Fayetteville campus are accredited by both the American Bar Association and the Association of American Law Schools.

# Reserve Officer Training Corps

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## **Air Force ROTC**

319 Memorial Hall, 479-575-3651/3652, E-mail: [rotc030@uark.edu](mailto:rotc030@uark.edu)

### **Professor of Aerospace Studies**

Lieutenant Colonel Mark Clark

### **World Wide Web**

<http://www.uark.edu/~afrotc/>

## **Army ROTC**

106 Army ROTC Building, 479-575-4251

Toll Free: 1-866-891-5538, Fax: 479-575-5855

E-mail: [armyrotc@cavern.uark.edu](mailto:armyrotc@cavern.uark.edu)

### **Professor of Military Science and Leadership**

Lieutenant Colonel Clark B. Taylor

### **World Wide Web**

<http://www.uark.edu/armyhog/>

The Reserve Officer Training Corps (ROTC) programs at the University of Arkansas provide physical and mental challenges that are not offered anywhere else on campus. The ROTC programs prepare young men and women for careers as professional military officers. In addition to academic studies, each service requires that all students attend a weekly leadership laboratory.

The freshman and sophomore courses are electives offered to male and female students who may earn four hours of academic credit in Aerospace Studies or up to six hours in Military Science. Absolutely no military obligation is incurred by non-scholarship students as a result of their enrollment in or completion of any or all of their freshman or sophomore ROTC courses.

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## **U.S. AIR FORCE ROTC**

In addition to the first two years of academic study (see above), the University, in cooperation with the U.S. Air Force, offers two years of advanced instruction in Aerospace Studies. The advanced instruction prepares students for the responsibilities and privileges of a commissioned officer. This advanced instruction offers three hours of academic credit per semester for Air Force cadets.

Air Force ROTC (AFROTC) cadets must attend and successfully complete field training. AFROTC cadets usually attend field training between their sophomore and junior years. Air Force ROTC cadets may volunteer to attend various professional development courses during their non-field-training summers.

Each student must successfully complete the summer field training to qualify for the advanced ROTC program. All veterans who have completed basic training and 180 days of service with any component of the U.S. Armed Forces are exempt from the freshman AFROTC course.

Financial assistance is also available in the form of monthly stipends for cadets

officially enrolled in the advanced training program, who have successfully completed summer field training. Additionally, Air Force ROTC offers four-, three-, and two-year scholarships to competitively selected students. All scholarship students receive a monthly tax-free allowance ranging from \$300 to \$450, payment of tuition expenses, textbook payment, and payment of certain other fees. Additional information and applications for this assistance may be obtained on the Web at <http://www.afrotc.com/>.

A student who successfully completes the Advanced Course in Air Force ROTC and receives a degree will be awarded a commission and will serve on active duty in the U. S. Air Force.

All textbooks, instructional material, and equipment required for ROTC courses are furnished at no cost to the student.

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See Page 310 for U.S. Air Force ROTC (AERO) courses.

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## **U.S. ARMY ROTC**

In addition to the first two years of academic study, the University, in cooperation with the U.S. Army, offers two years of advanced instruction in Military Science, Leadership, Ethics, and Personal Confidence. The advanced instruction prepares students for the responsibilities and privileges of a commissioned officer. This advanced instruction offers four hours of academic credit per semester for Army cadets. Additionally, all students enrolled in the final two years of ROTC receive a monthly tax-free allowance ranging from \$450 to \$500.

Army ROTC cadets attend a paid 28-day Leadership Development and Assessment Course (LDAC) between their junior and senior school years. Cadets may attend professional development training such as Leadership Internships, Airborne, Air Assault, British Exchange Program, Northern Warfare, Nurse Summer Training Program, Mountain Warfare and Cultural Immersion Overseas Program in the summer during their sophomore year. During summer field training, cadets receive room and board.

For students having a minimum of two academic years in school remaining (undergraduate, graduate, or a combination of the two), an alternate two-year program is offered. Students entering the two-year ROTC program attend a 28-day Leaders Training Course (LTC) during the summer. Students who attend LTC and are otherwise qualified are eligible for two-year scholarships. Rising juniors, seniors and graduate students who meet the U.S. Army Cadet Command's Scholar-Athlete-Leader criteria and are unable to attend the LTC may elect to participate in the Accelerated Cadet Commissioning Training (ACCT) program conducted on the UA campus.

Students with high school-level military schooling (JROTC, NDCC, or Military Academy) may qualify for the advanced ROTC program without completing the freshman or sophomore courses. All veterans who have completed basic training and 180 days of service with any component of the U.S. Armed Forces can receive full credit for the freshman and sophomore courses and may enter ROTC at the advanced level, once junior academic standing has been achieved.

Financial assistance is also available to qualified students enrolled in ROTC

courses. The Army offers two, two-and-one-half, three, three-and-one-half, and four-year scholarships. Freshman or sophomore students who are not enrolled in Army ROTC may qualify for on-campus two or three-year scholarships. Juniors, seniors, and graduate students who have at least two full years of college remaining may also qualify for on-campus two or three-year scholarships. Scholarships can be used to pay for graduate school. Scholarship students receive a monthly tax-free allowance ranging from \$300 to \$500, payment of all tuition expenses, textbook payment (\$1,200 per year), and payment of certain other fees. Additionally, some qualified three- and four-year scholarship winners may receive free room and board, provided they meet the University of Arkansas requirements for the Room and Board Scholarship.

Army ROTC scholarship and advanced course students must agree to successfully complete at least one semester of American Military History, LDAC, and a Staff Ride (Terrain Walk) prior to commissioning. Depending on the degree plan, Army ROTC may count from zero to 19 hours of elective credits for undergraduate students.

Army ROTC also offers a unique financial assistance program available to all non-scholarship Army ROTC Advanced Course students through the Simultaneous Membership Program (SMP). This program allows students with 27 or more hours

to be enrolled in Army ROTC while simultaneously serving with an Army Reserve or Army National Guard unit. Financial benefits of this program presently provide approximately \$600 to \$1,700 per month to enrolled students. Prior Service National Guard and Army Reserve students may also qualify for the Montgomery G.I. Bill, MGIB Kicker, the Veterans Administration Workstudy Program, Federal Tuition Assistance, and/or the Arkansas Army National Guard Tuition Assistance Program. Army ROTC Scholarship Nurse Cadets may also receive reimbursement for expenses related to Nursing Uniforms, Immunizations, Clinical Fees, Nursing Malpractice Insurance and the NCLX-RN review and testing.

A student who successfully completes the Advanced Course in the Army ROTC program and receives a degree may be accepted for a regular or reserve commission in one of the sixteen branches of the Army.

All textbooks, instructional material, and equipment required for ROTC courses are furnished at no cost to students.

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See Page 383 for U.S. Army ROTC (MILS) courses.

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# Faculty

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The first date after the listing of each name indicates the year of first appointment at the University; the second date indicates the year of appointment to present faculty rank. Where they coincide, only one date is given.

- Ackerson, Michael Dean** – B.S.Ch.E., M.S.Ch.E. (University of Missouri-Rolla), Ph.D. (University of Arkansas), P.E., Associate Professor of Chemical Engineering, 1988, 1992.
- Adams, Charles H.** – B.A. (Tulane University of Louisiana), M.A., Ph.D. (University of Virginia), Professor of English, 1986, 2006.
- Adams, Douglas J.** – B.A. (Augsburg College), M.A., Ph.D., (University of Arizona), Associate Professor of Sociology and Criminal Justice, 1995, 2002.
- Adams, Paul** – B.S. (Louisiana State University), Ph.D. (Case Western Reserve University), Associate Professor of Chemistry and Biochemistry, 2007, 2012.
- Adkins, Charles W. Jr.** – B.S. (University of Central Arkansas), L.E. (U.S. Army Logistics Management College), Major (U.S. Army, Quartermaster Corps), Assistant Professor of Military Science and Leadership, 2001.
- Adler, Jacob** – A.B., Ph.D. (Harvard University), Associate Professor of Philosophy, 1984, 1991.
- Agan, Joseph P.** – B.S. (Southern Illinois State University), M.A. (University of Houston), Ph.D. (University of Arkansas), Clinical Assistant Professor of Communication Disorders, 2009.
- Agana, Carol E.** – B.S.E. (University of Arkansas), M.N.Sc. (University of Arkansas for Medical Sciences), Instructor of Nursing, 1998, 2000.
- Ahrendsen, Bruce L.** – B.S. (Iowa State University), M.Econ., Ph.D. (North Carolina State University), Professor of Agricultural Economics and Agribusiness, 1990, 2006.
- Akeroyd, John R.** – B.A. (University of Louisville), M.A., Ph.D. (Indiana University), Professor of Mathematical Sciences, 1986, 1999.
- Akin, D. Scott** – B.S. (University of Tennessee, Martin), M.S., Ph.D. (Mississippi State University), Assistant Professor of Entomology, 2007.
- Alexander, Jerry W.** – B.A. (Western Kentucky University), M.A. (Texas Tech University), Visiting Assistant Professor of Operations Management, 2002.
- Allen, Carolyn Henderson** – B.S. (Alabama State University), M.S. (Clark Atlanta University), Professor and Dean of University Libraries, 2000.
- Allen, Myria W.** – B.A., M.A., Ph.D. (University of Kentucky), Professor of Communication, 1993, 2009.
- Allison, Neil T.** – B.S. (Georgia College), Ph.D. (University of Florida), Associate Professor of Chemistry and Biochemistry, 1980, 1985.
- Aloysius, John A.** – B.S. (University of Colombo, Sri Lanka) Ph.D. (Temple University), Associate Professor of Supply Chain Management, 1995, 2002.
- Amason, Patricia** – B.S.E. (University of Arkansas), M.A. (University of Kentucky), Ph.D. (Purdue University), Associate Professor of Communication, 1994, 2000.
- Anand, Vikas** – M.Sc. (Birla Institute of Technology), M.B.A. (Indian Institute of Foreign Trade), Ph.D. (Arizona State University), Associate Professor of Management, 1999, 2005.
- Anders, Merle M.** – B.S. (Iowa State University of Science and Technology), M.S., Ph.D. (University of Hawaii), Research Assistant Professor of Rice Cropping Systems, 1998.
- Andersen, Craig R.** – B.S. (Augustana College), M.S., Ph.D. (University of Minnesota), Associate Professor of Horticulture, 1985, 1995.
- Andrews, David L.** – B.S.E.E., M.S.E.E. (University of Missouri-Columbia), Ph.D. (Syracuse University), Thomas Mullins Chair and Professor of Computer Science and Computer Engineering, 2008.
- Ang, Simon S.** – B.S.E.E. (University of Arkansas), M.S.E.E. (Georgia Institute of Technology), Ph.D. (Southern Methodist University), P.E., Professor of Electrical Engineering, 1988, 1995; Adjunct Professor of Biological and Agricultural Engineering, 2003.
- Anthony, Nicholas B.** – B.S., M.S. (Ohio State University), Ph.D. (Virginia Polytechnic Institute and State University), Professor of Poultry Science, 1987, 2000.
- Antoine, Pierre Ph.** – B.S. (University of Louvain, Belgium), Ph.D. (University of Minnesota), Adjunct Professor of Agronomy, 1987.
- Antov, Nikolay** – B.A. (American University in Bulgaria), M.A. (Bilkent University, Turkey), Ph.D. (University of Chicago), Assistant Professor of History, 2011.
- Apple, Jason K.** – B.S. (Oklahoma State University), M.S., Ph.D. (Kansas State University), Professor of Animal Science, 1995, 2007.
- Apple, Laurie M.** – B.S., M.S. (University of Arkansas), Ph.D. (Oklahoma State University), Associate Professor of Human Environmental Sciences, 2000, 2008.
- Arenberg, Nancy** – B.A. (Grinnell College), M.A. (University of Illinois, Champaign-Urbana), Ph.D. (University of Arizona, Tucson), Associate Professor of World Languages, 1996, 2002.
- Armstrong, Edward P.** – B.A. (Indiana University), M.A., Ph.D. (Pennsylvania State University), Assistant Professor of English, 1997.
- Arnold, Mark E.** – B.S., Ph.D. (Northern Illinois University), Associate Professor of Mathematical Sciences, 1993, 1999.
- Arrington, Andrea L.** – B.A. (Knox College), M.A., Ph.D. (Emory University), Assistant Professor of History, 2007.
- Ashton, Dub** – B.S.B.A., M.B.A. (Memphis State University), Ph.D. (University of Georgia), Associate Professor of Marketing, 1981.
- Aslin, Larry** – B.A., M.A. (University of Missouri-Columbia), Research Associate Professor of Communication Disorders, 1975, 1988.
- Babcock, Robert E.** – B.S.Pet.E., M.Ch.E., Ph.D. (University of Oklahoma), P.E., Professor of Chemical Engineering, 1965, 1974.
- Bacon, Craig D.** – B.S. (University of Missouri), M.S., Ph.D. (University of Tennessee), Adjunct Professor of Poultry Science, 2011.
- Bacon, Robert K.** – B.S.A., M.S. (University of Arkansas), Ph.D. (Purdue University), Professor of Crop, Soil, and Environmental Sciences, 1984, 1993.
- Bailey, Alberta S.** – B.A. (Miles College), M.S.L.S. (Case Western Reserve University), Professor and Librarian, 1979, 1989.
- Bailey, Carlton** – B.A. (Talladega College), J.D. (University of Chicago), Ben J. Altheimer Professor of Law, 1978, 2005.
- Bailey, William C.** – B.A., M.A., Ph.D. (Texas Tech University), Associate Professor of Human Environmental Sciences, 1991, 1997.
- Baird, Douglas H.** – D.V.M. (Louisiana State University), Adjunct Professor of Animal Science 2002, 2011.

- Balda, Juan C.** – B.Sc.E.E. (Universidad Nacional del Sur), Ph.D. (University of Natal), P.E., Professor of Electrical Engineering, 1989, 1999.
- Baker, Lindlee** – A.B. (Georgetown University), M.Sc. (London School of Economics and Political Science), J.D. (University of Arkansas), Clinical Associate Professor of Law, 1994, 2002.
- Baker, Kimberly F.** – B.S., M.S. (University of Arkansas), Ph.D. (University of South Carolina), Assistant Professor of Communication Disorders, 2007.
- Baldwin, Vernice G.** – B.S., M.S. (University of Arkansas), Director of Nursery School and Infant Development Center for the School of Human Environmental Sciences, 1996.
- Ballard, Karen K.** – B.A., M.S.W., Ed.D. (University of Arkansas), Adjunct Professor of Agricultural and Extension Education, 2009.
- Bamberger, Uta** – M.A. (University of California, Santa Barbara), Ph.D. (University of Massachusetts), Assistant Professor of World Languages, 1997.
- Banerjee, Nilanjan** – B.Tech. (Indian Institute of Technology), M.S., Ph.D. (University of Massachusetts), Assistant Professor of Computer Science and Computer Engineering, 2009.
- Barraza-Lopez, Salvador** – B.S. (Instituto Politecnico Nacional de Mexico), Ph.D. (University of Illinois), Assistant Professor of Physics, 2011.
- Barnes, Jeffery K.** – B.S. (University of Rochester), M.S., Ph.D. (Cornell University), Curator in Entomology, 2002.
- Barta, Kathleen M.** – B.S. (Marquette University), M.S. (Boston College), Ed.D. (University of Arkansas), Associate Professor of Nursing, 1984, 1998.
- Baum, Jamie** – B.S., Ph.D. (University of Illinois at Urbana-Champaign), Assistant Professor of Nutrition, 2011.
- Beard, Lonnie R.** – B.A. (Arkansas State University), J.D. (University of Arkansas), LL.M. (New York University), Professor of Law, 1983, 1991.
- Beasley, Jennifer** – B.A. (Kansas State University), M.Ed. (Wichita State University), Ed.D. (University of Virginia), Assistant Professor of Curriculum and Instruction, 2009, 2010.
- Beaupre, Steven J.** – B.S., M.S. (University of Wisconsin), Ph.D. (University of Pennsylvania), Professor of Biological Sciences, 1995, 2006.
- Beavers, Gordon** – B.S., M.S. (University of Texas), Ph.D. (Indiana University), Associate Professor of Computer Science and Computer Engineering, 2002.
- Beck, Dennis E.** – B.S. (Pennsylvania State University), M.A.L., M.Div. (Orlando Institute), Ph.D. (University of Florida), Clinical Assistant Professor of Educational Technology, 2010.
- Beck, Jules** – B.A., M.S., Ph.D. (University of Minnesota), Clinical Assistant Professor of Human Resource and Workforce Development, 2005.
- Beck, Paul** – B.S., M.S. (Oklahoma State), Ph.D. (University of Arkansas), Associate Professor of Animal Science, 2004, 2008.
- Behrend, Douglas A.** – B.A. (Kalamazoo College), Ph.D. (University of Minnesota), Professor of Psychology, 1989, 2009.
- Beike, Denise R.** – B.A., Ph.D. (Indiana University), Professor of Psychology, 1995, 2010.
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- Douglas, Michael E.** – B.S., M.S. (University of Louisville), Ph.D. (University of Georgia), Professor of Biological Sciences and 21st Century Chair in Global Change Biology, 2011.
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- Worden, Steven K.** – B.S., M.A. (Portland State University), Ph.D. (University of Texas, Austin), Associate Professor of Sociology and Criminal Justice, 1987, 1993.
- Worrell, Dan** – B.S., M.S., Ph.D. (Louisiana State University), Professor of Management and Sam M. Walton Leadership Chair, 2005.
- Worrell, Diane Featherston** – B.S., M.S.W., M.L.S. (Louisiana State University), Ph.D. (Texas Woman's University), Adjunct Assistant Professor and Adjunct Assistant Librarian, 2005.
- Worthen, Diana Gonzales** – B.S. (University of Houston), M.A.T. (University of Texas), Ph.D. (University of Arkansas), Adjunct Instructor of Curriculum and Instruction, 2007.
- Wu, Jingxian** – B.S. (Beijing University of Aeronautics and Astronautics), M.S. (Tsinghua University), Ph.D. (University of Missouri-Columbia), Assistant Professor of Electrical Engineering, 2008.
- Xiao, Min** – B.S. (Nanjing University), Ph.D. (University of Texas), Distinguished Professor of Physics, 1990, 2004.
- Xie, Kangzhen** – B.E. (Beijing University), M.A. (University of Alabama), Ph.D. (Washington University in St. Louis), Assistant Professor of Finance.
- Xie, Xiangyang** – B.S. (Lanzhou University China), M.S. (Northwest University China), Ph.D. (University of Wyoming), Assistant Professor of Geosciences, 2010.
- Yang, Song** – B.A. (Branch College of Nankai, China), M.A. (Nankai University, China), Ph.D. (University of Minnesota), Associate Professor of Sociology and Criminal Justice, 2002, 2008.
- Yanoviak, Stephen P.** – B.S. (Auburn University), M.S. (Purdue University), Ph.D. (University of Oklahoma), Adjunct Professor of Entomology, 2008.
- Yazwinski, Thomas Anthony** – B.S. (University of Vermont), M.S. (University of Maine), Ph.D. (North Carolina State University), University Professor of Animal Science, 1977, 2004; Adjunct Professor of Poultry Science, 2012.
- Ye, Kaiming** – B.S., M.S., Ph.D. (East China University of Science and Technology), Professor of Biomedical Engineering, 2003, 2012.
- Yeager, Milton P. Jr.** – B.S. (University of Southern Mississippi), M.S. (University of Arkansas), Visiting Assistant Professor of Operations Management, 1989.
- Yeager, Tim** – M.A., Ph.D. (Washington University), Associate Professor and Arkansas Bankers Association Chair in Banking, 2006.
- Young, Elizabeth** – B.A. (Hendrix College), J.D. (George Washington University), Associate Professor of Law, 2008, 2011.
- Young, Juana R.** – B.A. (Texas Tech University), M.L.S. (North Texas State University), Professor and Librarian, 1972, 1984.
- Yu, Shui-Qing (Fisher)** – B.S., M.S. (Peking University), Ph.D. (Arizona State University), Assistant Professor of Electrical Engineering, 2008.
- Zachry, Doy L. Jr.** – B.S., M.S. (University of Arkansas), Ph.D. (University of Texas, Austin), Professor of Geology, 1968, 1987.
- Zaharoff, David A.** – B.S. (University of Illinois at Urbana-Champaign), Ph.D. (Duke University), Assistant Professor of Biomedical Engineering, 2009.
- Zajicek, Anna M.** – B.S., M.S. (University of Silesia, Poland), Ph.D. (Virginia Polytechnic Institute and State University), Professor of Sociology and Criminal Justice, 1994, 2006.
- Zelenka, Daniel J.** – B.S.A. (University of Illinois), M.S., Ph.D. (Virginia Tech and State University), Adjunct Professor of Poultry Science, 1985.
- Zeng, Ka** – B.A. (Foreign Affairs College, Beijing), M.A. (Virginia Polytechnic Institute and State University), Ph.D. (University of Virginia), Professor of Political Science, 2000, 2011.
- Zhang, Shengfan** – B.M. (Fudan University, Shanghai), M.I.E., Ph.D. (North Carolina State University), Assistant Professor of Industrial Engineering, 2011.
- Zhang, Wen** – B.S.C.E. (Tongji University, Shanghai, China), M.S.C.E. (University of Kansas), Ph.D. (Purdue University, Indiana) Assistant Professor of Civil Engineering, 2011.
- Zheng, Nan** – B.S. (University of Science and Technology of China), M.S. (University of Rochester), Ph.D. (University of Michigan), Assistant Professor of Chemistry and Biochemistry, 2008.
- Zhengrong, Ryan Tian** – B.S. (Fudan University, Shanghai), Ph.D. (University of Connecticut), Associate Professor of Chemistry and Biochemistry, 2004, 2010.
- Ziegler, Joseph A.** – B.A. (St. Mary's College), Ph.D. (University of Notre Dame), Professor of Economics, 1973, 1980.
- Zies, Brenda** – B.S. (East Texas State University), M.A., Ph.D. (University of Arkansas), Visiting Assistant Professor of Psychology, 2005.
- Zilinsky, Anthony J.** – B.A. (University of Connecticut), M.B.A. (University of Hartford), Visiting Assistant Professor of Operations Management, 2002.
- Zou, Min** – B.S.A.E., M.S.A.E. (Northwestern Polytechnical University), M.S.M.E., Ph.D. (Georgia Institute of Technology), Associate Professor of Mechanical Engineering, 2003, 2008.
- Zou, Tim Jiping** – B.A. (Shandong University), M.S., Ph.D. (University of Illinois, Urbana-Champaign), Associate Professor and Associate Librarian, 2004.

# Glossary

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**Academic Warning.** A status resulting from unsatisfactory grades.

**Act 1052/467.** Section 21 of Arkansas Act 467 of 1989 specifies that all first-time entering freshmen who are enrolled in a bachelor's degree program will be placed in either college-level credit courses in English and mathematics or developmental courses in English composition, reading, and mathematics on the basis of their scores on specified tests. See the Registration portion of the Orientation and Registration chapter for more information.

**Advance Registration.** A period of time scheduled during a regular (fall or spring) semester that allows currently enrolled students to register for the next regular semester. In addition, advance registration for the summer sessions is scheduled during the spring semester.

**Audit.** To take a course without credit.

**Adviser.** A faculty or staff member assigned to a student to advise that student on academic matters that include degree requirements and selection of courses.

**Class Schedule.** List of courses and sections for a specific semester, including names of instructors; day, hour, and place of class meetings; and detailed registration procedures. The class schedule is available online.

**College or School.** One of ten major divisions within the University that offers specialized curricula.

**Concentration.** A subset of a major's requirements leading to a graduate or bachelor's degree.

**Consent.** A prerequisite that requires the student to obtain approval from the instructor or the department before he or she will be allowed to register for the course.

**Core.** See **University Core** below.

**Corequisite.** A course that must be taken at the same time as the course described.

**Course.** A unit of academic instruction.

**Course Deficiencies.** Lacking required units of study in high school. See the Placement and Proficiency portion of the Admission chapter.

**Course Load.** The number of semester credit hours a student may schedule in a given term.

**Cumulative Grade-Point Average.** An average computed by dividing the total number of grade points earned by the total number of credit hours attempted in all courses for which grades (rather than marks) are given.

**Curriculum.** A program of courses comprising the formal requirements for a degree in a particular field of study.

**Degree Program.** A complete course of study inclusive of all University, college, and departmental requirements.

**Department.** Division of faculty or instruction within a college, such

as Department of Accounting within the Sam M. Walton College of Business.

**Dependent Major.** See **Second Major** below.

**Drop/Add.** Official dropping or adding of courses for which students are registered during specified times as published in the schedule of classes. See also **Withdrawal** below.

**Eight-Semester Degree Completion Program.** Most majors offered by the University of Arkansas can be completed in eight semesters, and the university provides plans that show students which classes to take each semester in order to finish in eight semesters. A few majors either require a summer internship or fieldwork, and may therefore not qualify for the eight-semester degree completion program.

**Elective.** A course not required but one that a student chooses to take.

**Equivalent.** A course allowed in place of a similar course in the same academic discipline. May require approval by an academic dean.

**Fees.** Charges, additional to tuition, that cover specific University services, programs, facilities, activities and/or events. See the Fee and Cost Estimates chapter of this catalog for a full list of fees.

**Grade Points.** Points per semester hour assigned to a grade (not a mark), indicating numerical value of the grade. The grade-point average indicates overall performance and is computed by dividing the total number of grade points earned by the number of semester hours attempted.

**Grade Sanction(s).** A penalty for academic dishonesty. Grade sanctions may consist of either a grade of zero or a failing grade on part or all of a submitted assignment or examination or the lowering of a course grade, or a failing grade of XF to denote failure by academic dishonesty.

**Hazing.** Any activity that is required of an individual that may cause mental or physical stress and/or embarrassment when in the process of joining or belonging to any organization.

**Integrated Student Information System (ISIS).** The online database that maintains student, faculty and staff records and class schedules.

**Laboratory.** Descriptive of work other than class work, such as experimentation and practical application.

**Lecture.** A class session in which an instructor speaks on a specific topic.

**Major.** A main or primary discipline in which a student completes a designated number of courses and hours of credit.

**Minor.** A second discipline or area of study in which a student concentrates in addition to the student's major; each approved minor requires a minimum of 15 hours in a designated discipline.

**Noncredit Course.** A course for which no credit is given. (Some credit courses will not count toward degrees.)

**Overload.** A course load of more semester hours than a student is normally permitted to schedule in a given period.

**Prerequisite.** A course or requirement that must be completed before the term when the described course is taken.

**Registration.** Enrollment at the beginning or prior to the beginning of a semester, including selection of classes and payment of fees and tuition.

**Sanction(s).** The penalty for noncompliance to a policy. Usually a response that will redirect the individual or group's inappropriate behavior, encourage responsible judgment and ethical reasoning, protect the community's property and rights, and affirm the integrity of the institution's conduct standards.

**Section.** A division of a course for instruction. A course may be taught in one or more sections or classes or at different times, depending on enrollment in the course.

**Second Major.** A major that is not offered independently but which a student may pursue in addition to a primary major.

**Semester Credit Hour.** Unit of measure of college work. One semester credit hour is normally equivalent to one hour of class work or from two to six hours of laboratory work per week for a semester.

**State Minimum Core.** See **University Core** below.

**Student Number.** A number given to each student as a permanent identification number for use at the University.

**Summer Sessions.** Periods of time during the summer when course work is offered. (See the calendar or the summer class schedule for specific times and dates.)

**Suspension.** A status in which students are not permitted to register for courses for a specified time period.

**Syllabus.** An outline or summary of the main points of a course of study, lecture, or text.

**Transcript.** A copy of a student's academic record.

**Tuition.** The charge for University enrollment and registration, calculated per credit hour each semester. Tuition rates may vary depending on a student's resident status, undergraduate or graduate standing, and college affiliation. Tuition does not include cost of room and board. Additional charges will apply depending on student status. See the entry for **Fees** above.

**Undeclared Major.** Designation indicating students who have not selected a major.

**Undergraduate Study.** Work taken toward earning an associate or a baccalaureate degree.

**University Core.** The state of Arkansas specifies a number of core courses that students must successfully pass to obtain a degree. These are also sometimes referred to as the State Minimum Core. See the Requirements for Graduation and University Core portions of the Academic Regulations for more information.

**Withdrawal.** Official withdrawal from all courses during a semester at the University.

# Course Descriptions

<b>How to Read a Course Description</b> .....	307	ENTO (Entomology) .....	352	MUSY (Ethnomusicology) .....	389
AAST (African-American Studies) .....	308	ESRM (Educational Statistics and Research Methods)....	352	MUTH (Music Theory) .....	390
ACCT (Accounting).....	308	ETEC (Educational Technology) .....	353	NURS (Nursing) .....	390
ADDL (Adult Lifelong Learning).....	309	EUST (European Studies) .....	353	OMGT (Operations Management) .....	392
AERO (Air Force ROTC) .....	310	EXED (Extension Education) .....	353	PADM (Public Administration).....	392
AFLS (Agricultural, Food and Life Sciences).....	310	FDSC (Food Science) .....	353	PEAC (Physical Education/Activity) .....	393
AGEC (Agricultural Economics) .....	310	FINN (Finance) .....	354	PHED (Physical Education) .....	393
AGED (Agricultural Education) .....	311	FREN (French) .....	355	PHIL (Philosophy).....	394
AGME (Agricultural Mechanization) .....	312	GEOG (Geography) .....	355	PHYS (Physics).....	394
AGST (Agricultural Statistics) .....	313	GEOL (Geology) .....	356	PLPA (Plant Pathology).....	396
AIST (Asian Studies) .....	313	GEOS (Geosciences) .....	357	PLSC (Political Science).....	396
AMST (American Studies) .....	313	GERM (German) .....	357	POSC (Poultry Science).....	398
ANSC (Animal Science) .....	313	GERO (Gerontology) .....	358	PSYC (Psychology) .....	399
ANTH (Anthropology) .....	314	GNEG (General Engineering) .....	358	PTSC (Plant Science) .....	400
ARAB (Arabic) .....	316	GREK (Greek) .....	359	PUBP (Public Policy).....	400
ARCH (Architecture) .....	316	GRSD (Graduate Education Courses) .....	359	RESM (Recreation and Sport Management).....	400
ARED (Art Education) .....	317	HESC (Human Environmental Sciences) .....	359	RHAB (Rehabilitation Education) .....	401
ARHS (Art History) .....	317	HHPR (Health, Human Performance and Recreation)....	361	RSOC (Rural Sociology) .....	402
ARSC (Arts and Sciences) .....	318	HIED (Higher Education) .....	362	RUSS (Russian).....	402
ARTS (Art) .....	318	HIST (History) .....	362	SCWK (Social Work).....	402
ASTR (Astronomy).....	319	HNED (Honors, College of Education and Health Professions) .....	365	SOCI (Sociology).....	403
ATTR (Athletic Training).....	320	HORT (Horticulture) .....	365	SPAC (Space and Planetary Sciences) .....	404
BENG (Biological Engineering) .....	320	HRDV (Human Resources Development) .....	366	SPAN (Spanish).....	404
BIOL (Biology) .....	322	HRWD (Human Resource and Workforce Dev) .....	366	SPCM (Supply Chain Management).....	405
BLAW (Business Law) .....	325	HUMN (Humanities) .....	367	STAT (Statistics).....	405
BMEG (Biomedical Engineering).....	325	IDES (Interior Design).....	367	SUST (Sustainability).....	406
CATE (Career and Technical Education).....	326	INEG (Industrial Engineering) .....	368	SWAH (Swahili).....	406
CDIS (Communication Disorders).....	326	IREL (International Relations).....	370	TEED (Technology Education) .....	406
CEMB (Cell and Molecular Biology).....	327	ISYS (Information Systems).....	370	UACS (UA Clinton School).....	406
CHEG (Chemical Engineering) .....	327	ITAL (Italian) .....	371	VAED (Vocational and Adult Education).....	406
CHEM (Chemistry) .....	328	JAPN (Japanese) .....	371	WCOB (Walton College of Business) .....	406
CHIN (Chinese).....	330	JOUR (Journalism) .....	371	WDED (Workforce Development) .....	407
CHLP (Community Health Promotion).....	330	KINS (Kinesiology) .....	373	WLIT (World Literature) .....	408
CIED (Curriculum and Instruction) .....	331	LARC (Landscape Architecture) .....	373	WLLC (World Languages, Literatures and Cultures.....	408
CLST (Classical Studies) .....	335	LAST (Latin-American and Latino Studies) .....	375		
CMJS (Criminal Justice) .....	335	LATN (Latin) .....	375		
CNED (Counselor Education) .....	335	LAWW (Law) .....	375		
COMM (Communication) .....	336	MATH (Mathematics) .....	378		
CSCC (Computer Science and Computer Engineering) 338		MBAD (Masters of Business Administration) .....	380		
CSES (Crop, Soil and Environmental Sciences) .....	339	MEEG (Mechanical Engineering) .....	380		
CVEG (Civil Engineering) .....	340	MEPH (Microelectronics-Photonics).....	382		
DANC (Dance).....	341	MEST (Middle East Studies) .....	382		
DEAC (Dance Education/Activity).....	341	MGMT (Management) .....	383		
DRAM (Drama).....	341	MILS (Army ROTC).....	383		
EASL (English as Second Language) .....	344	MKTG (Marketing) .....	384		
ECON (Economics) .....	344	MLIT (Music Literature) .....	384		
EDFD (Educational Foundations) .....	345	MUAC (Music Applied Class) .....	384		
EDLE (Educational Leadership) .....	345	MUAP (Music Private Instruction) .....	385		
EDRE (Education Reform).....	346	MUED (Music Education) .....	385		
EDUC (Education) .....	346	MUEN (Music Ensemble) .....	386		
ELEG (Electrical Engineering) .....	346	MUHS (Music History) .....	389		
ENDY (Environmental Dynamics) .....	349	MUPD (Music Pedagogy) .....	389		
ENGL (English) .....	349	MUSC (Music) .....	389		
ENSC (Environmental Science) .....	351				

## How to Read a Course Description

Courses listed in this section describe all courses approved for offering by the University of Arkansas. The courses are listed alphabetically by code. The word “course” refers to a unit of academic instruction, while the word “class” refers to a course scheduled during a semester or summer session with a certain number of prescribed meetings each week. Successful completion of a class usually earns a specified number of semester hours of credit toward a degree.

The Schedule of Classes lists classes available in a specific semester, along with the instructor of record, time and place the class is being held.

**Course Description Explanations**

A course listing comprises the following elements, in order:

**Course Prefix:** This alpha descriptor is the first identifying part of a course. This four-letter code represents the course prefix name. Usually the course prefix will be the same as the department offering the course, but occasionally the prefix is one of many different courses offered in a single department. For example, ARAB refers to Arabic courses, which are offered through the Department of World Languages, Literatures and Cultures.

**Course Number:** Each course is designated by a four-digit number. The first digit identifies the level of the course: 1, freshman level; 2, sophomore level; 3 and 4, junior-senior level; 5, 6, and 7, graduate level. Any exceptions to this practice are stated in the course descriptions.

Students desiring admission to courses offered at levels beyond their standing should request the instructor's permission to enroll. (For definitions of academic status see Student Status on page 38.)

The second and third digits of the number identify the course within the department that offers it.

The fourth digit identifies the semester-hour value of the course. Credit for certain courses does not count toward some degrees (see Courses that Do Not Count Toward Degrees on page 27.)

Normally, courses meet once each week for 50 minutes for each hour of course credit. Laboratory, drill and other kinds of activity courses typically meet for two 50-minute periods per week for each hour of credit.

The letter 'V' is used in place of the last digit for those courses in which credit is variable. The minimum and maximum credit hours possible are given in parentheses after the course title.

The letter 'X' is used in place of the last digit for those courses in which fixed credit is ten or more hours.

The first three digits of the number are the same for corequisite courses (for example, a lecture and the corequisite lab or drill).

**Course Suffix:** A suffix to the course number further identifies the specific type of instruction:

C - Drill or Lab Component

L - Laboratory

H - Honors Course

M - Honors Laboratory

A course with no suffix is a typical lecture course (not an honors course).

**Course Title:** The title of the course is printed in bold letters.

**Course Semester Offering:** Course titles are followed by abbreviations (in parentheses) for the semester in which the course is normally offered. Cross-check with the Schedule of Classes to determine if a course is being offered. Courses marked

(Sp) will be offered in the spring, courses marked (Fa) will be offered in the fall, courses marked (Su) will be offered in the summer, and courses marked (Irregular) will be offered irregularly. Consult the Schedule of Classes to verify that a course is being offered for a given term.

**Course Description:** A brief description of the course content and its major emphasis are stated. If the course is cross-listed (also offered under another course number) a "Same As" statement will be included in the description. If the course is eligible to be repeated for degree credit more than once, a statement will appear to indicate the total hours or times a course may be repeated. If no repeated statement is listed, the course may be used for degree credit only once.

**Requisites:** Requisites are requirements that must be fulfilled either before a course may be taken or at the same time a course is taken. It is the student's responsibility to make sure the proper prerequisites have been completed before enrolling in any class. Prerequisites are courses or requirements that must be completed prior to enrolling in a certain course. Courses may have prerequisites from inside and outside the department. It is the student's responsibility to make sure he/she has completed the proper prerequisites before enrolling in any class. Courses listed as corequisite are to be taken in the same semester as the course desired.

A course listed as both a pre- and corequisites are requirements that if not taken prior to enrolling in a course, must be taken during the same semester as the course.

Students may not enroll in courses for which they do not have the necessary requisites. Students who are in doubt concerning their eligibility to enroll in specific courses should consult with their academic adviser. Students may be dropped from courses for which they do not have the necessary requisites.

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African and African American Studies (AAST)

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**AAST1003 Introduction to African American Studies (Fa)** This course is an interdisciplinary study of the tangible and intangible contributions made by the indigenous people of Africa and their descendants to the world order and society with an emphasis on their manifestations in the United States of America.

**AAST3233 African American History to 1877 (Fa)** The course will study the African beginnings, the Caribbean and Latin American influences, and the African American early struggle to survive slavery in the new world, and the continuing social, political, and economical quest to become a first class citizen in American society until Reconstruction, 1492-1877. (Same as HIST 3233)

**AAST3243 African American History Since 1877 (Sp)** The course will study the major social, political, and economical issues relating to the African American experience beginning with the late post-Reconstruction period and will include all of the major personalities and influences in the Civil Rights Movement, from 1877 to the present.

**AAST3253 The History of Sub-Saharan Africa (Fa)** Sub-Saharan African history from the 18th century to the present, with emphasis on the impact of the slave trade, colonization, Independence, and contemporary issues of the post-colonial period. Examination of the ways Africans experienced change

in terms of culture, society, economics, gender, religion, politics, and labor.

**AAST3263 African Americans in Film (Irregular)** A survey of the history of images of African Americans in film, especially as these images are examined in the context of stereotypical renditions and/or realistic representations of African American experiences. Issues of African American history, culture, and socio-political context will be addressed in the analyses of these films. Prerequisite: ENGL 1023 and advanced standing. (Same as COMM 3263, ENGL 3263, JOUR 3263)

**AAST3293 African American Politics (Irregular)** This is a survey course designed to provide students with a comprehensive overview of African American political participation in the United States. In addition to analyzing important events in African American Politics, the course attempts to explain evolving patterns of political participation in Black America. (Same as PLSC 3293, PLSC 4293)

**AAST4063 Women in Africa (Irregular)** Diversity of women's life experiences throughout sub-Saharan Africa will be examined. The class will investigate a range of topics, from marriage and motherhood to prostitution and popular culture. A historical dimension will be present throughout the course, and perspectives from literature and film will also be incorporated. (Same as ANTH 4063)

**AAST4093 The History of African Americans and Social Justice (Even years, Fa)** Explores how the United States has extended social justice to African Americans during the nation's history. Examines social justice for blacks and the impact of historic policies and practices on black life today.

**AAST4363 Independence and Africa Today (Sp)** Examines the last half-century of Africa's history, focusing on the last few decades. Introduction of Africa's colonial past, revolutions and struggles for independence. Review of African development in the post-colonial and contemporary era, successes and failures of independent Africa, and the challenges the continent faces today.

**AAST4383 The American Civil Rights Movement (Irregular)** Introduction to the history and development of the civil rights movement in the United States. (Same as HIST 4383)

**AAST4483 African American Biographies (Irregular)** Introduction to the history and intellectual development of famous and not-so-famous African Americans. (Same as HIST 4483)

**AAST4923 History of the Black Press (Even years, Sp)** Covers the historic context of contributions and innovations to U.S. newspapers by African Americans. Also investigates the role of the black press from its beginnings in 1827 through the civil rights movement. Prerequisite: Junior standing. (Same as JOUR 4923)

**AAST4933 African American Political Ideology (Odd years, Fa)** A survey course designed to identify and examine characteristics and functions of several variants of black political ideology/thought. (Same as PLSC 4933)

**AAST499V African American Studies Seminar (Sp, Fa) (1-6)** Explores the various aspects of the African American experience as it relates to the development of black and white relationships in American society and the world at large. (May be substituted for AAST 2003 with permission). Prerequisite: Second semester sophomore standing. (Same as DRAM 4463) May be repeated for up to 6 hours of degree credit.

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Accounting (ACCT)

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**ACCT2013 Accounting Principles (Sp, Fa)** Introduction of accounting as an information system with emphasis on processing and presenting information in the form of financial statements for use in decision making. The course emphasizes business processes and double entry accounting. Corequisite: WCOB 2043.

**ACCT310V Accounting Internship (Sp, Su, Fa) (1-3)** This class is designed to give students an internship opportunity to combine their formal academic preparation with an exposure to the accounting profession. Prerequisite: ACCT 3723. May be repeated for up to 3 hours of degree credit.

**ACCT3533 Accounting Technology (Sp, Fa)** This course provides an overview of accounting information systems and illustrates the importance of technology to accountants. Students are exposed to a variety of information technologies including manual, file-oriented, and database systems. The relative advantages and disadvantages of each type of system are highlighted and discussed. Prerequisite: ACCT 2013 or ACCT 3013 or ACCT 3723 with a grade of C or better.

**ACCT3613 Managerial Uses of Accounting Information (Sp, Fa)** Use of accounting information for managerial decisions in a changing, global environment. Identifying the specific information needs of managerial decisions, focusing on the role of both financial and non-financial accounting information

within the context of a continually changing information system technology. Covers business as well as non-profit and governmental organizations. This course includes spreadsheet analysis. Prerequisite: ACCT 2013 with a grade of "C" or better.

**ACCT3723 Intermediate Accounting I (Sp, Fa)** This course is designed to study the theoretical basis for financial accounting concepts and principles related to financial reporting. This course emphasizes researching technical accounting pronouncements for application to external financial reporting issues. Corequisite: WCOB 2043. Prerequisite: ACCT 2013 or ACCT 3013 with a grade of C or better.

**ACCT3753 Intermediate Accounting II (Sp)** This is the second financial accounting course designed to continue study of financial accounting concepts and principles. This course emphasizes research of technical accounting pronouncements for application to external financial reporting issues. Prerequisite: ACCT 3723 with a grade of "C" or better.

**ACCT3843 Fundamentals of Taxation (Sp, Fa)** Overview of basic income tax principles and tax planning techniques. Overview of the income tax treatment of business entities. Focus on the income tax treatment of individuals (with emphasis on the Federal Income Tax). Prerequisite: ACCT 2013 or ACCT 3013 or ACCT 3723, each with a grade of C or better.

**ACCT4003H Honors Accounting Colloquium (Fa)** Explores events, concepts and/or new developments in the field of accounting. Prerequisite: Senior standing.

**ACCT410V Special Topics in Accounting (Irregular) (1-3)** Explore current events, concepts and new developments relevant to Accounting not available in other courses. Prerequisite: ACCT 3723 with a grade of "C" or better. May be repeated for credit.

**ACCT4203 Taxation of Business Entities (Irregular)** Focus on the income tax treatment of corporations and pass-through business entities. Prerequisite: ACCT 3843 with a grade of C or better.

**ACCT4673 Product, Project and Service Costing (Fa)** Cost systems with emphasis on information generation for cost management of products, projects and services. The course includes spreadsheet and other computer program analysis. Prerequisite: ACCT 3613 and ACCT 3723 with grades of C or better.

**ACCT4963 Audit and Assurance Services (Sp)** Professional standards and procedures as applied to external and internal assurance engagements. Including coverage of the economic role of assurance providers, engagement planning, risk assessment, evidence gathering, and reporting. Prerequisite: ACCT 3723 with a grade of "C" or better.

**ACCT5223 Accounting for Supply Chain & Retail Organizations (Fa)** Highlights the role played by accounting information in managing supply chains and retail operations. Provides tools for managing cost flows, including activity-based costing, retail accounting, and operational budgeting. Focuses on improving decision making processes, and linking the impact of retail/supply chain decisions to financial statements and shareholder value.

**ACCT5413 Advanced Financial Accounting (Fa)** Integrated course which examines the financial reporting, tax, managerial, systems and auditing aspects of major corporate restructurings arising from events such as mergers, acquisitions, spinoffs, reorganizations and downsizing. Prerequisite: ACCT 3753 with a grade of "C" or better.

**ACCT5433 Fraud Prevention and Detection (Fa)** An examination of various aspects of fraud prevention and detection, including the sociology of fraud, elements of fraud, types of fraud involving accounting information, costs of fraud, use of controls to prevent fraud, and methods of fraud detection. Prerequisite: MBAD 512V with a grade of "C" or better.

**ACCT5443 Asset Management (Irregular)** Managing assets to achieve corporate strategy. Included are issues such as strategy formulation, acquisition processes, internal controls, system requirements, accounting measurements, inventory models, re-engineering, capital budgeting, tax issues, and discussion of current business events that have ethical implications. Prerequisite: MBAD 513V with a grade of "C" or better.

**ACCT5463 Financial Statement Analysis (Sp)** This course is designed to study financial statements and their related footnotes; tools and procedures common to financial statement analysis; the relationships among business transactions, environmental forces (political, economic, and social), and reported financial information; and how financial statement information can help solve certain business problems. Prerequisite: ACCT 3723 with a grade of "C" or better.

**ACCT549V Special Topics in Accounting (Irregular) (1-3)** Seminar in current topics not covered in other courses. Students may enroll in one or more units. May be repeated for up to 3 hours of degree credit.

**ACCT5873 Advanced Taxation (Fa)** In-depth coverage of the tax treatment of corporations including advanced tax issues. Introduction to tax research including the organization and authority of tax law; accessing and using the tax law; and, applying tax law to taxpayer scenarios. Prerequisite: ACCT 3843 or equivalent with a grade of "C" or better.

**ACCT5883 Individual Tax Planning (Sp)** In-depth coverage of the tax treatment of passthrough business entities including advanced tax issues. Overview of the income tax treatment of estates and trusts. Overview of the essentials of estate and gift taxation. Prerequisite: MBAD 512V or ACCT 3843 each with a grade of "C" or better.

**ACCT5953 Auditing Standards (Fa)** Professional aspects of financial statement auditing and registered auditors. Including ethics and legal responsibilities; internal control testing; critical evaluation of evidence; application of sampling; and reporting problems. Prerequisite: ACCT 4963 with a grade of "C" or better.

**ACCT6013 Graduate Colloquium (Irregular)** Presentation and critique of research papers and proposals. May be repeated for up to 9 hours of degree credit.

**ACCT6033 Accounting Research Seminar I (Irregular)** First course in the accounting research seminar sequence which explores and evaluates current accounting literature. Course content reflects recent developments in the literature and specific interests of participants. Examples of potential topics include research methods in accounting, managerial accounting, behavioral accounting,

**ACCT6133 Accounting Research Seminar II (Irregular)** Second course in the accounting research seminar sequence which explores and evaluates current accounting literature. Course content reflects recent developments in the literature and specific interests of participants. Examples of potential topics include research methods in accounting, financial accounting, managerial accounting, behavioral accounting, tax, audit, international accounting, and education. Prerequisite: ACCT 6033.

**ACCT6233 Accounting Research Seminar III (Irregular)** Third course in the accounting research seminar sequence which explores and evaluates current accounting literature. Course content reflects recent developments in the literature and specific interests of participants. Examples of potential topics include research methods in accounting, financial accounting, managerial accounting, behavioral accounting, tax, audit, international accounting, and education. Prerequisite: ACCT 6033.

**ACCT636V Special Problems in Accounting (Sp, Fa) (1-6)** Special research project under supervision of a graduate faculty member.

**ACCT6433 Accounting Research Seminar IV (Irregular)** Fourth course in the accounting research seminar sequence which explores and evaluates current accounting literature. Course content reflects recent developments in the literature and specific interests of participants. Examples of potential topics include research methods in accounting, financial accounting, managerial accounting, behavioral accounting, tax, audit, international accounting, and education. Prerequisite: ACCT 6033.

**ACCT6633 Accounting Research Seminar V (Irregular)** Fifth course in the accounting research seminar sequence which explores and evaluates current accounting literature. Course content reflects recent developments in the literature and specific interests of participants. Examples of potential topics include research methods in accounting, financial accounting, managerial accounting, behavioral accounting, tax, audit, international accounting, and education. Prerequisite: ACCT 6033.

**ACCT700V Doctoral Dissertation (Sp, Fa) (1-18)** Prerequisite: Candidacy.

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#### Adult and Lifelong Learning (ADLL)

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**ADLL5113 Perspectives in Adult Education (Sp, Fa)** Historical overview of the evolving field of adult education and lifelong learning in responsibilities of adult education providers and reviews the expansion of adult and lifelong learning opportunities associated with societal and demographic shifts.

**ADLL5123 Principles and Practices of Adult Learning (Su, Fa)** Overview of the adult learner including characteristics, motivation for participating in learning, and strategies for developing educational programs for diverse adult populations.

**ADLL5133 Curriculum Development in ABE and ASE (Fa)** Curriculum development in Adult Basic Education (ABE) and Adult Secondary Education (ASE) settings including the various educational functioning levels, measures to assess student levels, selection of teaching materials, and development of

curriculum utilizing instructional standards for ABE and ASE programs.

**ADLL5143 Instructional Strategies and Assessment in Adult Education (Sp)** Selection and utilization of materials and instructional methods for use in adult learning settings. Evaluative strategies to develop or select appropriate tools and techniques predicated upon the needs and goals of adult learners.

**ADLL5153 Organization and Administration of Adult and Lifelong Learning Programs (Sp)** Legal, ethical, staffing, and financial considerations for the development and implementation of programs for adult and lifelong learners in various programs including literacy centers, GED centers, community education, lifelong/leisure learning, and postsecondary education.

**ADLL5163 Managing Change in Adult and Lifelong Learning (Su, Fa)** Strategies for planning, organizing, and facilitating change in programs that serve adult learners from diverse populations, across varied developmental stages and geographic locations. Discussion of social change that has impacted adult education and analysis of change models relevant to individuals, groups and organizations.

**ADLL5173 Program Planning (Su)** Program development process for adult and lifelong learners. Overview of assessment, developing program objectives, identifying resources, and designing program plans.

**ADLL5183 Technology and Innovation in Adult Learning (Su)** Techniques for designing, developing, implementing, and assessing technology-mediated adult and lifelong learning programs. Discussion of issues relevant to the use of innovative strategies for delivering instruction via emerging technologies and their potential impact on content and learning outcomes.

**ADLL5193 Seminar in Adult and Lifelong Learning (Sp, Su)** Seminars focused on topics related to adult and lifelong learning.

**ADLL5213 Adult and Lifelong Learning Internship (Sp, Fa)** Internship in adult and lifelong learning settings

**ADLL5223 Adult and Lifelong Learning Applied Project (Sp, Su, Fa)** Development and Implementation of a project focused on adult and lifelong learning. Consent of advisor/instructor required.

**ADLL6113 Advanced Adult Learning Theory (Irregular)** Advanced study of theories and models of adult and lifelong learning with an emphasis on current trends, recent research, and issues affecting the field. Issues covered will include critical theory and advancements in neuroscience and cognition as they relate to adult learning and lifespan development.

**ADLL6113 Advanced Adult Learning Theory (Irregular)** Advanced study of theories and models of adult and lifelong learning with an emphasis on current trends, recent research, and issues affecting the field. Issues covered will include critical theory and advancements in neuroscience and cognition as they relate to adult learning and lifespan development.

**ADLL6123 Leadership and Ethics in Adult and Lifelong Learning (Irregular)** This doctoral course focuses on leadership principles and ethical considerations that are critical to developing and sustaining adult education programs that benefit individuals, organizations, and communities. Course content will include case study analysis and lectures from scholars/practitioners from the field.

**ADLL6133 Analysis of International Adult and Lifelong Programs (Irregular)** Survey of the historical and philosophical events which have shaped adult and lifelong learning worldwide. Discussion of issues affecting adult education and lifelong learning including globalization, educational access, and variance in national policies. □

**ADLL6143 Instructional Adaptation and Innovation in Adult and Lifelong Learning (Irregular)** An overview of teaching and learning methods, styles, and techniques which are applicable □when facilitating adult learners across diverse settings. Content to include teaching and learning □style assessment, accommodating learning styles, physical and learning disabilities, language □differences and cultural norms. □

**ADLL6153 Policy and Public Governance of Adult and Lifelong Learning Programs (Irregular)** Policy analysis and public governance issues in adult and lifelong learning with emphasis on □state and federal programs. Discussions of how to evaluate, design, and implement policy □focused on promoting adult and lifelong learning activities in a myriad of organizations. □Overview of trends and current issues related to policy and public governance of adult and □lifelong learning. □

**ADLL6163 Adult Development and Psychology (Irregular)** Focus on adult developmental psychology with emphasis on lifespan development and specific □issues related to learning in the various stages of adulthood. Work-life balance, meaning of □work, generational issues.

**ADLL6173 Current Issues (Irregular)** Exploration and discussion of current issues relative to adult education and lifelong learning. Focus on the review and application of current research as it relates to practice. May be repeated for up to 6 hours of degree credit.

**ADLL6313 Independent Study (Irregular)** Independent study of topics in adult and lifelong learning.

**ADLL6413 Quantitative Reasoning in Adult and Lifelong Learning (Irregular)** Methodologies for designing descriptive, correlational, and experimental studies. Development of research questions, definition of variables, selection or development of instruments, data collection, analysis, interpretation and reporting of research results. Prerequisite: ESRM 6403 or equivalent.

**ADLL6423 Qualitative Reasoning in Adult and Lifelong Learning (Irregular)** Methodologies for designing qualitative research studies in adult and lifelong learning settings. Selection of the appropriate qualitative tradition, selection of research subjects, development of data collection protocols, field work strategies, data analysis, data interpretation and presentation of data results.

**ADLL6433 Program Evaluation (Irregular)** Overview of evaluation strategies in adult and lifelong learning programs that include: development of evaluation questions, selection or development of instrumentation, data collection methods, data analysis, and reporting of evaluation results. Emphasis on practical and ethical issues associated with evaluation processes. Prerequisite: ESRM 6403 or equivalent.

**ADLL6443 Adult and Lifelong Learning Dissertation Seminar** Development of dissertation proposal. Formation of research question, selection of methodologies, development of problem statement, research questions, and identification of research variables, constructs of phenomena. Identification of data collection and data analysis procedures. Prerequisite: ESRM 6403, ADLL 6413, and ADLL 6323.

**ADLL700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Air Force ROTC (AERO)

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**AERO1011 The Foundations of the United States Air Force I (Fa)** A survey course designed to introduce cadets to the United States Air Force and Air Force Reserve Officer Training Corps. Topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, and an introduction to communication skills. Leadership LAB mandatory for cadets. Corequisite: Lab component.

**AERO1021 The Foundations of the United States Air Force II (Sp)** A survey course designed to introduce cadets to the United States Air Force and Air Force Reserve Officer Training Corps. Topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, and an introduction to communication skills. Leadership LAB mandatory for cadets. Corequisite: Lab component.

**AERO2011 The Evolution of Air and Space Power I (Fa)** A historical survey of air and space power, from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples illustrate the development of Air Force capabilities and missions. Additional topics: Principles of War and Tenets of Air and Space Power. Leadership LAB mandatory for cadets. Corequisite: Lab component.

**AERO2021 The Evolution of Air Power II (Sp)** A historical survey of air and space power, from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples illustrate the development of Air Force capabilities and missions. Additional topics: Principles of War and Tenets of Air and Space Power. Leadership LAB mandatory for cadets. Corequisite: Lab component.

**AERO3013 Air Force Leadership Studies I (Fa)** A study of leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and the communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations. Corequisite: Lab component.

**AERO3023 Air Force Leadership Studies II (Sp)** A study of leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and the communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations. Corequisite: Lab component.

**AERO4013 National Security Affairs and Preparation for**

**Active Duty I (Fa)** Examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Communication skills are honed within this structure. Corequisite: Lab component.

**AERO4023 National Security Affairs and Preparation for Active Duty II (Sp)** Examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Communication skills are honed within this structure. Corequisite: Lab component.

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Agri, Food & Life Sciences (AFLS)

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**AFLS1011 Freshman Orientation (Fa)** An orientation to academic expectations, policies and procedures, resources, and career exploration in agricultural, food and life sciences. Lecture two days a week during the first eight weeks of the semester.

**AFLS1011H Honors Freshman Orientation (Fa)** The course will serve as an introduction to the basic information and requirements of the AFLS Honors Program. The course is available to all students, but is required for students in the honors program. Topics covered will include: purpose and organization of the honors program, course requirements, research and creative activity opportunities, and written and oral communication exercises. Recitation 3 hours per week for the first 5 weeks of the semester.

**AFLS2003 Introduction to Global Agricultural, Food and Life Sciences (Fa)** A cross-disciplinary approach focusing on global environmental resources, animal and crop production, food safety and nutrition, agricultural marketing and merchandising, trade, agricultural policies and culture. Topics also will include transportation, law and information systems in various geographic regions. Lecture 3 hours per week.

**AFLS300V Study Abroad (Sp, Su, Fa) (1-24)** Open to undergraduate students studying abroad in officially sanctioned programs. Study abroad may include summer internships, special topics, coursework abroad and/or directed individual or group study abroad trips of one-to-four weeks duration. May be repeated for up to 24 hours of degree credit.

**AFLS3131H Honors Management and Leadership (Fa)** Leadership styles and principles and organizational systems as they relate to professional situations. Recitation 3 hours per week for the first 5 weeks of the semester. Prerequisite: junior standing.

**AFLS3211H Honors Professional Development (Irregular)** Professional networking, communication skills, and group dynamics as they relate to research, teaching, and extension. Recitation 3 hours per week for 5 weeks.

**AFLS3231H Honors Intro to Scientific Thinking & Methods - Logic, Reasoning, & Sci. Argumentation (Fa)** A course to introduce students to general patterns of scientific thinking, and methods of scientific evaluation and conclusion building through discussions, readings, and exercises in logic, reasoning, and argumentation. Recitation 3 hours per week for the second 5 weeks of the semester.

**AFLS3313H Honors Global Issues in AFLS (Irregular)** The course offers students the opportunity to increase their understanding of global issues related to AFLS. The course is open to all students, but first priority will be given to AFLS Honors Students. A mandatory study tour will be scheduled during Spring Break. Recitation 3 hours per week. Prerequisite: Instructor permission. May be repeated for credit.

**AFLS3412H Honors Proposal Development (Sp)** This course offers a synthesis level learning opportunity. Course will include creative process, ethics, proposal writing, literature review, experimental design, scientific theory and methods, data collection, statistics, budget, and summary. Students will draw on their background and presentations to create written proposals. Three hours per week for 10 weeks. Prerequisite: Junior or senior standing.

**AFLS3512H Honors Rotations in Agricultural Laboratory Research (Sp)** A laboratory course to introduce students to current laboratory research techniques used in agricultural and life sciences. Hands-on laboratory exercises will emphasize current cellular and molecular research techniques, laboratory notebook keeping, data interpretation, and presentation of results. 4 hours per week. Prerequisite: BIOL 1543 or equivalent.

**AFLS400VH Honors Thesis (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**AFLS401VH Honors Special Topics (Irregular) (1-3)** Studies

of selected topics not covered in other courses. Must be in the Honors program to register for this course. May be repeated for up to 4 hours of degree credit.

**AFLS4021 Internship for Ambassadors (Irregular)** Practical experience gained through group dynamics, communication, planning and implementing college wide activities. Must be selected as a college Ambassador before enrolling. May be repeated for up to 6 hours of degree credit.

**AFLS4431H Honors Exploring Ethics (Fa)** Exploring issues relevant to human deeds in plants, animals, and environment. Issues to be addressed include the sanctity of life issues, their role of mass media in the modern world and the responsibility of individuals as professionals. Recitation 3 hours per week for the second 5 weeks of the semester.

**AFLS5001 Seminar (Fa)** Review of scientific literature and oral reports on current research in the agricultural, food and life sciences. May be repeated for up to 4 hours of degree credit.

**AFLS500V Study Abroad (Irregular) (1-6)** Open to graduate students studying abroad in officially sanctioned programs. May include coursework, internships, special topics, and/or directed individual or group study abroad. May be repeated for up to 24 hours of degree credit.

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Agricultural Economics (AGEC)

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**AGEC1103 Principles of Agricultural Microeconomics (Sp, Fa)** Introduction to agricultural economics, including a survey of the role and characteristics of agriculture businesses in our economic system. Basic economic concepts concerning price determination, profit maximization, and resource use are emphasized. The use of economic principles as applied to the production and marketing decisions made by managers of agricultural firms is demonstrated. Credit will be allowed for only one of AGECE 1103 or ECON 2023 or ECON 2023H. Pre- or Corequisite: MATH 1203. (Same as ECON 2023)

**AGEC2103 Principles of Agriculture Macroeconomics (Sp, Fa)** Applications of economics principles to problems of agricultural production, distribution, and income; including a study of the interrelationship between agriculture and other segments of the economy; and the dynamic forces in the economy which affect agriculture. Credit will be allowed for only one of AGECE 2103 or ECON 2013 or ECON 2013H. Pre- or Corequisite: MATH 1203. (Same as ECON 2013)

**AGEC2141L Agribusiness Financial Records Lab (Fa)** A computer lab section for the AGECE 2142 Agribusiness Financial Records class is required to teach students accounting software and spreadsheet applications related to financial record keeping. Corequisite: AGECE 2142. Prerequisite: AGME 2903 or WCOB 1120 and AGECE 1103 or ECON 2023 or ECON 2143.

**AGEC2142 Agribusiness Financial Records (Fa)** Principles of small agricultural business management accounting practices are taught to allow students to gain hands-on experience with financial record keeping for a business. Resulting financial statements are analyzed to determine opportunities for enhancing financial efficiency. Corequisite: AGECE 2141 Lab. Prerequisite: AGME 2903 or WCOB 1120 and AGECE 1103 or ECON 2023 or ECON 2143

**AGEC2303 Introduction to Agribusiness (Su)** Introduction to agribusiness issues as they relate to the food processing, wholesale and retail sectors of the agricultural industry. Coverage of methods and tools agribusiness managers use to evaluate business opportunities. Case studies serve to communicate concepts of product distribution, design, promotion and pricing in the development of a marketing plan. Prerequisite: AGECE 1103 or ECON 2023.

**AGEC2403 Quantitative Tools for Agribusiness (Sp)** Introduction to quantitative methods used in agricultural economics and agribusiness with an emphasis on skills and techniques that will enhance the ability of students to perform in upper division coursework. Provides an overview of statistical and optimization methods used in research problems, economic theory, and applied decision making activities. Prerequisite: AGECE 1103 or ECON 2143, and MATH 2053.

**AGEC3303 Food and Agricultural Marketing (Fa)** Surveys consumer trends in food markets and the marketing activities of the food and fiber system. Emphasizes marketing concepts for both commodities and differentiated food products. Topics include applied consumer and price theory; marketing management; structure and performance of the food system; and current agricultural marketing topics. Prerequisite: AGECE 1103 or ECON 2023 or ECON 2143.

**AGEC3313 Agribusiness Sales (Sp)** Principles of professional sales and sales management techniques used in food and agricultural firms; develop a professional sales presentation; study current agribusiness industry professional sales persons



and sales practices and techniques. Prerequisite: AGECE 1103 or AGECE 2103 or ECON 2013 or ECON 2023 or ECON 2143 or equivalent, junior standing, and consent of instructor.

**AGECE3373 Futures and Options Markets (Sp)** Theory and mechanics of commodity futures and options markets including trading, margin, fees, etc. Price relationships between cash, futures and options. Fundamental and technical price analysis. Price risk management strategies for producers and users of agricultural commodity marketing plan. Speculative and hedging simulation exercises. Prerequisite: AGECE 1103 or ECON 2023.

**AGECE3403 Farm Business Management (Fa)** Application of economic principles for the profitable organization and operation of the farm business. Focuses upon agricultural production management decision-making tools: budgeting techniques (enterprise, partial, cash flow), balance sheet, income statement, cash flow, investment analysis and risk management. Recommended: AGECE 1103 (or ECON 2023), AGECE 2143, and AGME 2903

**AGECE3413 Principles of Environmental Economics (Sp)** An introductory, issues-oriented course in the economics of the environment. The course will focus on what is involved in how society makes decisions about environmental quality. The environmental issues important to the State of Arkansas and the United States will be emphasized. Prerequisite: AGECE 1103 or ECON 2023. (Same as ENSC 3413)

**AGECE3503 Agricultural Law I (Sp)** Examination of those areas of law especially applicable to agriculture. Fundamentals of contract law, torts law, and property law will accompany discussion of major areas of agricultural law; acquisition and disposal of farmland; farm tenancies; rights and limitations in the use and ownership of farmland; water law; environmental protection; protection of the productivity of agricultural land; and the law of sales and secured transactions in an agricultural context.

**AGECE3523 Environmental and Natural Resources Law (Even years, Sp)** Principles of environmental and natural resources law relevant to agriculture, food and the environmental sciences; legal principles relating to regulation of water, air, hazardous substances, land, wildlife, livestock, and water rights. Principles of civil and criminal liabilities and other developing legal and regulatory issues relating to agriculture and natural resources.

**AGECE400V Special Problems (Sp, Su, Fa) (1-6)** Special studies and readings conducted under the direct supervision of staff members to satisfy the requirements of individual students. May be repeated for up to 6 hours of degree credit.

**AGECE401V Internship in Agribusiness (Sp, Su, Fa) (1-6)** A supervised practical work experience in an agribusiness firm or a governmental or industrial organization having direct impact on agriculture in order to gain professional competence and insight to employment opportunities. Prerequisite: junior standing. May be repeated for up to 8 hours of degree credit.

**AGECE402V Special Topics (Irregular) (1-3)** Studies of selected topics in agricultural economics not available in other courses. May be repeated for credit.

**AGECE4113 Agricultural Prices and Forecasting (Sp)** Price theory and techniques for predicting price behavior of general economy and price behavior of individual agricultural products will be analyzed. Provides practice in the application of economics and statistics to agricultural price analysis. Lecture 2 hours, laboratory 2 hours per week. Prerequisite: AGECE 1103 (or ECON 2023), AGECE 2403, (introductory statistics AGST 4023 or STAT 2303 or WCOB 1033) and MATH 2053.

**AGECE4143 Agricultural Finance (Fa)** Methods and procedures whereby agricultural firms acquire and utilize funds required for their successful operation. Emphasis is placed upon role of finance and financial planning and consideration is given to an understanding of financial firms serving agriculture. Prerequisite(s): (AGECE 1103 or ECON 2023) and (AGECE 2103 or ECON 2013) and (AGECE 2142 or WCOB 1023).

**AGECE4163 Agricultural and Rural Development (Sp)** Examination of agricultural and rural development issues in less developed countries. Alternative agricultural production systems are compared, development theories examined, and consideration given to the planning and implementation of development programs. Prerequisite: AGECE 1103 (or ECON 2023).

**AGECE4303 Advanced Agricultural Marketing Management (Irregular)** Marketing concepts will be developed and applied to the global food and fiber system. The course will use both commodity and product marketing principles and economic theory to analyze varied marketing situations. Case studies will be used to demonstrate the role that demand analysis and consumer behavior play in market management. Prerequisite: AGECE 2303 and AGECE 3303.

**AGECE4313 Agricultural Business Management (Fa)** The planning, organizing, leading and controlling functions of management as they relate to agricultural business firms. Marketing of value-added products, budgeting, organizational structure, cost control, financial statements, capital budgeting and employee supervision and motivation. Case studies are used to teach communication and decision-making skills. Prerequisite: (AGECE 2142/AGECE 2141L or AGECE 2143) or equivalent, AGECE 2303 or equivalent, and senior standing is recommended.

**AGECE4323 AgriBusiness Entrepreneurship (Sp)** Agribusiness entrepreneurship is the process of bringing food or rural-based products and services from conceptualization to market. The course presents the opportunities, problems and constraints facing individuals and firms operating in rural or isolated markets while emphasizing the steps in conceptualization, development, marketing, and delivery-selling of agribusiness rural products. Prerequisite: AGECE 1103 or equivalent.

**AGECE4373 Basis Trading: Applied Price Risk Management (Su)** Use of futures markets as risk shifting institutions. Students design and implement hedging and cross hedging strategies for grain farmers, country elevators, soybean crushers, poultry firms, etc. Spreadsheets and statistical techniques are used to develop optimal hedging ratios. Prerequisite: AGECE 3373 or consent of instructor.

**AGECE4613 Domestic and International Agricultural Policy (Fa)** Agricultural and food policies studied from domestic and international perspectives. Examines public policy in terms of rationale, content, and consequences. Economic framework used to assess policies to improve competitive structure, operation, and performance of U.S. and international food and agriculture. Farm, international trade, resource, technology, food marketing, and consumer policies analyzed. Prerequisite: (AGECE 1103 or ECON 2023) and (AGECE 2103 or ECON 2013) and (PSYC 2003 or SOCI 2013 or RSOC 2603).

**AGECE500V Special Problems (Sp, Su, Fa) (1-3)** Individual reading and investigation of a special problem in agricultural economics not available under regular courses, under the supervision of the graduate faculty. Prerequisite: Graduate standing.

**AGECE5011 Seminar (Sp, Fa)** Presentation and discussion of graduate student research. Formal presentations are made by all graduate students. Consideration given to research design, procedures, and presentation of results. Prerequisite: Graduate standing.

**AGECE502V Special Topics (Irregular) (1-3)** Advanced studies of selected topics in agricultural economics not available in other courses. Prerequisite: Graduate standing. May be repeated for credit.

**AGECE503V Internship in Agricultural Economics (Sp, Su, Fa) (1-3)** On-the-job application of skills developed in the M.S. program.

**AGECE5133 Agricultural and Environmental Resource Economics (Even years, Sp)** An economic approach to problems of evaluating private and social benefits and costs of altering the environment. Emphasis given to the interaction of individuals, institutions, and technology in problems of establishing and maintaining an acceptable level of environmental quality. Prerequisite: Minimum of 3 hours Agricultural Economics or Economics at 3000 level or higher or PhD standing.

**AGECE5143 Financial Management in Agriculture (Fa)** Covers advanced topics in agricultural finance. The general focus of the course is the financial management of non-corporate firms. Covers the basic tools of financial analysis including financial arithmetic, asset evaluation under risk, and financial analysis and planning using econometric models. Such topics covered include management of current assets, capital budgeting, capital structure, and institutions involved in agricultural finance. Prerequisite: Graduate standing.

**AGECE5153 The Economics of Public Policy (Sp)** This class will examine the impact of public policy on agricultural and other business sectors as well as households and individuals, particular in rural areas. Emphasis will also be placed on analyzing the potential impact of future policy changes. The course will focus on the application of welfare criteria and economic analyses to the problems and policies affecting resource adjustments in agriculture and rural communities. Prerequisite: Graduate standing.

**AGECE5303 Agricultural Marketing Theory (Fa)** Survey of the structure of agricultural product and factor markets including a critique of theoretical analyses of industry structure, conduct and performance; and a review of market structure research in agricultural industries. Prerequisite: Graduate standing.

**AGECE5403 Quantitative Methods for Agribusiness (Fa)** Application of quantitative techniques used to support managerial decision-making and resource allocation in agricultural

firms. Provides exposure to mathematical and statistical tools (regression analysis, mathematical programming, simulation) used in economic analysis in agriculture. Emphasis is placed on computer applications with conceptual linkage to economic theory. Prerequisite: Graduate standing.

**AGECE5413 Agribusiness Strategy (Sp)** Addresses problems of strategy formulation in agribusiness emphasizing current problems and cases in agriculture. Surveys modern and classic perspectives on strategy with applications to agribusiness. Examines the development of firm level strategies within the structure and competitive environment of agricultural firms and industries. Prerequisite: Graduate standing.

**AGECE5613 Econometrics I (Fa)** Use of economic theory and statistical methods to estimate economic models. The single equation model is examined emphasizing multicollinearity, autocorrelation, heteroskedasticity, binary variables and distributed lags and model specification. Prerequisite: MATH 2043 and knowledge of matrix methods, (which may be acquired as a corequisite), and (AGECE 1103 or ECON 2023) and (AGECE 2403 or AGST 4023 or STAT 2303 or WCOB 1033). (Same as ECON 5613)

**AGECE5713 Food Safety Law (Irregular)** This course provides students with an introduction to food law and policy, history of food regulation, the organization of federal food law and regulatory agencies, government inspection and enforcement powers, food safety standards, food labeling, food advertising and product liability. Web-based course.

**AGECE5723 Bioenergy and Resource Economics (Even years, Fa)** This course surveys the allocation and conservation of natural resources from a perspective of optimal use and the sustainability of resources. The development and distribution issues relating to energy, land, water, and other resource areas are addressed in the course, with emphasis placed on the bioproducts and bioenergy concerns.

**AGECE5733 Bioenergy Economics and Sustainability (Fa)** This course will provide an understanding of the economic issues relating to overall supply chains producing bioenergy and bio-based products. The course will address the economic, sustainability and social dimensions of these industries.

**AGECE600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**AGECE700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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#### Agricultural Education (AGED)

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**AGED1001 Orientation to Agricultural and Extension Education (Fa)** Continuation of AFLS 1011, Freshman Orientation, with attention given to sharing of possible solutions to individual problems. Exploration of anticipated collegiate experiences for departmental majors as well as post-graduation opportunities. Student and faculty interaction is stressed. The class meets during the last half of the fall semester twice a week. The class also meets 1 or 2 evenings for up to two hours each time.

**AGED1031 Introduction to Early Field Experience (Fa)** A thirty hour field experience designed to give prospective agricultural education teachers an opportunity to observe and participate in a variety of school settings. Corequisite: CIED 1002.

**AGED1123 Foundations of Agricultural Education (Fa)** A preparatory course evaluating the historical foundations of agricultural education with an introduction to the psychological, sociological and philosophical foundations of education. This course will encourage reflective practice through understanding of educational trends, classroom environment creation and utilization, and effective program planning. Corequisite: AGED 1031.

**AGED2143 Introduction to Agricultural Communications (Odd years, Sp)** A survey of agricultural communications for students in the ACOM concentration and minor and anyone seeking a basic understanding of the discipline. The course provides an overview of the history, philosophy, and theories of the discipline and introduces students to career options, skills and practical competencies required of agricultural communicators.

**AGED3133 Methods in Agricultural Education (Fa)** Methods and techniques in teaching agriculture at the secondary level. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Pre- or Corequisite: CIED 1002. Prerequisite: AGED 1031 or CIED 1011.

**AGED3141L Ag Communications Lab (Sp, Su, Fa)** Corequisite: AGED 3142.

**AGED3142 Agri Communications (Sp, Su, Fa)** An overview of communications in the agricultural, food and life sciences, including newsletter design, slide presentations, newswriting,

electronic communication and web publishing. Corequisite: AGED 3141L.

**AGED3153 Leadership Development in Agriculture (Sp)** Identification of styles and roles of leadership; development of leadership techniques and skills required in working with organizations; dynamics of group action; methods of resolving conflict; ethical considerations for leaders; and personal skills development. Prerequisite: Junior standing.

**AGED3243 Ag Reporting and Feature Writing (Odd years, Fa)** This course will provide students an exposure to writing, interviewing, and editing news on agricultural issues in agricultural industry publications. Students will gain practical experience with journalistic interviewing, news writing, feature writing, digital photography, and writing for broadcast on agricultural issues. This course is designed for students with at least six hours of upper division courses. Pre- or Corequisite: JOUR 1033 and lab component.

**AGED3943 Professional Development in Agricultural Communications (Even years, Fa)** Overview of professional and technical skills needed to succeed in internships and jobs in the field of agricultural communications.

**AGED4003 Issues in Agriculture (Fa)** Lecture and discussion on local, regional, national and international issues related to agricultural policy, ethics, environment, society, and science. Designed for students with at least six hours of upper division agricultural science courses. Prerequisite: Junior standing.

**AGED400V Special Problems in Agricultural and Extension Education (Sp, Su, Fa) (1-6)** Individual study or research for advanced undergraduates in the field of agricultural and extension education.

**AGED401V Special Topics (Irregular) (1-3)** Studies of selected topics in agricultural or extension education not covered in other courses. (Same as AGED 4233) May be repeated for up to 4 hours of degree credit.

**AGED4143 Electronic Communications in Agriculture (Even years, Sp)** An overview of communication technology in the agricultural, food and life sciences.

**AGED4233 Program Development (Sp)** Principles and concepts of leadership, program organization, supervised agricultural experience, and advisory committees. This course is a portion of pre-professional studies required for certification in agricultural education. Prerequisite: AGED 3133. (Same as AGED 401V)

**AGED4243 Graphic Design in AFSL (Sp, Su)** This course provides students with graphic design and software skills specific to industries in Agriculture, Food, and Life Sciences. Students will learn to use industry-standard software (InDesign, Photoshop, Illustrator, Microsoft Excel, etc.) to prepare text and graphics and package them for use in print production. Prerequisite: AGME 2903

**AGED4343 Communication Campaigns in Agriculture (Even years, Fa)** Students will develop understanding of the principles, practices and applications of social marketing, integrated marketing communications, advertising and public relations as they pertain to developing communication campaign strategies for the agricultural industry. Students will develop a communication campaign for an agricultural company and/or entity focused on a specific product or service. Prerequisite: Senior or Graduate status.

**AGED4443 Principles of Technological Change (Odd years, Fa)** This course introduces a structured approach for dealing with the organizational and human aspects of technology transition, including the key concepts of resistance and change management, organizational change, communications, and processes by which professional change agents influence the introduction, adoption, and diffusion of technological change. This course may be offered as a web-based course. Prerequisite: Junior status.

**AGED4543 Ag Publications (Even years, Sp)** Students produce a magazine through classroom study mirroring a professional magazine staff and are provided an opportunity for their writing, advertisements, photographs and artwork to be published in the magazine. By using computer applications, students integrate various skills including writing, editing and layout in agricultural publications. Prerequisite: JOUR 1033.

**AGED4632 Teaching Diverse Populations in Agricultural and Extension Education (Sp)** This course is designed to provide pre-service teachers of agriculture with an understanding of teaching diverse populations as applied to problems of practice in agricultural and extension education.

**AGED475V Internship in Agri Educ (Sp, Su, Fa) (1-6)** Scheduled practical field experiences under the supervision of a professional practitioner in off-campus secondary school systems. Emphasis includes classroom preparation, teaching, and student evaluation. Prerequisite: Admission into Clinical

Practice. May be repeated for up to 6 hours of degree credit.

**AGED4843 Methods in Agricultural Laboratories (Sp)** Methods and management techniques in all types of agricultural laboratories that may be in a secondary agricultural science program. Emphasis on management of students and facilities, equipment, and materials. Lecture 2 hours, laboratory 4 hours per week. Prerequisite: AGME 2123.

**AGED5001 Seminar (Sp)** Presentations and discussion of graduate student research as well as review of current literature and topics of current interest by students and faculty. All graduate students will make at least one formal presentation.

**AGED5013 Advanced Methods in Agricultural Mechanics (Odd years, Su)** Emphasis on shop organization and management, courses of study, unit shop instruction, and development of skills in agricultural mechanics.

**AGED5033 Developing Leadership in Agricultural Organizations (Fa)** Organizational concepts of leadership; administrative styles and structures; leadership for boards, committees, governmental bodies, and review of societal and political processes. Prerequisite: Graduate standing.

**AGED5053 Philosophy of Agricultural and Extension Education (Even years, Sp)** An examination and analysis of social and economic events leading to the establishment and maintenance of federal, state, county, and local agricultural education programs. Lecture 3 hours per week. Prerequisite: Graduate standing.

**AGED510V Special Problems (Sp, Su, Fa) (1-6)** Individual investigation of a special problem in agricultural education which is not available through regular courses. These will be directed by a member of the graduate faculty. Prerequisite: Graduate standing.

**AGED520V Special Topics in Agricultural and Extension Education (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of specific topics in agriculture education. Prerequisite: Graduate standing. May be repeated for credit.

**AGED5363 Educational Delivery Techniques (Irregular)** Students will learn to apply teaching and learning theory in the development of engaging instruction delivered through electronic media. The goal of the course is not to make experts in "programming" or "theory", but rather to prepare students with the knowledge/practical skills necessary to deliver curriculum through various methods. Prerequisite: Graduate standing.

**AGED5463 Research Methodology in the Social Sciences (Sp)** Logical structure and the method of science. Basic elements of research design; observation, measurement, analytic method, interpretation, verification, presentation of results. Applications to research in economic or sociological problems of agriculture and human environmental sciences. Prerequisite: Graduate standing. (Same as HESC 5463)

**AGED5473 Interpreting Social Data in Agriculture (Fa)** The development of competencies in analyzing, interpreting and reporting the results of analyses of social science data in agriculturally related professions. Students will select appropriate analysis techniques and procedures for various problems, analyze data, and interpret and report the results of statistical analyses in narrative and tabular form. Prerequisite: AGST 4023 (or EDFD 5393) and AGED 5463 (or RSOC 5463 or HESC 5463).

**AGED5483 Technical Communication in the Social Sciences (Odd years, Sp)** This course will provide students with the basic principles and techniques in communicating social science information relevant to human subject research in agriculture, natural resources, and life sciences to the general public. Communication processes covered in the course include audience identification, writing, editing, and production of social science-based materials for popular and refereed publications. Focus will also be placed on thesis preparation and writing and research manuscript development and dissemination of social science research. Web delivered course. Prerequisite: Graduate standing.

**AGED550V College Teaching in Agriculture and Related Disciplines (Irregular) (1-3)** For students who are pursuing graduate degrees where emphasis is on preparation for a research career, but who also may desire or expect to teach. Provides theory and practice in planning and executing a college-level course.

**AGED575V Internship in Agricultural Education (Sp, Su, Fa) (1-6)** Scheduled practical field experiences under supervision of a professional practitioner in off-campus secondary school systems. Emphasis includes classroom preparation, teaching, and student evaluation.

**AGED600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

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 Agricultural Mechanization (AGME)
 

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**AGME1611L Fundamentals of Agricultural Systems Technology Laboratory (Fa)** Study of basic mathematical and physical science concepts important in the mechanization of agriculture. Laboratory required for agricultural education, communication and technology majors enrolled in AGME 1613, optional for others enrolled in AGME 1613. Corequisite: AGME 1613.

**AGME1613 Fundamentals of Agricultural Systems Technology (Fa)** Introduction to basic physical concepts important in agricultural technical systems: applied mechanics, power and machinery management, structures and electrification, and soil and water conservation. Lecture 3 hours per week. Corequisite: AGME 1611L (for AECT Majors).

**AGME2123 Metals and Welding (Sp, Fa)** An introduction to agricultural mechanics shop work to include hot and cold metal work, arc welding, and gas welding and cutting. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component.

**AGME2903 Agricultural and Human Environmental Sciences Applications of Microcomputers (Sp, Su, Fa)** Lecture and laboratory assignments covering the contemporary use of microcomputers in agricultural research, production, and home economics. Major emphasis placed on learning to use selected, appropriate software packages. Lecture 2 hours per week, laboratory 2 hours per week.

**AGME3042 Agricultural Construction Technology (Sp)** Principles of building design and construction. Includes site selection calculating structural loads and computerized packages for building design. Safety practices, selection of building materials and determining costs are also included. Lecture is one hour and lab is two hours per week. Prerequisite: MATH 1203 and junior standing.

**AGME3101L Small Power Units/Turf Equipment Laboratory (Sp)** Testing, evaluation, and maintenance of engines, hydrostatic power transmission systems, and equipment commonly used in the turf and landscaping industries. Corequisite: AGME 3102. Prerequisite: MATH 1203.

**AGME3102 Small Power Units/Turf Equipment (Sp)** Principles of operation, adjustment, repair, maintenance, and trouble shooting of small air-cooled engines and power units, including various engine systems, service and maintenance of turf equipment and machinery. Lecture 2 hours per week. Corequisite: AGME 3101L. Prerequisite: MATH 1203.

**AGME3153 Surveying in Agriculture and Forestry (Fa)** Techniques and procedures normally used in determining areas and characterizing the topography of agricultural and forest lands. Includes basic concepts of surveying; use and care of level, transit, distance measuring equipment; topographic mapping and public land surveys. Lecture and laboratory 6 hours per week. Prerequisite: MATH 1203.

**AGME3173 Electricity in Agriculture (Sp)** Principles of electricity; wiring of home, farmstead and other agricultural structures; selection of electric motors and their care and application in the broad field of agriculture; lighting and special uses of electricity such as heating and electrical controls. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: Math 1203.

**AGME400V Special Problems (Sp, Su, Fa) (1-6)** Individual research or study in electrification, irrigation, farm power, machinery, or buildings. Prerequisite: Senior standing. May be repeated for credit.

**AGME402V Special Topics in Agricultural Mechanization (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of special topics in agricultural mechanization. May be repeated for credit.

**AGME4203 Mechanized Systems Management (Even years, Fa)** Selection, sizing, and operating principles of agricultural machinery systems, including power sources. Cost analysis and computer techniques applied to planning and management of mechanized systems. Corequisite: Lab component. Prerequisite: Math 1203.

**AGME4973 Irrigation (Sp)** Methods of applying supplemental water to soils to supply moisture essential for plant growth, sources of water, measurement of irrigation water, pumps, conveyance structure, economics, and irrigation for special crops. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: Math 1203.

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 Agricultural Statistics (AGST)
 

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**AGST4011 SAS Programming for Agricultural Sciences (Sp, Fa)** An introduction to the SAS programming language with an emphasis on the reading and restructuring of data files, and the displaying of data in tabular and graphic forms. The course is taught using a hands-on approach.

**AGST4023 Principles of Experimentation (Fa)** Fundamental concepts of experimental and statistical methods as applied to agricultural research. Lecture 3 hours per week. Prerequisite: MATH 1203 or higher level.

**AGST500V Special Problems (Sp, Su, Fa) (1-6)** Individual investigation of a special problem in some area of statistics applicable to the agricultural, food, environmental, and life sciences not available under existing courses. May be repeated for up to 6 hours of degree credit.

**AGST5014 Experimental Design (Sp)** Types of experimental designs, their analysis and application to agricultural research. Lecture 3 hours and laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: AGST 4011 and (AGST 4023 or STAT 4003).

**AGST504V Special Topics (Irregular) (1-4)** Topics not covered in other courses or a broader-based study of specific topics in statistics and related areas. Prerequisite: Graduate standing. May be repeated for credit.

**AGST5713 Applied Regression Analysis for Agricultural Sciences (Fa)** Analysis of agricultural experiments which contain quantitative factors through regression procedures. Lecture 3 hours per week. Prerequisite: AGST 4011 and (AGST 4023 or STAT 4003).

**AGST5803 Case Studies in Biometry (Irregular)** Non-standard statistical problems arising in the agricultural, food, environmental, and life sciences. Prerequisite: STAT 5113 and STAT 5313 and either AGST 5014 or STAT 4373.

**AGST5901 Statistical Consulting Process (Sp)** Examines the components of statistical consulting with emphasis on the interpersonal aspects.

**AGST5913 Statistical Consulting Practicum (Irregular)** Supervised statistical consulting. Prerequisite: STAT 5313 and AGST 5901 and either (AGST 5014 or STAT 4373).

#### Asian Studies (AIST)

**AIST4003 Asian Studies Colloquium (Fa)** An interdepartmental colloquium with an annual change of subject, required of students in the Asian studies program. Prerequisite: Sophomore standing. May be repeated for up to 6 hours of degree credit.

**AIST4003H Honors Asian Studies Colloquium (Fa)** An interdepartmental colloquium with an annual change of subject, required of students in the Asian studies program. Prerequisite: sophomore standing. May be repeated for up to 6 hours of degree credit.

#### American Studies (AMST)

**AMST2003 Introduction to American Studies (Fa)** Introduction to American Studies as an interdisciplinary field of study. Examination of a selected topic from various methodological perspectives.

#### Animal Science (ANSC)

**ANSC1001L Introductory to Animal Sciences Laboratory (Fa)** Study of facilities used in production, processing, and management in animal agriculture. Identification, selection evaluation and testing of livestock, meat, and milk. Laboratory 3 hours per week.

**ANSC1032 Introductory Animal Sciences (Fa)** Students will be introduced to biological sciences associated with modern systems of care and management of livestock. Foundation sciences include topics in genetics, growth and development, physiology, nutrition, animal health, and animal behavior. Course will meet M, T, W, and R for the first eight weeks of the fall semester.

**ANSC1041 Introduction to Companion Animal Industry (Fa)** The importance of companion animals and their allied industries will be discussed. Application of scientific principles to the care and management of companion animals, specifically dogs, cats and horses, will be emphasized. Course will meet on T and R during the second eight weeks of the fall semester.

**ANSC1051 Introduction to the Livestock Industry (Fa)** The importance of livestock and their allied industries will be discussed. Application of scientific principles to the care and management of livestock, specifically beef and dairy cattle, swine, sheep, and goats will be emphasized. Course will meet on M and W during the second eight weeks of the fall semester.

**ANSC1062 Sustainable Integrated Small Animal Farming (Sp)** Practical information on small scale animal production, including practical strategies for farm planning, issues of economic and environmental sustainability, best management practices, biosecurity, disease prevention, and farm safety will be presented. (Same as POSC 1062)

**ANSC2003 Introduction to Equine Industry (Sp)** Examina-

tion of careers and business opportunities in the equine industry. Students will gain the opportunity to identify high quality horses through evaluation of conformation and locomotion. Students will also gain skill at oral presentation and be knowledgeable of costs and responsibilities associated with horse ownership.

**ANSC2213 Behavior of Domestic Animals (Fa)** Behavior associated with domestication. Effects of selective breeding, physical and social environments, and developmental stage on social organization, aggressive behavior, sexual behavior, productivity, and training of domestic animals.

**ANSC2252L Introduction to Livestock and Meat Evaluation (Sp)** Develop an understanding between live animal evaluation and carcass composition. Comparative judging including meat evaluation, classification and selection of beef cattle, sheep and swine.

**ANSC2304 Equine Behavior and Training (Fa)** Psychology and ethology of equine social behavior and how it pertains to learning patterns. Application of fundamental behavioral concepts to training of horses. Students will apply classical, practical, and proven equine training techniques to achieve safe, less-traumatic learning for the horse and trainer. Lecture two hours and laboratory six hours per week. Prerequisite: Instructor consent.

**ANSC2781 Career Preparation and Development (Fa)** The importance of preparing for a career in the animal sciences and industries will be covered.

**ANSC3003 Applied Animal Parasitology (Odd years, Sp)** The economically important parasites of domestic animals with emphasis on their host relationships and management considerations. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component.

**ANSC3013 Parasitisms of Domesticated Non-Herbivores (Even years, Sp)** Course will provide applied instruction and appreciation for the parasitisms of our domesticated swine, chickens, turkeys, dogs and cats.

**ANSC3032 Animal Physiology I (Fa)** Fundamental aspects of neural/muscle/bone tissues and the cardiovascular system. The normal structure and functions of these systems will be emphasized. Lecture 2 hours per week. Prerequisite: BIOL 1543 and (CHEM 1123 or CHEM 1073). (Same as POSC 3032)

**ANSC3042 Animal Physiology II (Sp)** Fundamental aspects of renal, respiratory, digestive, and endocrine physiology will be covered. The normal structure and function of these systems will be emphasized. Lecture 2 hours per week. Prerequisite: BIOL 1543 and CHEM 1123 or CHEM 1073. (Same as POSC 3042)

**ANSC3123 Principles of Genetics (Fa)** Fundamentals of heredity, with special emphasis on the improvement of farm animals. Lecture 3 hours per week. Prerequisite: BIOL 1543 and MATH 1203 or higher. (Same as POSC 3123)

**ANSC3133 Animal Breeding and Genetics (Sp)** Application of the principles of genetics to the breeding of farm animals. Lecture 3 hours per week. Prerequisite: ANSC 1032 and MATH 1203.

**ANSC3143 Principles of Animal Nutrition (Sp)** Scientific approach to animal nutrition involving the mechanisms through which feed nutrients are utilized by farm animals. Lecture 3 hours per week. Prerequisite: CHEM 1073 and CHEM 1071L or CHEM 1123 or CHEM 1121L.

**ANSC3151L Applied Animal Nutrition Laboratory (Fa)** Practical approach to animal nutrition; use of various methods of feedstuff evaluation and ration balancing for domestic animals. Laboratory 2 hours per week. Corequisite: ANSC 3152. Prerequisite: ANSC 3143 and MATH 1203.

**ANSC3152 Applied Animal Nutrition (Fa)** Practical approach to animal nutrition; physical and chemical composition of feedstuffs, feed processing and preparation, nutrient interactions, and application of nutritional principles to feeding domestic animals. Lecture 2 hours per week. Corequisite: ANSC 3151L. Prerequisite: ANSC 3143 and MATH 1203.

**ANSC3282 Livestock Judging and Selection (Fa)** Comparative judging, including grading, classification, and selection of beef cattle, swine, sheep and horses. Oral and written discussion. Laboratory 6 hours per week. Prerequisite: ANSC 1032 or ANSC 2252L.

**ANSC3291 Livestock Junior Judging Team Activity (Sp)** Training for membership on judging teams, through participation.

**ANSC3333 Diseases of Livestock (Sp)** Introductory study of the diseases of farm animals with emphasis on fundamental principles of disease, body defense mechanisms, hygiene, and sanitation. Corequisite: Lab component. Prerequisite: BIOL 1543.

**ANSC3433 Fundamentals of Reproductive Physiology**

(Fa) Principles of mammalian reproductive physiology with emphasis on farm animals. Lecture 3 hours per week. Prerequisite: ANSC 1032 and BIOL 1543.

**ANSC3491L Artificial Insemination in Cattle (Sp)** Experience with artificial insemination technique in cattle including estrus detection, semen storage and handling, insemination equipment maintenance and technique. Laboratory 4 hours per week. The course is offered the second 8 weeks of the spring semester. Prerequisite: ANSC 3433 or instructor consent.

**ANSC3613 Meat Science (Fa)** The study of meat science and muscle biology. Topics will include animal/tissue growth and development and the relationship to meat quality. Meat processing, preservation, and meat safety concerns will also be considered. Lecture 3 hours per week. Prerequisite: CHEM 2613 or CHEM 3603.

**ANSC3723 Horse and Livestock Merchandising (Fa)** Various types of merchandising programs for specific livestock enterprises will be presented. Students will evaluate the effectiveness of merchandising programs including how to organize, advertise, and manage a purebred auction sale of livestock.

**ANSC3822 Equine Law (Odd years, Fa)** Horse ownership presents unusual, if not unique, legal issues. This course examines the basic underpinnings of commercial transactions in horses, tort liability, business structure, environmental law and gaming regulation.

**ANSC400V Special Problems (Sp, Su, Fa) (1-6)** Special problems in the animal sciences for advanced undergraduate students. May be repeated for up to 6 hours of degree credit.

**ANSC401V Internship in Animal Sciences (Sp, Su, Fa) (1-6)** Supervised work experience with private or government organizations. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**ANSC410V Special Topics in Animal Sciences (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of specific topics in animal sciences. Prerequisite: ANSC 1032. May be repeated for credit.

**ANSC4252 Cow-Calf Management (Fa)** Systems of cow-calf management including the practical application of the principles of breeding, feeding, and management to commercial and purebred beef cattle under Arkansas conditions. Lecture 1 hour and laboratory 2 hours per week. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and CHEM2613/2611L or CHEM3603/3601L and ANSC 1001L and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L.

**ANSC4262 Swine Production (Even years, Fa)** Methods in producing purebred and commercial swine with specific emphasis on the management programs needed for profitable pork production in Arkansas. Lecture 1 hour, laboratory 2 hours per week. Corequisite: Lab component. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and ANSC 1001L and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L and CHEM 2613 and CHEM 2611L.

**ANSC4272 Sheep Production (Odd years, Sp)** Purebred and commercial sheep management emphasizing the programs of major importance in lamb and wool production in Arkansas. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and CHEM2613/2611L or CHEM3603/3601L and ANSC 1001L and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L.

**ANSC4283 Horse Production (Sp)** Production, use and care of horses and ponies including breeding, feeding, handling, and management. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and CHEM2613/2611L or CHEM3603/3601L and ANSC 1001L and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L.

**ANSC4291 Livestock Senior Judging Team Activity (Fa)** Training for membership on judging teams, through participation.

**ANSC4452 Milk Production (Sp)** Principles of breeding, feeding, and management of dairy cattle will be reviewed, and course will include field trip touring dairy industry. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and CHEM2613/2611L or CHEM3603/3601L and ANSC 1001L and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L.

**ANSC4482 Companion Animal Management (Fa)** The study and application of principles of domestication, nutrition, reproduction, parasitology, diseases, behavior, and husbandry management to companion animals. Dogs, cats, and exotic animals will be the species of primary interest. Practical problems of care and management of these species will be solved. Prerequisite: BIOL 1543 or equivalent or consent of instructor. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and CHEM2613/2611L or CHEM3603/3601L and ANSC 1001L

and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L.

**ANSC4652 Stocker-Feedlot Cattle Management (Sp)** Production and management systems for stocker and feed-lot cattle including practical applications of forage systems, feeding, health management and economics of production of these livestock. The course will include a tour of the stocker and feedlot industry in Arkansas, and surrounding areas. Pre- or Corequisite: ANSC 1041 or ANSC 1051 and CHEM2613/2611L or CHEM3603/3601L and ANSC 1001L and ANSC 2252L and ANSC 2781 and COMM 1313 and BIOL 2013 and BIOL 2011L

**ANSC4923 Brain & Behavior (Fa)** Course covers cellular through neural systems, major brain functions and comparative neuroanatomy between mammals and birds. Specific topics include coverage of ion channels, membrane potentials, action potentials, synaptic integration, neurotransmitters, major brain regions of mammals and birds, sensory systems and the autonomic nervous system. Lecture 3 hours. Corequisite: Drill component. Pre- or Corequisite: CHEM 3813. Prerequisite: POSC/ANSC 3032 or POSC/ANSC 3042 or PSYC 2003 or BIOL 2213 or BIOL 2443 or BIOL 2533.

**ANSC500V Special Problems (Sp, Su, Fa) (1-6)** Work in special problems of animal industry. May be repeated for up to 6 hours of degree credit.

**ANSC5013 Domestic Animal Energetics (Odd years, Sp)** Physical, physiological and biochemical aspects of energy metabolism of domestic animals and their applications to livestock production. Lecture 3 hours per week. Prerequisite: Graduate standing.

**ANSC510V Special Topics in Animal Sciences (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of specific topics in animal sciences. Prerequisite: Graduate standing. May be repeated for credit.

**ANSC5123 Advanced Animal Genetics (Even years, Fa)** Specialized study of animal genetics. Lecture 3 hours per week. Prerequisite: ANSC 3123. (Same as POSC 5123)

**ANSC5133 Quantitative Inheritance (Odd years, Sp)** Advanced study of the genetic basis of variation and the genetic control of quantitative traits in populations. Lecture 3 hours per week. Prerequisite: ANSC 3133.

**ANSC5143 Biochemical Nutrition (Even years, Fa)** Interrelationship of nutrition and physiological chemistry; structure and metabolism of physiological significant carbohydrates, lipids, and proteins; integration of metabolism with provision of tissue fuels; specie differences in regulatory control of tissue and whole body metabolism of nutrients. Prerequisite: CHEM 3813. (Same as POSC 5143)

**ANSC5152 Protein and Amino Acid Nutrition (Even years, Sp)** Students will be introduced to the basic processes of protein digestion, amino acid absorption, transport, metabolism, and utilization along with how biochemical function of proteins and their dynamic state affect nutritional status for animals and man. Prerequisite: CHEM 3813. (Same as POSC 5152)

**ANSC5253 Advanced Livestock Production (Irregular)** Comprehensive review of recent advances in research relative to the various phases of livestock production. Prerequisite: ANSC 4252 (or ANSC 4263) and ANSC 3133 (or ANSC 3143).

**ANSC5743L Advanced Analytical Methods in Animal Sciences Laboratory (Fa)** Introduction into theory and application of current advanced analytical techniques used in animal research. Two 3-hour laboratory periods per week. (Same as POSC 5743L)

**ANSC5853 Advanced Meats Technology (Even years, Sp)** An intensive study of processed meats, relating the science, technology, and quality of further processed meat and poultry products. Product development, sensory and chemical analysis, microbiology, nutritional aspects, and product labeling are covered. Prerequisite: POSC 4314 or ANSC 3613.

**ANSC5901 Seminar (Fa)** Critical review of the current scientific literature pertaining to the field of animal science. Oral reports. Lecture 1 hour per week. Prerequisite: Senior standing.

**ANSC5923 Brain & Behavior (Fa)** Course covers cellular through neural systems, major brain functions and comparative neuroanatomy between mammals and birds. Specific topics include coverage of ion channels, membrane potentials, action potentials, synaptic integration, neurotransmitters, major brain regions of mammals and birds, sensory systems and the autonomic nervous system. Lecture 3 hours; Neuroscience Journal Club 1 hour per week (for first 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: POSC/ANSC 3032 and POSC/ANSC 3042, or PSYC 2003, or BIOL 2213, or BIOL 2443, or BIOL 2533.

**ANSC5932 Cardiovascular Physiology of Domestic Animals (Fa)** Cardiovascular physiology, including mechanisms of heart function and excitation, and blood vessel mechanisms associated with the circulatory system in domestic animals and

poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: POSC/ANSC 3032 and POSC/ANSC 3042. (Same as POSC 5932)

**ANSC5942 Endocrine Physiology of Domestic Animals (Fa)** Endocrine physiology, including mechanisms of hormone secretion, function, and regulation. Mechanisms associated with the endocrine system will be discussed for domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (or first 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: POSC/ANSC 3032 and POSC/ANSC 3042. (Same as POSC 5942)

**ANSC5952 Respiratory Physiology of Domestic Animals (Sp)** Respiratory physiology, including mechanisms of lung function and gas exchange. Mechanisms associated with the interaction of the respiratory system with other bodily systems in domestic animals and poultry will be discussed. Lecture 3 hours; drill 1 hour per week for first 8 weeks of semester. Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: POSC/ANSC 3032 and POSC/ANSC 3042. (Same as POSC 5952)

**ANSC5962 Gastrointestinal/Digestive Physiology of Domestic Animals (Fa)** Gastrointestinal and hepatic physiology, including mechanisms of digestion, absorption of nutrients with emphasis on cellular control mechanisms in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: POSC/ANSC 3032 and POSC/ANSC 3042. (Same as POSC 5962)

**ANSC5972 Renal Physiology (Sp)** Renal physiology, including mechanisms of renal clearance with emphasis on cellular control mechanisms in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: POSC/ANSC 3032 and POSC/ANSC 3042. (Same as POSC 5972)

**ANSC600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**ANSC6143 Minerals in Animal Nutrition (Odd years, Sp)** Mineral nutrients, their sources and functions, as related to nutrition of domestic animals. Lecture 3 hours per week. Prerequisite: ANSC 3143 or POSC 4343.

**ANSC6243 Ruminant Nutrition (Odd years, Fa)** Anatomy and physiology of the rumen. The nutrient requirements of microbial organisms and the relation of microbial digestion in the rumen to the nutrition of cattle, sheep and other ruminants. Lecture 3 hours per week. Prerequisite: Graduate standing.

**ANSC6253 Forage-Ruminant Relations (Odd years, Sp)** Advanced chemical, physical, and botanical characteristics of forage plants, the dynamics of grazing, intake and digestion, and techniques of measuring forage utilization and systems analysis at the plant-animal interface. Lecture 3 hours per week. Prerequisite: ANSC 3143 and CSES 3113. (Same as CSES 6253)

**ANSC6343 Vitamin Nutrition in Domestic Animals (Even years, Sp)** The vitamins required by domestic animals with emphasis upon their role in animal nutrition, physiological functions, and consequences of failure to meet the requirement of the animal. Lecture 3 hours per week. Prerequisite: ANSC 3143 (or POSC 4343) and CHEM 3813. (Same as POSC 6343)

**ANSC6833 Reproduction in Domestic Animals (Even years, Sp)** Comprehensive review of current theory of reproductive function in domestic animals. Lecture 3 hours per week. Prerequisite: ANSC 3433.

**ANSC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing.

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#### Anthropology (ANTH)

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**ANTH1011M Honors Introduction to Biological Anthropology Laboratory (Fa)** Laboratory exercises illustrating concepts of physical anthropology. Corequisite: ANTH 1013. (Same as ANTH 1011L)

**ANTH1011L Introduction to Biological Anthropology Laboratory (Fa)** Laboratory exercises illustrating concepts of physical anthropology. Corequisite: ANTH 1013.

**ANTH1013 Introduction to Biological Anthropology (Sp, Su)** An introduction to the field of physical anthropology using human evolution as a unifying concept. Areas include human genetics, race, speciation, primate evolution, and human variation and adaptation. Corequisite: ANTH 1011L.

**ANTH1013H Honors Introduction to Biological Anthropology (Fa)** An introduction to the field of physical anthropology using human evolution as a unifying concept. Areas include human genetics, race, speciation, primate evolution, and hu-

man variation and adaptation. Corequisite: ANTH 1011M.

**ANTH1023 Introduction to Cultural Anthropology (Sp, Su, Fa)** Introduction to the nature of culture and its influence on human behavior and personality; comparative study of custom, social organization, and processes of change and integration of culture.

**ANTH1023H Honors Introduction to Cultural Anthropology (Sp, Fa)** Introduction to the nature of culture and its influence on human behavior and personality; comparative study of custom, social organization, and processes of change and integration of culture.

**ANTH2013 Introduction to Latin American Studies (Irregular)** This course provides an interdisciplinary introduction to Latin America. Drawing on Latin American literature, history, sociology, and political science, the course examines the broad forces that have shaped the region. (Same as LAST 2013)

**ANTH3003 World Prehistory (Irregular)** Survey of the prehistoric and early historic cultures of the Americas, Asia, and Africa.

**ANTH3021L Archeology Laboratory (Sp, Fa)** Laboratory exercises illustrating concepts of archeology. Corequisite: ANTH 3023.

**ANTH3023 Approaches to Archeology (Sp, Fa)** Study of the field of archeology including method, theory, analysis and interpretation with substantive worldwide examples. Corequisite: ANTH 3021L.

**ANTH3033 Egyptology (Irregular)** Explores multiple aspects of Ancient Egyptian civilization including chronology, art, religion, literature and daily life. Prerequisite: Junior standing.

**ANTH3123 The Anthropology of Religion (Sp)** An exploration of rituals, symbols, and rules that shape religious life. Religion is viewed broadly, considering activities that invoke powers beyond the reach of ordinary senses. Examining a variety of cultures, we explore what people say and do as they participate in activities such as magic, healing, pilgrimage, and contemporary religious movements.

**ANTH3143 Language and Expressive Culture (Irregular)** This course explores the complex interrelationship of language, culture, and social identity. Verbal art and expressive culture are examined from a variety of anthropological perspectives. Topics include ethnographies of speaking, discourse analysis, cultural performances, and the performative aspects of oral expression. (Same as COMM 3143, ENGL 3143)

**ANTH3163 Male and Female: A Cultural and Biological Overview (Fa)** A comparative study of male and female roles in culture in relation to human biology and socialization.

**ANTH3173 Introduction to Linguistics (Irregular)** Introduction to language study with stress upon modern linguistic theory and analysis. Data drawn from various languages reveal linguistic universals as well as phonological, syntactic, and semantic systems of individual languages. Related topics: language history, dialectology, language and its relation to culture and society, the history of linguistic scholarship. Prerequisite: Junior standing. (Same as COMM 3173, ENGL 3173, WLLC 3173)

**ANTH3213 Indians of North America (Irregular)** Study of the Indians of North America and Mexico emphasizing lifeways at early White contact and subsequent acculturation.

**ANTH3253 Cultures of the South (Sp)** Survey of the diverse ethnic and racial groups of the American South with special emphasis on social and cultural traits related to contemporary developments. (Same as PLSC 3273, SOCI 3253)

**ANTH3263 Indians of Arkansas and the South (Odd years, Sp)** Study of the traditional lifeways and prehistoric backgrounds of Indians living in the Southern United States, including Arkansas.

**ANTH3421L Human Osteology Laboratory (Sp)** Laboratory exercises illustrating concepts of human osteology. Corequisite: ANTH 3423.

**ANTH3423 Human Osteology (Sp)** Study of the human skeleton, identification of bones, allometric growth, sexual dimorphism, osteological genetic inheritance and environmental stresses. Lectures and demonstration. Corequisite: ANTH 3421L.

**ANTH3433 Human Evolution (Fa)** A study of hominid evolution from origin to the present, including trends in comparative primate evolution and functional development of human form as a result of cultural and biological interaction.

**ANTH3443 Criminalistics: Forensic Sciences (Irregular)** Introduction to forensics focused on the scientific analysis of physical and biological evidence encountered in criminal investigations. Chemical, microscopic, biological, and observational techniques employed in the analysis of material evidence are described, discussed, and illustrated within an in-

vestigative framework. Topics include inorganic remains, fiber, tissue, human identification, fingerprints, tools, and weapons.

**ANTH3473 North American Prehistory (Irregular)** Survey of the aboriginal prehistory of the North American Continent north of Mexico.

**ANTH3503 Power and Popular Protest in Latin America (Irregular)** This course focuses on the historical formation of Latin America by examining conflicts between the region's rich and poor. It includes both an historical perspective on the formation of ethnic, gender, and class relations in Latin America, and a discussion of contemporary social problems.

**ANTH3523 Gender and Politics in Latin America (Irregular)** This course examines the ways in which political struggles surrounding land, labor, and the environment have been shaped by gender relations in Latin America. Why and how do peasant-workers engage their political worlds and how are such struggles shaped by gender?

**ANTH3533 Medical Anthropology (Irregular)** Survey of the interrelationship of human biology, culture and environment as reflected in disease experience from an evolutionary and cross cultural perspective. Special emphasis on stress.

**ANTH3543 Geographic Information Science (Sp)** Computer assisted analysis and display of geographic resource data. Course develops the theory behind spatial data analysis techniques, and reinforces the theory with exercises that demonstrate its practical applications. Prior experience with computers and/or completion of GEOG 4523 (Computer Mapping) is useful but not a prerequisite. (Same as GEOS 3543)

**ANTH3903 Topics in Anthropology (Irregular)** Covers a special topic or issue. May be repeated for up to 12 hours of degree credit.

**ANTH3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: honors candidacy (not restricted to candidacy in anthropology). May be repeated for credit.

**ANTH399VH Honors Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**ANTH4013 History of Anthropological Thought (Fa)** Detailed consideration of anthropological theory through study of its historical development. The research paper in this course fulfills the Fulbright College research paper requirement for anthropology majors.

**ANTH4033 Popular Culture (Irregular)** Study of national and international varieties of popular culture, including music, dance, fashion, and the media. Emphasis will be given to both ethnographic approaches, which focus on the investigation of production and consumption of cultural forms and to cultural studies approaches, which see culture as a terrain of struggle.

**ANTH4063 Women in Africa (Irregular)** Diversity of women's life experiences throughout sub-Saharan Africa will be examined. The class will investigate a range of topics, from marriage and motherhood to prostitution and popular culture. A historical dimension will be present throughout the course, and perspectives from literature and film will also be incorporated. (Same as AAST 4063)

**ANTH4083 African Popular Culture (Irregular)** This class explores popular cultural expression across Africa. Topics range from hip hop and film, to second-hand clothing fashions and the media. We will consider how popular culture, while often inspired by global trends, is rooted in local circumstances and often reflects attempts to grapple with important issues.

**ANTH4093 The Archeology of Death (Irregular)** Study of the analysis and interpretation of archeological mortuary remains and sites. Key archeological and anthropological sources that have influenced major theoretical developments are reviewed.

**ANTH4123 Ancient Middle East (Irregular)** The archeology of the ancient Middle East with emphasis upon the interaction of ecology, technology and social structure as it pertains to domestication and urbanization.

**ANTH4133 Settlement Archaeology (Irregular)** Focuses on the historical development of settlement archeology, the methods of site survey and discovery within regions, ecological and social theories that underlie patterns of human land use and distribution, methods of site location analysis, and descriptive and predictive site location modeling. Prerequisite: ANTH 3023.

**ANTH4143 Ecological Anthropology (Irregular)** Anthropological perspectives on the study of relationships among human populations and their ecosystems.

**ANTH4243 Archeology of the Midsouth (Irregular)** Survey of prehistoric and protohistoric cultures of the lower Mississippi Valley and adjacent regions. Prerequisite: Junior standing.

**ANTH4256 Archeological Field Session (Su)** Practical field and laboratory experiences in archeological research. May be repeated for up to 12 hours of degree credit.

**ANTH4263 Identity and Culture in the U.S.-Mexico Borderlands (Irregular)** An exploration of the interplay between Latino/a, Mexican, Anglo, and Native American identities and cultures along the U.S.-Mexico border. Course examines identity formation, hybridity, social tension, marginalization, race and gender, from an anthropological perspective, paying special attention to the border as theoretical construct as well as material reality.

**ANTH4353 Laboratory Methods in Archeology (Irregular)** Theory and practice of describing, analyzing, and reporting upon archeological materials.

**ANTH4363 Museums, Material Culture, and Popular Imagination (Fa)** Museums as ideological sites and thus as sites of potential contestation produce cultural and moral systems that legitimate existing social orders. This course will focus on strategies of representation and the continuous process of negotiating social and cultural hierarchies with and through objects that are displayed.

**ANTH4443 Cultural Resource Management I (Sp)** Concentrated discussion of management problems relative to cultural resources, including review and interpretation of relevant federal legislation, research vs. planning needs, public involvement and sponsor planning, and assessment of resources relative to scientific needs. No field training involved; discussion will deal only with administrative, legal and scientific management problems. May be repeated for credit.

**ANTH448V Individual Study of Anthropology (Sp, Su, Fa) (1-6)** Reading course for advanced students with special interests in anthropology. May be repeated for up to 6 hours of degree credit.

**ANTH4513 African Religions: Gods, Witches, Ancestors (Irregular)** An exploration of African religions from a variety of anthropological perspectives, exploring how religious experience is perceived and interpreted by adherents, highlighting the way in which individual and group identities are constructed, maintained and contested within religious contexts. Readings reflect the vast diversity of religious life in Africa.

**ANTH4523 Dental Science (Fa)** Introduction to the study of the human dentition including its anatomy, morphology, growth and development, and histology.

**ANTH4533 Middle East Cultures (Sp)** Study of the peoples and cultures of the Middle East; ecology, ethnicity, economics, social organizations, gender, politics, religion, and patterns of social change. May be repeated for up to 9 hours of degree credit.

**ANTH4553 Introduction to Raster GIS (Fa)** Theory, data structures, algorithms, and techniques behind raster-based geographical information systems. Through laboratory exercises and lectures multidisciplinary applications are examined in database creation, remotely sensed data handling, elevation models, and resource models using Boolean, map algebra, and other methods. (Same as GEOS 4553)

**ANTH4563 Vector GIS (Sp)** Introduction to geographic information systems (GIS) applications in marketing, transportation, real estate, demographics, urban and regional planning, and related areas. Lectures focus on development of principles, paralleled by workstation-based laboratory exercises using Arc-nodes based software and relational data bases. (Same as GEOS 4583)

**ANTH4583 Peoples and Cultures of Sub-Saharan Africa (Fa)** An exploration of the people and places of Africa from a variety of anthropological perspectives. Classic and contemporary works will be studied in order to underscore the unity and diversity of African cultures, as well as the importance African societies have played in helping us understand culture/society throughout the world.

**ANTH4593 Introduction to Global Positioning Systems (Sp)** Introduction to navigation, georeferencing, and digital data collection using GPS receivers, data loggers, and laser technology for natural science and resource management. Components of NavStar Global Positioning system are used in integration of digital information into various GIS platforms with emphasis on practical applications. (Same as GEOS 4593)

**ANTH4603 Landscape Archaeology (Fa)** This course provides an introduction to the methods and theories of landscape archaeology. Topics include archaeological survey techniques, environmental and social processes recorded in the archaeological landscape, and analysis of ancient settlement and land use data to reveal changes in population, resource utilization, and environmental relationships.

**ANTH4613 Primate Adaptation and Evolution (Sp)** Introduction to the biology of the order of Primates. This course considers the comparative anatomy, behavioral ecology and paleontology of our nearest living relatives. Prerequisite: ANTH 1013 (or BIOL 1543 and BIOL 1541L). (Same as BIOL 4613)

**ANTH4633 Archeological Prospecting & Remote Sens-**

**ing (Irregular)** Ground-based geophysical, aerial, and other remote sensing methods are examined for detecting, mapping, and understanding archeological and other deposits. These methods include magnetometry, resistivity, conductivity, radar, aerial photography, thermography, and multispectral scanning. Requires computer skills, field trips, and use of instruments.

**ANTH4653 Advanced Raster GIS (Irregular)** Advanced raster topics are examined beginning with a theoretical and methodological review of Tomlin's cartographic modeling principles. Topics vary and include Fourier methods, image processing, kriging, spatial statistics, principal components, fuzzy and regression modeling, and multi-criteria decision models. Several raster GIS programs are examined with links to statistical analysis software. Prerequisite: ANTH 4553 or GEOG 4553. (Same as ENDY 5043, GEOS 4653)

**ANTH4813 Ethnographic Approaches to the Past (Irregular)** Review of the uses of ethnographic data in the reconstruction and interpretation of past cultures and cultural processes, with particular emphasis on the relationships between modern theories of culture and archeological interpretation.

**ANTH4863 Quantitative Anthropology (Irregular)** Introductory statistics course for anthropology students examines probability theory, nature of anthropological data, data graphics, descriptive statistics, probability distributions, test for means and variances, categorical and rank methods, ANOVA, correlation and regression. Lectures focus on theory methods; utilize anthropological data and a statistical software laboratory. (Same as GEOS 4863)

**ANTH4903 Seminar in Anthropology (Irregular)** Research, discussion, and projects focusing on a variety of topics. May be repeated for up to 12 hours of degree credit.

**ANTH4913 Topics of the Middle East (Irregular)** Covers a special topic or issue. May be repeated for up to 9 hours of degree credit.

**ANTH500V Advanced Problems in Anthropology (Sp, Su, Fa) (1-18)** Individual research at graduate level on clearly defined problems or problem areas. May be repeated for up to 18 hours of degree credit.

**ANTH5043 Advanced Vector Geographic Information Systems (Irregular)** Advanced vector operations and analysis. Topics will include topological analysis, network analysis, geocoding, conflation, implications of source and product map scale, map generation, error mapping, and cartographic production. Prerequisite: (ANTH 4563 or GEOS 4583) or equivalent. (Same as GEOS 5033)

**ANTH5053 Quaternary Environments (Fa)** An interdisciplinary study of the Quaternary Period including dating methods, deposits, soils, climates, tectonics, and human adaptation. Lecture 2 hours, laboratory 2 hours per week. (Same as ENDY 5053, GEOS 5053)

**ANTH5103 Applications of Cultural Method and Theory (Fa)** Review of the nature and history of cultural anthropology; recent theories and practical implications and applications of various methods of acquiring, analyzing and interpreting cultural anthropological data.

**ANTH5113 Anthropology of the City (Irregular)** Examines cities as both products of culture, and sites where culture is made and received. Explores the implications of several pivotal urban and cultural trends and the way in which representations of the city have informed dominant ideas about city space, function, and feel.

**ANTH5153 Topics in Anthropology (Irregular)** Graduate level seminar with varied emphasis on topics relating to cultural anthropology. May be repeated for credit.

**ANTH5203 Applications of Archeological Method and Theory (Fa)** Review of the nature and history of archeology; recent theories and practical implications and applications of various methods of acquiring, analyzing, and interpreting archeological data.

**ANTH5263 Indians of Arkansas and the South (Odd years, Sp)** Study of the traditional lifeways and prehistoric backgrounds of Indians living in the southern United States, including Arkansas.

**ANTH5303 Applications of Method and Theory in Biological Anthropology (Irregular)** Review of the nature and history of biological anthropology; recent theories and the practical implications and applications of various methods of acquiring, analyzing, and interpreting data.

**ANTH535V Topics in Physical Anthropology (Irregular) (1-6)** Graduate level seminar with varied emphasis on topics relating to physical anthropology. May be repeated for credit.

**ANTH5413 Bioarcheology Seminar (Odd years, Sp)** Intensive coverage of bioarcheological method and theory with the context of both academic and cultural resources management research.

**ANTH5423 Human Evolutionary Anatomy (Irregular) Pa-**

leobiologists reconstruct past lifeways and systematic relationships of our ancestors using comparative studies of bony morphology and associated soft tissues. This course surveys methods and theories used to infer function and phylogeny, and details relevant aspects of the anatomy of humans, living great apes, and fossil human ancestors. Prerequisite: ANTH 1013 and BIOL 1543. (Same as BIOL 5423)

**ANTH5443 Cultural Resource Management I (Irregular)** Concentrated discussion of management problems relative to cultural resources, including review and interpretation of relevant federal legislation, research vs. planning needs, public involvement and sponsor planning, and assessment of resources relative to scientific needs. No field training involved; discussion will deal only with administrative, legal, and scientific management problems.

**ANTH5473 Descriptive Linguistics (Fa)** A scientific study of language with primary emphasis on modern linguistic theory and analysis. Topics include phonology, morphology, syntax, semantics, language acquisition, and historical development of world languages. (Same as COMM 5463, ENGL 5463, WLLC 5463)

**ANTH561V Field Research in Archeology (Irregular) (1-6)** Directed graduate level archeological fieldwork. May be repeated for up to 6 hours of degree credit.

**ANTH600V Master's Thesis (Sp, Su, Fa) (1-6)**

**ANTH6033 Society and Environment (Sp)** This course examines the complex interrelationships between human societies and the natural environment. Drawing on diverse and interdisciplinary perspectives in archaeology, ethnography, history, geography, and palaeo-environmental studies, readings and discussion will explore the co-production of social and environmental systems over time. May be repeated for credit. (Same as ENDY 6033)

**ANTH610V Internship (Sp, Su, Fa) (1-18)** May be repeated for up to 18 hours of degree credit.

**ANTH6813 Seminar: Cultural Anthropology (Irregular)** Variable topics in Anthropology will be explored in depth. May be repeated for up to 9 hours of degree credit.

**ANTH6823 Seminar: Archeology (Irregular)** Various topics in Archeology will be explored in depth. May be repeated for up to 9 hours of degree credit.

**ANTH6833 Seminar: Biological Anthropology (Irregular)** Various topics in Biological Anthropology will be explored in depth. May be repeated for up to 9 hours of degree credit.

**ANTH700V Doctoral Dissertation (Sp, Fa) (1-18)**

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Arabic (ARAB)

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**ARAB1016 Intensive Arabic I (Fa)** Equivalent to 1003 and 1013. Stresses correct pronunciation, aural comprehension, and simple speaking ability. Basic grammar is taught inductively through oral and written skills.

**ARAB2013 Intermediate Arabic II (Irregular)** Continued development of speaking, comprehension, reading, and writing. Emphasizes morphology and syntax.

**ARAB2016 Intensive Arabic II (Sp)** Equivalent to 2013. Leads to greater oral comprehension and speaking ability and develops the more advanced reading and writing skills. Emphasizes morphology and syntax.

**ARAB3016 Intensive Arabic III (Fa)** Leads to greater facility in the spoken language and continues to develop reading and writing skills. Continued emphasis on morphology and syntax. Prerequisite: ARAB 2016.

**ARAB4016 Intensive Arabic IV (Sp)** Continued development of speaking, comprehension, reading, writing. Reading assignments introduce a variety of styles ranging from classical to modern in both prose and verse.

**ARAB4023 Advanced Arabic I (Irregular)** Development of advanced speaking and writing skills. Extensive reading and writing assignments and translating exercises from English into Arabic. Prerequisite: ARAB 4016.

**ARAB4033 Advanced Arabic II (Irregular)** Continued advanced speaking, reading, and writing skills. Prerequisite: ARAB 4023.

**ARAB470V Special Topics (Irregular) (1-6)** May be offered in a topic not specifically covered by courses otherwise listed. May be repeated for credit.

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Architecture (ARCH)

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**ARCH1003 Basic Course in the Arts: Architecture Lecture (Sp, Fa)** A general introduction to architecture, exploring the designed environment, including cities and buildings and their histories, technologies and users, in a holistic manner. May not be presented towards satisfaction of major requirements in either the B.Arch or B.A. in architectural studies degrees.

**ARCH1003H Honors Basic Course in the Arts: Architec-**

**ture Lecture (Fa)** A general introduction to architecture, exploring the designed environment, including cities and buildings and their histories, technologies, and users, in a holistic manner. May not be presented towards satisfaction of major requirements in either the B.Arch or B.A. in architectural studies degrees. Corequisite: Drill component. Prerequisite: Honors candidacy.

**ARCH1013 Diversity and Design (Fa)** Explores the reciprocal relationship between diversity and design in America, investigating how race, gender, religion, ability, age, class, and location affect and are affected by the design of media, products, architecture, and cities/regions. Positive and negative effects of diversity and design are discussed.

**ARCH1013H Honors Diversity and Design (Fa)** Explores the reciprocal relationship between diversity and design in America, investigating how race, gender, religion, ability, age, class, and location affect and are affected by the design of media, products, architecture, and cities/regions. Positive and negative effects of diversity and design are discussed. Prerequisite: Honors candidacy.

**ARCH1015 Architectural Design I (Sp, Fa)** Seeing, drawing: analysis and graphic communication. Subject and object: expression and craft. Studio and seminars 12 hours per week.

**ARCH1025 Architectural Design II (Sp, Su)** Ideation, visualization, representation. Project sequence designed to develop perceptual and conceptual abilities; formal and spatial composition and synthesis. Studio and seminars 12 hours per week. Prerequisite: ARCH 1014.

**ARCH1110 Leadership By Design I (Fa)** Introduces time management, study strategies, promotes solutions for maintaining personal health, and develops communication and leadership skills intended to benefit education, career, and the community.

**ARCH1120 Leadership by Design II (Sp)** Introduces time management, study strategies, promotes solutions for maintaining personal health, and develops communication and leadership skills intended to benefit education, career, and the community. Continuation of ARCH 1110. Prerequisite: ARCH 1010.

**ARCH1212 Design Thinking I: Foundations in Technology (Su, Fa)** This course will raise pertinent questions about the role of architectural technology in design through studying the important theories about technology from Vitruvius to contemporary practice and understanding how they have been manifested in built form.

**ARCH1222 Design Thinking II: Foundations in History (Sp, Su)** Theoretical, formal, and constructive principles and their impact in the design disciplines, modernism and after. Introduction to the intellectual and philosophical foundations of design theory. Lecture 1 hour per week.

**ARCH2016 Architectural Design III (Fa)** Introduction of formal principles and strategies used in space making, focusing on the development of plans and sections. Precedents and the understanding of them through analysis and syntheses are used as a means of examining the past and the present while providing a framework from which personal design sensibilities can evolve. Corequisite: ARCH 2114 and ARCH 2233. Prerequisite: ARCH 1024 and ARCH 1222.

**ARCH2026 Architectural Design IV (Sp)** An elaboration of space-making, addressing three-dimensional aspects of form-making, including the influence of structural systems, articulation of the vertical section, and exterior expression; the role of site as a generator of form; and the overarching importance of technics, including the materiality of space, structure, and light. Corequisite: ARCH 2124 and ARCH 2243. Prerequisite: ARCH 2016 and ARCH 2114 and ARCH 2233.

**ARCH2113 Architectural Structures I (Fa)** Introduction to statics and strength of materials. Building loads are examined as to their effect on the elements of architectural projects. Simple post and beam structures are the focus of this course. Bending, axial, and shear stress are examined in beams and columns. Materials studied include wood, steel, and concrete. Corequisite: ARCH 2016 and ARCH 2132. Prerequisite: ARCH 1212.

**ARCH2113H Honors Architectural Structures I (Fa)** Introduction to statics and strength of materials. Building loads are examined as to their effect on the elements of architectural projects. Simple post and beam structures are the focus of this course. Bending, axial, and shear stress are examined in beams and columns. Materials studied include wood, steel, and concrete. Corequisite: ARCH 2016 and ARCH 2132. Prerequisite: ARCH 1212.

**ARCH2123 Architectural Structures II (Sp)** Introduction to the basic theories of structures, structural behavior, and the design of simple structural systems capable of resisting gravity and lateral forces. Provides a basic understanding of struc-

tural behavior, organization of framing systems and location of lateral force resisting elements for building structures and other technical systems. Corequisite: ARCH 2026. Prerequisite: ARCH 2113.

**ARCH2132 Environmental Technology I (Fa)** Introduces theories and concepts of the building thermal, luminous and sonic environments with focus on solar geometry-shading, climate-thermal stresses, natural ventilation, daylight, sound isolation and noise control. The application of these systems to support the design of an environmentally responsive building and its enclosure is addressed. Corequisite: ARCH 2016 and ARCH 2113. Prerequisite: ARCH 1212.

**ARCH2132H Honors Environmental Technology I (Fa)** Introduces theories and concepts of the building thermal, luminous and sonic environments with focus on solar geometry-shading, climate-thermal stresses, natural ventilation, daylight, sound isolation and noise control. The application of these systems to support the design of an environmentally responsive building and its enclosure is addressed. Corequisite: ARCH 2016 and ARCH 2113. Prerequisite: ARCH 1212.

**ARCH2233 History of Architecture I (Fa)** Critical study and analysis of world architecture from ancient times through the Middle Ages, comprising the ancient Americas, Asia, Mesopotamia, and Egypt; Classical, Byzantine, and Islamic architecture and vernacular design; and the early Christian, Romanesque, and Gothic periods.

**ARCH2233H Honors History of Architecture I (Fa)** Critical study and analysis of world architecture from ancient times through the Middle Ages, comprising the ancient Americas, Asia, Mesopotamia, and Egypt; Classical, Byzantine, and Islamic architecture and vernacular design; and the early Christian, Romanesque, and Gothic periods. Corequisite: Drill component. Prerequisite: Honors candidacy.

**ARCH2243 History of Architecture II (Sp)** Critical study and analysis of world architecture from the fifteenth to the mid-nineteenth centuries. Encompasses early modern Europe (Renaissance, Baroque, and Neoclassical) as well as two or more of the following: colonial New Spain, early modern Japan, and/or early modern Islamic empires in Africa, the Middle East, and Asia. Vernacular American building is surveyed as well as architecture in the nineteenth-century, including Beaux-Arts design and the introduction of industrial materials. Prerequisite for architecture majors only: ARCH 2233.

**ARCH2243H Honors History of Architecture II (Sp)** Critical study and analysis of world architecture from the fifteenth to the mid-nineteenth centuries. Encompasses early modern Europe (Renaissance, Baroque, and Neoclassical) as well as two or more of the following: colonial New Spain, early modern Japan, and/or early modern Islamic empires in Africa, the Middle East, and Asia. Vernacular American building is surveyed as well as architecture in the nineteenth-century, including Beaux-Arts design and the introduction of industrial materials. Corequisite: Drill component. Prerequisite for architecture majors only: ARCH 2233 and honors candidacy.

**ARCH2993 Art and Culture in Italy (Sp, Fa)** The evolution of culture and aesthetics and their immediate relationship with the creation of Italy's masterpieces in art and architecture. Includes site visits and lectures. Offered in the Rome study abroad semester.

**ARCH3016 Architectural Design V (Fa)** Emphasis on issues of design process, exploration of internal and external determinants of form and the integration of appropriate technologies in design solutions. Corequisite: ARCH 3134 and ARCH 4433. Prerequisite: ARCH 2026 and ARCH 2124 and ARCH 2243.

**ARCH3026 Architectural Design VI (Sp)** Studio-based analysis and design of structural and enclosure systems for buildings with particular emphasis on systems interface and application within the context of design exercises. Investigations of the appropriate use of materials and assemblies for varied programmatic and environmental criteria. Twelve hours of studio each week. Corequisite: ARCH 4523. Prerequisite: ARCH 3016 and ARCH 3134.

**ARCH303V Special Projects (Irregular) (1-6)** Individual or group investigation in research, visual communication, history, or design concerning special interests of student or faculty. May be repeated for credit.

**ARCH303VH Honors Special Projects (Irregular) (1-6)** Individual or group investigation in research, visual communication, history, or design concerning special interests of student or faculty. Prerequisite: Honors candidacy. May be repeated for credit.

**ARCH3134 Building Materials and Assemblies (Fa)** Focuses in depth on building materials: their history, properties, configuration and use - both traditional and contemporary, in the service of architectural construction; their impact on the expression and form of both the structure and envelope of

buildings and spaces. Corequisite: ARCH 3016. Prerequisite: ARCH 2132, ARCH 2113 and ARCH 2123.

**ARCH3743 Furniture Design (Irregular)** Design concepts and techniques to acquaint the student with the design of furniture; analysis of function, development of design and construction of small pieces of furniture.

**ARCH4016 Comprehensive Studio (Fa)** Emphasis on issues of typology, context and technological suitability as sources of theoretical and developmental responses. Prerequisite: ARCH 3026 or ARCH 4126.

**ARCH4023 Advanced Architectural Studies (Sp, Fa)** Advanced seminars in subjects to special interest to students and faculty. May be repeated for credit.

**ARCH4023H Honors Advanced Architectural Studies (Sp, Fa)** Advanced seminars in subjects to special interest to students and faculty. Prerequisite: Honors candidacy. May be repeated for credit.

**ARCH4026 Comprehensive Studio (Sp)** Continuation of Architectural Design VII. Prerequisite: ARCH 4016 or ARCH 4116 or ARCH 4126.

**ARCH4116 Architectural Design - Rome (Sp, Fa)** Investigation of complex design problems in the context of the city of Rome, utilizing advanced issues in architectural design and planning. Prerequisite: ARCH 3026 or ARCH 4016.

**ARCH4126 Architectural Design Latin America (Su)** Introduces a complex social and physical urban condition through a process of formal analysis and design executed in a designated country augmented by an intense graphic investigation of urban form encountered through related field trips to the distinct cultural and geographic regions. Prerequisite: ARCH 3026 or ARCH 4016 or ARCH 4026.

**ARCH4154 Environmental Technology II and Building Systems (Sp, Fa)** Theories and concepts of a variety of building environmental controls featuring mechanical systems with related duct layout and controls, indoor air quality, electric lighting, fire safety, transportation, communication, water and waste. Integration of these systems into the overall building design and how systems selection affects building design and energy consumption. Corequisite: ARCH 4016 or ARCH 4026. Prerequisite: ARCH 3134.

**ARCH4154H Honors Environmental Technology II and Building Systems (Sp, Fa)** Theories and concepts of a variety of building environmental controls featuring mechanical systems with related duct layout and controls, indoor air quality, electric lighting, fire safety, transportation, communication, water and waste. Integration of these systems into the overall building design and how systems selection affects building design and energy consumption. Corequisite: ARCH 4016 or ARCH 4026. Prerequisite: ARCH 3134.

**ARCH4433 History of Architecture III (Fa)** Critical study and analysis of the history and theories of modern architecture from the mid-nineteenth century to the present. Prerequisite: ARCH 2233 and ARCH 2243 or IDES 2883.

**ARCH4433H Honors History of Architecture III (Fa)** Critical study and analysis of the history and theories of modern architecture from the mid-nineteenth century to the present. Prerequisite: ARCH 2233, ARCH 2243 and honors candidacy. Corequisite: Drill component.

**ARCH4483 Architecture of the Americas (Irregular)** Study of the development of architecture in the Americas from the Pre-Columbian cultures to the present day. Lecture and slides 3 hours per week.

**ARCH4483H Honors Architecture of the Americas (Irregular)** Study of the development of architecture in the Americas from the Pre-Columbian cultures to the present day. Lecture and slides 3 hours per week. Prerequisite: Honors candidacy.

**ARCH4523 Architectural Theory (Sp)** Introduction to architectural theories and their relationship to modern historiography. Case studies are employed for the critical evaluation of significant texts and the discernment of concepts embedded in textual structures. Reading theory through established historical categories establishes critical insight to the original deployment, negation and resurfacing of architectural theories. Prerequisite: ARCH 2233, ARCH 2243, and ARCH 4433.

**ARCH4553 Modern Architecture in Mexico (Su)** Overview of the emergence, growth and trends that define the ongoing evolution of modern architecture in Mexico from the first decades of the 20th century to contemporary practice. Offered in the Mexico study abroad semester.

**ARCH4553H Honors Modern Architecture in Mexico (Su)** Overview of the emergence, growth and trends that define the ongoing evolution of modern architecture in Mexico from the first decades of the 20th century to contemporary practice. Offered in the Mexico study abroad semester.

**ARCH4610 Architecture Cooperative Education I (Irregular)** A practicum which introduces and engages the student

in the practice and application of the profession. Prerequisite: completion of all third year program requirements, 2.5 minimum GPA and permission of the faculty.

**ARCH4653 Architecture of the City (Sp, Fa)** Analysis of Rome's urban form and historical and theoretical information in support of the students' experience. Includes site visits and lectures. Offered in the Rome study abroad semester.

**ARCH4723H Honors Architectural Research Methods (Fa)** Investigation into the practical, theoretical, and methodological strategies necessary for embarking upon architectural inquiry and discourse at a sophisticated level, for instance, in the form of a year-long thesis or independent project. Practical issues of method, such as research skills, literature review, and argument analysis are examined. The classic range of tools for interpreting architecture are surveyed from single-cause explanations (e.g., formalism) to more recent multi-causal theories (e.g., Semiotics, Deconstruction, Post-colonial theory, etc.) for architectural design. Prerequisite: ARCH 2233, ARCH 2243, and ARCH 4433 and honors candidacy.

**ARCH4843 Medieval Architecture (Irregular)** This course traces the history of architecture in Western Europe from c. 300 - 1400. Sites studied include: the early Christian basilicas in Rome, the towered churches of Carolingian emperors, synagogues and mosques of Al-Andalus (Spain), Romanesque monasteries, and Gothic cathedrals. Prerequisite: ARCH 4433. (Same as ARHS 4743)

**ARCH4853 Renaissance and Baroque Architecture (Irregular)** Study of Renaissance and Baroque architecture in Europe and the New World from 1400 to 1700. With reference to an array of texts, drawings, and the edifices themselves, this course charts the evolution of a commanding Western architectural tradition. Renaissance and Baroque -- with close attention to the social, humanistic, and religious contexts that produced it. Prerequisite: ARCH 4433. (Same as ARHS 4753)

**ARCH5016 Option Studio I (Sp)** Project development dependent upon the synthesis of knowledge and application of critical thinking addressing architectural issues at multiple scales. Prerequisite: ARCH 4016 or ARCH 4026 or ARCH 4116 or ARCH 4126.

**ARCH5016H Honors Thesis Project I (Sp, Fa)** Degree project development dependent upon the synthesis of knowledge and application of critical thinking addressing architectural issues at multiple scales. Prerequisite: Honors candidacy.

**ARCH5026 Option Studio II (Su)** Project resolution including demonstrated skill in generating design ideas supported by clear understanding of issues resulting in comprehensive development and presentation of architectural issues at multiple scales. Prerequisite: ARCH 5016.

**ARCH5026H Honors Thesis Project II (Sp, Fa)** Degree project resolution including demonstrated skill in generating design ideas supported by clear understanding of issues resulting in comprehensive development and presentation of architectural issues at multiple scales. Prerequisite: Honors candidacy.

**ARCH5253 Architectural Structures Seminar (Irregular)** Advanced discussion, investigation, design, and analysis of structural systems, forms, and materials as determinants of architectural design. May be repeated for up to 6 hours of degree credit.

**ARCH5314 Architectural Professional Practice (Fa)** Study of role and responsibility of the architect, owner, and contractor relationships; professional ethics; organization of the architect's office; contracts and other documents; risk management strategies; and the preparation of the technical specifications and bidding documents of the Project Manual. Prerequisite: ARCH 4026 or ARCH 4116 or ARCH 4126.

**ARCH5493 History of Urban Form (Irregular)** The city is explored as the primary context for design practice and theory. A few themes, e.g., the struggle between internal and external determinants of form, will frame the examination of exemplary urban projects. Primary focus on Classical through Baroque periods, tracing precedents from these periods into contemporary practice. Prerequisite: ARCH 2233 and ARCH 2243 and ARCH 4433.

**ARCH5933 Preservation and Restoration (Irregular)** History of the preservation and restoration movement in Europe and the U.S.; its relation to the contemporary urban planning and renewal. Modern economic and administrative techniques of preservation. Participation in history surveys at regional and state levels. Prerequisite: ARCH 2233, ARCH 2243, and ARCH 4433.

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Art Education (ARED)

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**ARED3613 Public School Art I (Irregular)** Selection, preparation and use of instructional materials in elementary and secondary schools. For students seeking teaching certification in

art. Prerequisite: ARTS 1013 and ARTS 1313 and ARTS 1323 and ARTS 2013.

**ARED3643 Teaching Art in Elementary Schools (Fa)** Methods and materials used in teaching elementary school art. Prerequisite: ARED 3613.

**ARED3653 Teaching Art in Secondary Schools (Sp)** Methods and materials used in teaching secondary school art. Prerequisite: ARED 3603 or ARED 3613.

**ARED4633 Individual Research in Art Education (Sp, Fa)** Independent study in specific areas of art education. Prerequisite: 6 hours of art education.

**ARED476V Student Teaching in Art (Sp, Fa) (6-12)** A minimum of 6 weeks will be spent in an off-campus school. During this time the student teacher will have an opportunity under supervision to observe, to teach and participate in other activities involving the school and community. Prerequisite: BFA degree in Art Education.

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Art History (ARHS)

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**ARHS1003 Basic Course in the Arts: Art Lecture (Sp, Su, Fa)** A general introduction to the visual arts. Lectures on theory and criticism, demonstrations, films, and slides. Three hours a week plus attendance at specified programs and exhibits. May not be presented toward satisfaction of the B.A. fine arts requirement by art majors.

**ARHS1003H Honors Basic Course in the Arts: Art Lecture (Irregular)** A general introduction to the visual arts. Lectures on theory and criticism, demonstrations, films, slides. Three hours a week plus attendance at specified programs and exhibits. May not be presented toward satisfaction of the B.A. fine arts requirement by art majors.

**ARHS2913 Art History Survey I (Sp, Fa)** Survey of art works from Stone Age through Medieval.

**ARHS2923 Art History Survey II (Sp, Fa)** Survey of art works from Renaissance to the present.

**ARHS4743 Medieval Architecture (Irregular)** Traces the history of architecture in Western Europe from c. 300 - 1400. Focus is predominantly, though not exclusively, on the history of Christian architecture. Major architectural sites studied include: the early Christian basilicas in Rome, the towered churches of Carolingian emperors, Romanesque monasteries, and Gothic cathedrals. Prerequisite: ARHS 2913 or ARCH 4433 (Same as ARCH 4843)

**ARHS4753 Renaissance and Baroque Architecture (Irregular)** Study of Renaissance and Baroque architecture in Europe and the New World from 1400 to 1700. With reference to an array of texts, drawings, and edifices, this course charts the evolution of a commanding Western architectural tradition with close attention to social, humanistic, and religious contexts. Prerequisite: ARHS 2923 or ARCH 4433. (Same as ARCH 4853)

**ARHS4763 Seminar in Critical Theory (Sp)** Study of critical theory as it relates to problems in modern and contemporary art. Prerequisite: Nine credit hours of ARHS coursework.

**ARHS4763H Honors Seminar in Critical Theory (Sp)** Study of critical theory as it relates to problems in modern and contemporary art. Prerequisite: Nine credit hours of ARHS coursework.

**ARHS4813 The History of Photography (Irregular)** Survey of photography from 1685 to present.

**ARHS4823 History of Graphic Design (Irregular)** Survey of graphic design history from 1850 to the present. Prerequisite: ARHS 2923.

**ARHS4833 Ancient Art (Irregular)** Study of selections from the visual arts of Mesopotamia, Egypt, Greece, or Rome. Prerequisite: ARHS 2913.

**ARHS4833H Honors Ancient Art (Irregular)** Study of selections from the visual arts of Mesopotamia, Egypt, Greece, or Rome. Prerequisite: ARHS 2913.

**ARHS4843 Medieval Art (Irregular)** Study of Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic styles. Prerequisite: ARHS 2913.

**ARHS4843H Honors Medieval Art (Irregular)** Study of Early Christian, Byzantine, Early Medieval, Romanesque, and Gothic styles. Prerequisite: ARHS 2913.

**ARHS4853 Italian Renaissance Art (Irregular)** Study of Proto-Renaissance, Early, High Renaissance, and Mannerist styles in Italy. Prerequisite: ARHS 2923.

**ARHS4853H Honors Italian Renaissance Art (Irregular)** Study of Proto-Renaissance, Early, High Renaissance, and Mannerist styles in Italy. Prerequisite: ARHS 2923.

**ARHS4863 Northern Renaissance Art (Irregular)** Study of Late Gothic and Renaissance styles in the Netherlands, Germany, and France. Prerequisite: ARHS 2923.

**ARHS4863H Honors Northern Renaissance Art (Irregular)**

Study of Late Gothic and Renaissance styles in the Netherlands, Germany, and France. Prerequisite: ARHS 2923.

**ARHS4873 Baroque Art (Irregular)** Study of art styles of the 17th century, primarily in Italy, Spain, France, Flanders, and the Netherlands. Prerequisite: ARHS 2923.

**ARHS4873H Honors Baroque Art (Irregular)** Study of art styles of the 17th century, primarily in Italy, Spain, France, Flanders, and the Netherlands. Prerequisite: ARHS 2923.

**ARHS4883 18th and 19th Century European Art (Irregular)** Study of eighteenth- and nineteenth-century art and architecture in Europe. Prerequisite: ARHS 2923.

**ARHS4883H Honors 18th and 19th Century European Art (Irregular)** Study of eighteenth and nineteenth century art and architecture in Europe. Prerequisite: ARHS 2923.

**ARHS4893 20th Century European Art (Irregular)** Study of the major styles and movements of the century, including Cubism, Fauvism, German Expressionism, and Surrealism. Prerequisite: ARHS 2923.

**ARHS4893H Honors 20th Century European Art (Irregular)** Study of the major styles and movements of the century, including Cubism, Fauvism, German Expressionism, and Surrealism. Prerequisite: ARHS 2923.

**ARHS4913 American Art to 1860 (Irregular)** The visual arts in the United States from Colonial times through 1860. Prerequisite: ARHS 2923.

**ARHS4913H Honors American Art to 1860 (Irregular)** The visual arts in the United States from Colonial times through 1860. Prerequisite: ARHS 2923.

**ARHS4923 American Art 1860-1960 (Irregular)** The visual arts in the United States from the onset of the American Civil War through the Cold War Era. Prerequisite: ARHS 2923.

**ARHS4923H Honors American Art 1860 - 1960 (Irregular)** The visual arts in the United States from the onset of the American Civil War through the Cold War Era. Prerequisite: ARHS 2923.

**ARHS4933 Contemporary Art (Fa)** Study of styles and major trends in the visual arts since 1960. Prerequisite: ARHS 2923 and ARHS 4923.

**ARHS4933H Honors Contemporary Art (Fa)** Study of styles and major trends in the visual arts since 1960. Prerequisite: ARHS 2923 and ARHS 4923.

**ARHS4943 Seminar in Art Criticism (Fa)** Study and problems in the criticism of art forms and styles. Prerequisite: 9 hours of art history.

**ARHS4943H Honors Seminar in Art Criticism (Fa)** Study and problems in the criticism of art forms and styles. Prerequisite: 9 hours of art history.

**ARHS4953 Art Museum Studies (Irregular)** A survey of the history and function of the art museum and an introduction to museum work. Investigation of collections and collections management, conservation, exhibitions, education and public programs, museum management, and contemporary issues which effect the museum profession. Prerequisite: ARHS 2913 and ARHS 2923, or graduate Art MFA standing.

**ARHS4963 Individual Research in Art History (Sp, Fa)** Independent study in specific areas of art history and criticism. Prerequisite: 12 hours of Art History and permission of instructor.

**ARHS4963H Honors Individual Research in Art History (Sp, Fa)** Independent study in specific areas of art history and criticism. Prerequisite: 12 hours of Art History and permission of instructor.

**ARHS4973 Seminar in Art History (Irregular)** Special studies of periods and styles of art. Prerequisite: 9 hours of Art History. May be repeated for up to 6 hours of degree credit.

**ARHS4983 Special Topics in Art History (Irregular)** Subject matter not covered in regularly offered courses, and relating to the history of art before the nineteenth century. May be repeated for different topics. Prerequisite: ARHS 2913 or ARHS 2923. May be repeated for up to 6 hours of degree credit.

**ARHS4993 Special Topics in Modern Art (Irregular)** Subject matter not covered in regularly offered courses, and relating to the history of art from the nineteenth century to the present. May be repeated for different topics. Prerequisite: ARHS 2923. May be repeated for up to 9 hours of degree credit.

**ARHS6933 Graduate Research In Art History (Irregular)** Independent study in specific areas of art history and criticism.

**ARHS6943 Seminar: Critical Thought in Art (Fa)** Explore topics of concern to the studio artist involving underlying concepts and purposes of art as well as models and methods for the analysis of art. Course based on discussions of selected readings, prepared papers and seminar reports. Prerequisite: graduate standing. May be repeated for up to 3 hours of degree credit.

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 Arts and Sciences (ARSC)
 

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**ARSC1001 Fulbright Perspectives (Fa)** Open to incoming freshman and transfer students participating in the university's First Year Experience. Available for credit only.

**ARSC300V Study Abroad (Sp, Su, Fa) (1-18)** Open to undergraduate students studying abroad in officially sanctioned programs. May be repeated for up to 24 hours of degree credit.

**ARSC310V Cooperative Education (Sp, Su, Fa) (1-4)** Required of participants in cooperative education work assignments. Available for credit only. May be repeated for up to 4 hours of degree credit.

**ARSC500V Study Abroad (Sp, Su, Fa) (1-6)** Open to graduate students studying abroad in officially sanctioned programs. May be repeated for up to 24 hours of degree credit.

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 Art (ARTS)
 

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**ARTS1013 Drawing Fundamentals I (Sp, Fa)** Problems dealing with materials and techniques of drawing, including basic concepts of line, perspective, and value.

**ARTS1313 Two-Dimensional Design (Sp, Fa)** Studio problems in the use of line, shape, texture, value, and color and their relationships.

**ARTS1323 Three-Dimensional Design (Sp, Fa)** Studio problems with the elements of three-dimensional design: structure, space, form, surface, and their relationship.

**ARTS2003 Drawing Fundamentals II (Sp)** Continuation of Drawing Fundamentals. Prerequisite: ARTS 1013.

**ARTS2013 Figure Drawing I (Sp, Fa)** Continuation of drawing fundamentals with emphasis upon human figure studies. Prerequisite: ARTS 1013.

**ARTS2313 Computer Applications in Art (Sp, Fa)** Introduction to digital imaging in the visual arts. Beginning instruction in digital image creation, manipulation and processing. Introduction to input and output peripherals, computer graphic software programs and work in the digital visual arts. Prerequisite: ARTS 1313.

**ARTS3023 Drawing III (Fa)** Advanced studies and problems in drawing techniques and materials. Prerequisite: ARTS 2003 and ARTS 2013.

**ARTS3103 Painting I (Sp, Fa)** An exploration of different ways of articulating visual forms on a picture plane, using common materials and procedures. Pre- or Corequisite: ARTS 1313 and ARTS 2013 or ARCH 1025.

**ARTS3123 Painting: Water Media (Irregular)** Introductory course presenting basic materials and techniques of watercolor, gouache, and acrylic painting. Form and composition to be studied through observation and imagination. Traditional techniques as well as experimentation and personal expression are to be explored. Prerequisite: ARTS 1013 and ARTS 1313 and ARTS 1323.

**ARTS3133 Figure Painting (Irregular)** Introduction to representational and interpretive figure painting and to contemporary issues in figurative painting. The model as well as other visual sources will be used as a basis for observation, interpretation and invention. Prerequisite: ARTS 2013, ARTS 3103.

**ARTS3153 Painting Perception Into Abstraction (Irregular)** Investigation of the abstraction of visual phenomena. Various starting points and approaches will be studied. Emphasis on the analysis of form, the creation of pictorial structure, and the conceptual basis of perceptual abstraction. Prerequisite: ARTS 3103.

**ARTS3203 Sculpture I: Fundamentals of Modeling, Carving & Casting (Fa)** An introduction to fundamental additive and subtractive sculpture techniques and methods of seeing and working that give expression to material form. Beginning techniques in modeling, carving, mold-making, and basic casting are demonstrated. Lectures, readings, and critiques will develop student awareness of traditional building techniques which inform contemporary sculpture practices. Prerequisite: ARTS 1323.

**ARTS3213 Sculpture II: Construction Methods & Alternative Media (Sp)** A focus on material sensitivity through thoughtful and skillful additive approaches. Woodworking as well as construction techniques in alternative media are introduced as tools to examine structural and spatial possibilities. Through examining and questioning the interplay of form, material, technique, and content, students will further develop their own critique skills. Prerequisite: ARTS 3203.

**ARTS3333 Color Studies (Fa)** Investigation of color qualities and relationships through research and studio problems. Prerequisite: ARTS 1313 and ARTS 1323 and ARTS 2013.

**ARTS3363 Graphic Design I (Sp, Fa)** An overview of design principles and the application of design processes to posters, logos, stationery, and publication design. Conceptual development and visual and technical problem solving skills are em-

phasized. Prerequisite: ARTS 1013 and ARTS 2313.

**ARTS3403 Etching I (Sp)** Introduction to intaglio and relief. Prerequisite: ARTS 1313 and (ARTS 2003 or ARTS 2013).

**ARTS3413 Etching II (Sp)** Advanced work in intaglio or relief. Students select one area for study. Intaglio emphasizes working with copper plates and color printing. Background in color studies preferred but not mandatory. Prerequisite: ARTS 3403 or ARTS 3463.

**ARTS3423 Printmaking-Lithography (Fa)** Introduction to lithography with emphasis on stone lithographic techniques. Prerequisite: ARTS 1313 and (ARTS 2003 or ARTS 2013 or ARTS 2023).

**ARTS3433 Lithography II (Fa)** Advanced study with emphasis on color printing and plate lithography techniques. Prerequisite: ARTS 3423.

**ARTS3443 Serigraphy I (Irregular)** Introduction to serigraphy techniques, including cut stencil, resist methods, and photosensitized screens. Some knowledge of photography preferred, but not mandatory. Prerequisite: ARTS 1313 and (ARTS 2003 or ARTS 2013 or ARTS 2023).

**ARTS3453 Serigraphy II (Irregular)** Continuation of the study and use of serigraphy techniques. Prerequisite: ARTS 3443.

**ARTS3463 Introduction to Printmaking (Su)** Introduces the student to printmaking through primary methods used in relief, serigraphic, intaglio, and lithographic techniques. Prerequisite: ARTS 1013 and (ARTS 2003 or ARTS 2013 or ARTS 2023).

**ARTS3503 Ceramics: Handbuilding I (Fa)** This is an introductory course in ceramic sculpture focusing on basic handbuilding techniques and basic ceramic processes including clay mixing, glaze mixing, and low temperature gas and electric firing techniques. Pre- or Corequisite: ARTS 1013 and ARTS 1313 and ARTS 1323.

**ARTS3523 Ceramics: Wheelthrowing I (Sp)** This is an introductory course in ceramics focusing on basic functional wheelthrowing techniques and basic ceramic processes including clay mixing, glaze mixing, and low-temperature gas and electric firing techniques. Pre-or Corequisite: ARTS 1013 and ARTS 1313 and ARTS 1323.

**ARTS3533 Ceramics: Wheelthrowing II (Fa)** This course is an intermediate course in wheelthrowing and some handbuilding. A primary emphasis is on clay body and glaze calculation, and understanding the processes of firing low, high, and atmospheric kilns. Prerequisite: ARTS 3503 and ARTS 3523.

**ARTS3543 Ceramics: Slip-Casting (Sp)** This is an intermediate course in ceramic sculpture focusing on concept based object making. The techniques taught are mold-making and slip-casting, along with an advanced understanding of clay mixing, glaze mixing, low and high temperature gas, salt/soda, and electric firing techniques. Prerequisite: ARTS 3503 and ARTS 3523.

**ARTS3803 Photography I (Sp, Fa)** Beginning photography. Introduction to analog and digital B & W materials, techniques, and theory. Development of visual ideas through assignments, critiques, slide lectures, and demonstrations. Prerequisite: ARTS 2313.

**ARTS3813 Alternative Photographic Processes (Irregular)** Advanced B & W materials, techniques, and theory. Introduction to "non-traditional" materials, techniques, and theory (Cyanotype, Van Dyck Brownprint, Gum Biochromate, KWIK-PRINT, etc.). Assignments, critiques, slide lectures, and demonstrations. Prerequisite: ARTS 3803.

**ARTS4023 Figure Drawing II (Irregular)** Advanced study of the figure with emphasis on figure structure and its relationship to pictorial form in drawing. Prerequisite: ARTS 2013.

**ARTS404V Special Problems in Drawing (Sp, Su, Fa) (1-6)** Individual projects in drawing arranged with the instructor. Prerequisite: ARTS 3023. May be repeated for up to 6 hours of degree credit.

**ARTS4133 Landscape Painting (Irregular)** Exploration of perceptual and conceptual approaches to painting the landscape. Both traditional and experimental techniques of oil painting will be studied. Includes outdoor on-site painting. Prerequisite: ARTS 3103.

**ARTS4153 Topics in Advanced Painting (Irregular)** Topics in advanced and experimental painting. Prerequisite: 6 hours of painting. May be repeated for up to 12 hours of degree credit.

**ARTS417V Special Problems in Painting (Sp, Fa) (1-6)** Individual technique and subject matter projects to be arranged with the instructor. Prerequisite: ARTS 4143. May be repeated for up to 6 hours of degree credit.

**ARTS4193 Senior Painting Studio (Irregular)** Intensive course for those art majors concentrating in painting. Extended, individually determined projects will emphasize production of a well researched, conceptually grounded and cohesive body of work. Supplemented by reading, writing and discus-



sion of contemporary issues in painting. Pre- or corequisite: Senior standing, ARTS 3103 and three additional hours of painting from ARTS 3113, 3123, 3133, 3153, 4133, 4143, 4153, or 4163. May be repeated for up to 6 hours of degree credit.

**ARTS4213 Mixed Media & Spatial Context (Irregular)** An exploration in assemblage, installation, environmental art, light, and kinetics as they apply to contemporary sculptural language. Specific problems utilizing various media are preceded by readings, lectures, and demonstrations. Prerequisite: ARTS 3203.

**ARTS4223 Advanced Sculpture (Irregular)** A directed analysis of form and its relationship to content based on the development of work in students' medium of choice. Students will acquire the technical skills needed to meet personal vision through guidance of the instructor. Research evidenced in work, discussions, and critiques is emphasized. Prerequisite: ARTS 3203 and ARTS 3213.

**ARTS423V Special Problems in Sculpture (Sp, Fa) (1-6)** Individual projects in sculpture with emphasis on materials exploration. Prerequisite: ARTS 4223. May be repeated for up to 6 hours of degree credit.

**ARTS4333 Bookmaking (Irregular)** Introduction to the creation of unique, limited edition artist's bookworks -- with emphasis on technical knowledge and conceptual understanding of the book form as a means of artistic expression.

**ARTS4343 Advanced Design (Sp)** Studio problems in the interrelationships of two and three-dimensional elements in traditional, experimental, and digital media. Prerequisite: ARTS 1313 and ARTS 1323 and ARTS 2313.

**ARTS435V Special Problems in Design (Irregular) (1-6)** Extended problems in an area of interest in pure or functional design; encouraged use of imaginative materials. Prerequisite: ARTS 4343. May be repeated for up to 6 hours of degree credit.

**ARTS4363 Visual Design: Typography (Fa)** Studies include type as form, typographic contrast principles, legibility, text organization and hierarchy, and experimental approaches to typographic design. Overview of typographic history is included. Current computer software applications utilized. Prerequisite: ARTS 3363.

**ARTS4373 Graphic Design: Symbols (Irregular)** Emphasis on the development of logos, pictograms, symbols, and conceptual symbolism, with a study of the history of symbol generation. Current computer software applications utilized. Prerequisite: ARTS 3363.

**ARTS4383 Graphic Design: Layout (Irregular)** Advanced explorations of organizational principles and design processes applied to print media. Contemporary design practices and graphic design history are studied. Current computer software applications utilized. Prerequisite: ARTS 3363.

**ARTS439V Special Problems in Graphic Design (Sp, Fa) (1-6)** Advanced individual projects in graphic design. Prerequisite: Any 4000 level ARTS visual design course except ARTS 4343. May be repeated for up to 6 hours of degree credit.

**ARTS4463 Etching III (Sp, Fa)** Continued study of intaglio or relief. Prerequisite: ARTS 3413.

**ARTS4473 Lithography III (Fa)** Continued advanced study of lithography techniques. Prerequisite: ARTS 3433.

**ARTS4483 Printmaking IV (Sp, Fa)** Continued advanced study in various printmaking media. Prerequisite: ARTS 4463 or ARTS 4473.

**ARTS449V Special Problems in Prints (Sp, Fa) (1-6)** Individual projects in one area of printmaking. Prerequisite: ARTS 4463 or ARTS 4473. May be repeated for up to 6 hours of degree credit.

**ARTS4573 Advanced Ceramics (Sp, Fa)** This is an advanced course where any ceramic technique can be used. The course continues advanced study of glaze and clay calculation, and kiln design, building, and firing. Prerequisite: ARTS 3503 and ARTS 3523 and ARTS 3533 and ARTS 3543. May be repeated for up to 6 hours of degree credit.

**ARTS458V Special Problems in Ceramics (Sp, Fa) (1-3)** Individual projects in ceramic techniques. Prerequisite: ARTS 3503 or ARTS 3523. May be repeated for up to 6 hours of degree credit.

**ARTS459V Individual Instruction (Sp, Fa) (1-6)** Special projects on an arranged basis for advanced students in any area of art in which the catalog sequence of courses has been completed. May be repeated for up to 6 hours of degree credit.

**ARTS4613 Visual Design: Web I (Fa)** This course introduces students to the World Wide Web and the technologies and practices involved in creating a successful Web presence. Discussions include interactivity, usability and accessibility with an emphasis on standards-based hand-coding with a special attention to graphic design standards.

**ARTS4623 Visual Design: Web II (Sp)** This course will study advanced techniques in creating successful Web sites, including information architecture, SHTML and cascading style sheets, Web animation, digital photography, sequential storytelling and actual client work. Experimentation in concept, style and format are encouraged as students scrutinize the limitations and potential of design for the World Wide Web. Prerequisite: ARTS 4613.

**ARTS4653 Elements of Animation (Irregular)** This course explores the fundamentals of sequential imaging and storytelling from traditional methods through modern animation software. Computer based projects will make use of digital and video cameras, video editing software, Web animation software and a 3D animation package. Prerequisite: ARTS 1013, ARTS 1313, ARTS 2313.

**ARTS4663 Visual Design: Motion Design (Sp)** In this course, students will explore motion graphic design as it combines 2D and 3D animation, typography, video footage photography and sound. The projects will explore elements of storytelling, moving compositions and animation principles that focus on Web delivery, using mainly Apple Final Cut Pro and Adobe After Effects. Prerequisite: ARTS 4653.

**ARTS469V Special Problems In Interactive Design (Irregular) (1-6)** Students work on special projects on an individual basis with instructor, exploring innovative interface design, in-depth projects potentially exploring solutions to and awareness of social issues, with various types of media, from DVD and digital video to Web and motion graphics. Cross-discipline collaboration is encouraged. Prerequisite: ARTS 4613 and ARTS 4623 and ARTS 4653. May be repeated for up to 6 hours of degree credit.

**ARTS4813 Digital Photography (Irregular)** Introduction to digital photography production, techniques and theory. Digital input from scanning (flatbed & slide/negative), digital cameras, video and internet sources. Computer assisted manipulation of imagery for correction and abstraction. Output to a digital printing systems, analog systems (film recorder), servers and Internet. Prerequisite: ARTS 3803.

**ARTS4823 Color Photography I (Irregular)** Introduction to color production. Color materials, techniques and theory. Direct reversal transparencies and prints, color negative processing and printing, and manipulation of color materials. Assignments, demonstrations, critiques, and lectures. Prerequisite: ARTS 3803.

**ARTS4833 Advanced Black and White Photography (Irregular)** Advanced black and white theory, practice and techniques including: Zone System, large format camera and studio lighting. Prerequisite: ARTS 3803.

**ARTS484V Special Problems in Photography (Sp, Fa) (1-6)** Individual instruction for advanced undergraduates and graduate students. Special projects in photography designated by students in collaboration with faculty. Prerequisite: ARTS 3803 and (ARTS 3813 or ARTS 4823 or ARTS 4833). May be repeated for up to 6 hours of degree credit.

**ARTS4853 Documentary Photography (Irregular)** This course will introduce students to a variety of methods used in the area of documentary photography in order to give them the conceptual and technical skills necessary to create extended projects that focus on documenting and visually exploring subjects in an in-depth manner. Prerequisite: ARTS 3803.

**ARTS490VH Honors Thesis (Sp, Fa) (1-6)** Special problems in studio, art history, art criticism, art education, or a combination of these. Prerequisite: junior standing. May be repeated for up to 12 hours of degree credit.

**ARTS491V Internships in Art (Sp, Su, Fa) (1-3)** Credit for practical experience gained through internships in studio art, art history, gallery practices and/or art education. Report required from intern and field supervisor on significant accomplishments and/or progress. Prerequisite: junior standing and art major. May be repeated for up to 6 hours of degree credit.

**ARTS4921 Senior Portfolio Review (Sp, Fa)** Capstone course. A portfolio of creative work and supporting artist statement will be prepared and presented to the Art faculty in a formal presentation. Prerequisite: Art Majors only. Requires junior, senior or graduate standing.

**ARTS493V Fine Arts Gallery Internship (Sp, Su, Fa) (1-3)** Study all aspects of operating the Fine Arts Gallery. Research and preparation for exhibitions, organize and install exhibits, care of art works, create and distribute publicity, arrange interviews with newspapers, and other media.

**ARTS494V Graphic Design Internship (Sp, Su, Fa) (1-6)** Credit for practical experience gained through internship in graphic design. Report required from intern and field supervisor on progress and significant accomplishments. 3 credit hours per semester. Prerequisite: Any 4000 level ARTS visual design course except ARTS 4343. May be repeated for up to 6

hours of degree credit.

**ARTS495V Special Topics (Irregular) (1-6)** May be offered in a subject not specifically covered by the courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**ARTS498V Senior Thesis (Sp, Su, Fa) (1-6)**

**ARTS5013 Graduate Drawing (Fa)** Graduate level study of drawing materials and techniques. Prerequisite: Graduate standing.

**ARTS5901 Graduate Critique (Sp, Fa)** Art faculty review and critique of M.F.A. student's art works. Prerequisite: Admission into the M.F.A. program.

**ARTS5913 Graduate Seminar in Studio Art (Fa)** Examination and analysis of current issues and professional practices in contemporary visual art. The relationship of current theoretical literature to studio practice will be explored through writings, presentations and discussions of graduate student research. Prerequisite: Admission to MFA program. May be repeated for up to 6 hours of degree credit.

**ARTS601V Master of Fine Arts Exhibition (Sp, Su, Fa) (1-6)** Production and presentation of a one person exhibition of art work. The M.F.A. candidate will be responsible for making three acceptable slide sets of the exhibition and exhibition statements. Prerequisite: M.F.A. candidacy.

**ARTS602V Graduate Drawing (Sp, Fa) (1-6)** Individual problems in drawing techniques. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS612V Graduate Painting (Sp, Su, Fa) (1-6)** Individual problems in painting techniques. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS622V Graduate Sculpture (Sp, Fa) (1-6)** Individual problems in sculpture techniques. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS632V Graduate Design (Sp, Fa) (1-6)** Individual problems in two and three dimensional design. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS642V Graduate Printmaking (Sp, Su, Fa) (1-6)** Individual problems in printmaking techniques. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS652V Graduate Ceramics (Sp, Su, Fa) (1-6)** Individual problems in ceramic techniques. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS682V Graduate Photography (Sp, Su, Fa) (1-6)** Individual problems in photography. Prerequisite: Graduate standing. May be repeated for credit.

**ARTS695V Special Topics (Irregular) (1-6)** Subject matter not covered in other courses. Prerequisite: Graduate standing. May be repeated for up to 12 hours of degree credit.

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#### Astronomy (ASTR)

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**ASTR2001M Honors Survey of the Universe Laboratory (Fa)** An introduction to the content and fundamental properties of the cosmos. Topics include planets and other objects of the solar system, the sun, normal stars and interstellar medium, birth and death of stars, neutron stars, and black holes. Pre- or Corequisite: ASTR 2003 or ASTR 2003H. (Same as ASTR 2001L)

**ASTR2001L Survey of the Universe Laboratory (Sp, Su, Fa)** Daytime and nighttime observing with telescopes and indoor exercises on selected topics. Pre- or Corequisite: ASTR 2003.

**ASTR2003 Survey of the Universe (Sp, Su, Fa)** An introduction to the content and fundamental properties of the cosmos. Topics include planets and other objects of the solar system, the Sun, normal stars and interstellar medium, birth and death of stars, neutron stars, pulsars, black holes, the Galaxy, clusters of galaxies, and cosmology. Corequisite: ASTR 2001L or ASTR 2001M.

**ASTR2003H Honors Survey of the Universe (Fa)** An introduction to the content and fundamental properties of the cosmos. Topics include planets and other objects of the solar system, the Sun, normal stars and interstellar medium, birth and death of stars, neutron stars, pulsars, black holes, the Galaxy, clusters of galaxies, and cosmology. Corequisite: ASTR 2001M. May be repeated for up to 3 hours of degree credit.

**ASTR301V Observational Astronomy (Irregular) (1-3)** Individual experimental or observational problems studied with small telescopes, cameras, and other basic equipment. No credit is given toward a B.S. degree in physics. Prerequisite: ASTR 2003 or ASTR 3003.

**ASTR3033 Solar System Astronomy (Irregular)** Basic course on state of knowledge of solar system astronomy, especially designed for students in B.A. Physics program or as an elective for undergraduates in related areas. Prerequisite: PHYS 2033 and PHYS 2031L or PHYS 2074.

**ASTR4013 Astrophysics (Even years, Sp)** Introduction to

astrophysics for seniors. The course covers stellar evolution, interstellar medium, galactic nucleogenesis and observational cosmology. Prerequisite: PHYS 3614 or CHEM 3504.

**ASTR4073 Cosmology (Even years, Fa)** An introduction to modern Big Bang cosmology. The course covers the origin, evolution, and structure of the Universe, based on the Theory of Relativity. Prerequisite: PHYS 3614 or CHEM 3504.

**ASTR5013 Astrophysics (Odd years, Fa)** Introduction to astrophysics. The course covers stellar evolution, interstellar medium, galactic nucleogenesis and observational cosmology. Prerequisite: PHYS 3614 or CHEM 3504.

**ASTR5033 Planetary Systems (Fa)** The nature of the solar system and other planetary systems as deduced from observations and theoretical modeling. Structure and evolution of terrestrial and Jovian planets and their satellites. Planetary atmospheres, magnetospheres, and the solar wind; planetary interiors. Theoretical and observed properties of exoplanetary systems; astrobiology.

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#### Athletic Training (ATTR)

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**ATTR5212 Athletic Training Clinical I - Application of Athletic Preventive Devices (Su)** This course will serve as an introduction to the athletic training clinical program. Procedures and policies of the clinical program and application of athletic preventive devices will be included as well. Prerequisite: Admission to the graduate program in athletic training.

**ATTR5222 Athletic Training Clinical II - Emergency Procedures (Su)** This course will serve as a process for monitoring student's progression of athletic training competencies, acquire clinical hours under the direct supervision of a certified athletic trainer, and reinforce and instruct new emergency procedures. Prerequisite: ATTR 5212.

**ATTR5232 Athletic Training Clinical III - Lower Extremity Evaluation (Fa)** This course will serve as a process for monitoring student's progression of athletic training proficiencies, acquire clinical hours under the direct supervision of a certified athletic trainer, and reinforce the evaluation skills of gait, lower extremity, and spine/pelvis. Prerequisite: ATTR 5222.

**ATTR5242 Athletic Training Clinical IV - Evaluation of Upper Extremity (Sp)** This course will serve as a process for monitoring student's progression of athletic training competencies, acquire clinical hours under the direct supervision of a certified athletic trainer, and reinforce the evaluation skills of the upper extremities, head, neck, and posture. Prerequisite: ATTR 5232.

**ATTR5252 Athletic Training Clinical IV (Su)** This course will monitor students' progression of athletic training competencies and acquisition of clinical hours under the direct supervision of a athletic training clinical instructor during pre-season conditioning. Prerequisite: ATTR 5232.

**ATTR5262 Athletic Training Clinical VI - Rehabilitation Lab (Fa)** This course will serve as a process for monitoring student's progression of athletic training competencies, acquire clinical hours under the direct supervision of a certified athletic trainer, and reinforce techniques and applications of therapeutic exercise and rehabilitation. Prerequisite: ATTR 5252.

**ATTR5272 Athletic Training Clinical VII - Athletic Training Seminar (Sp)** This course will serve as a process for monitoring student's progression of athletic training competencies, acquire clinical hours under the direct supervision of a certified athletic trainer, and serve as a capstone course validating the athletic training clinical proficiencies and prepare students for the NATABOC certification exam and future employment. Prerequisite: ATTR 5262.

**ATTR5363 Evaluation Techniques of Athletic Injuries - Upper Extremity (Sp)** Use of scientific assessment methods to recognize and evaluate the nature and severity of athletic injuries to the upper extremities, trunk, and head. Prerequisite: Admission to graduate athletic training program.

**ATTR5373 Evaluation Techniques of Athletic Injuries - Lower Extremity (Fa)** Use of scientific assessment methods to recognize and evaluate the nature and severity of athletic injuries to the hip and lower extremities. Prerequisite: Admission to graduate athletic training program.

**ATTR5453 Therapeutic Modalities in Athletic Training (Fa)** Contemporary therapeutic modalities used in managing athletic injuries. Modalities covered are classified as thermal agents, electrical agents, or mechanical agents. Emphasis is placed on their physiological effects, therapeutic indications (and contraindications), and clinical application. Prerequisite: Admission to graduate athletic training program.

**ATTR5463 Therapeutic Exercise and Rehabilitation of Athletic Injuries (Fa)** A systematic approach to exercise program development, techniques, indications and contraindications of exercise, and progression as related to athletic injury, preven-

tion, and return to play guidelines. Prerequisite: Admission to graduate athletic training program.

**ATTR5473 Administration in Athletic Training (Su)** Administrative components of athletic training. Basic concepts of legal liability, leadership and management principles, financial management, day to day scheduling and supervision, maintenance, and general administration. Prerequisite: Admission to graduate athletic training program.

**ATTR5483 Medical Conditions in Athletic Training (Fa)** This course will provide a collection of knowledge, skills, and values that the entry-level certified athletic trainer must possess to recognize, treat, and refer, when appropriate, the general medical conditions and disabilities of athletes and others involved in physical activity. Prerequisite: Admission to the graduate athletic training program or permission of instructor.

**ATTR5493 Evidence Base Practice in Athletic Training (Su)** In-depth analysis of current literature, research, case studies, and musculoskeletal evaluation and rehabilitation directed toward musculoskeletal injuries of the physically active. Prerequisite: Admission into the Athletic Training Education Program.

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#### Biological Engineering (BENG)

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**BENG1012 Biological Engineering Design Fundamentals (Irregular)** Introduction to the profession of Biological Engineering including a definition, and demonstration through field trips, guest speakers, examples of job opportunities and internships. Basic engineering methodologies, including analysis and design, as applied to biological systems. Introduction to problem solving, data analysis, report writing, presentations, and engineering record keeping. Group activities and team design efforts. Lecture 1 hour, laboratory 3 hours per week. Corequisite: Lab component.

**BENG1022 Biological Engineering Design Studio I (Irregular)** Practice of biological engineering design in the Biological Engineering Design Studio. Design projects explore the unique problems associated with engineering applied to biological systems. Group activities to teach teamwork skills in the context of engineering practice, including reporting, project management, time management, communication and balancing individual and team accountability. Introduction and application to a computer aided graphics package. Lecture 1 hour, laboratory 3 hours per week. Prerequisite: BENG 1012 or GNEG 1103. Corequisite: Lab component.

**BENG2612 Biological Engineering Design Studio II (Fa)** Applications of biology, chemistry and physics to the design of life support for enclosed biological systems involving people, animals, plants and microbes. Design process will be based upon engineering analyses such as quantifying bio-energetics and growth, energy and mass balances, solar energy and use of watershed modeling tools. Student teams will be presented multiple design modules that include literature/experimental discovery, open-ended design and prototype testing. 4 hours of design studio per week. Pre- or Corequisite: PHYS 2054, BIOL 1543/1541L, GNEG 1111 or GNEG 1103.

**BENG2622 Biological Engineering Design Studio III (Sp)** Continuation of BENG 2612. Design Studio experience includes additional life support system design modules. Design process will include discussion of social issues and ethics, use of engineering economics as a tool to evaluate design alternatives. Use of descriptive statistics and regression to analyze experimental data. Improve written and oral communication skills through presentation of design project results. 4 hours of design studio per week. Pre- or Corequisite: GNEG 1121 or GNEG 1103, BIOL 2013/2011L or BIOL 2533/2531L. Prerequisite: BENG 2612.

**BENG2632 Biological Engineering Design Studio (Fa)** Application of the engineering design process to projects involving living systems. Projects are team-based open-ended design with hands-on construction and testing of design prototypes. Emphasis is placed on understanding, quantifying and controlling complex interacting living systems involving humans, animals, plants and microbes with the goal of creating economically and ecologically sustainable systems. 4 hours of design studio per week. Pre- or Corequisite: PHYS 2054 and BIOL 1543/1541L, and (GNEG 1111 or GNEG 1103).

**BENG2643 Biological Engineering Methods (Sp)** Introduction to the tools needed to perform biological engineering design, integrated through projects in the food, energy and/or water area. The tools covered include structured programming language for modeling, statistical analysis, geographic information systems, engineering graphics, and engineering economics. Two hours of lecture and three hours of lab per week. Corequisite: Lab component. Prerequisite: BENG 2632.

**BENG3104 Electronic Instrumentation for Biological**

**Systems (Sp)** Theory and advanced applications of analog circuits, digital circuits, and commercial instruments involving biological materials and systems. Lecture 3 hours, laboratory 3 hours per week. Prerequisite: PHYS 2074.

**BENG3104H Honors Electronic Instrumentation for Biological Systems (Sp)** Theory and advanced applications of analog circuits, digital circuits, and commercial instruments involving biological materials and systems. Lecture 3 hours, laboratory 3 hours per week. Prerequisite: PHYS 2074.

**BENG3213 Biomedical Engineering: Emerging Methods and Applications (Sp)** Introductory course for undergraduate biomedical engineering students. Emerging biomedical engineering topics including: tissue engineering, stem cell engineering, biomedical nanotechnology, medical imaging and biosensing, single molecule imaging, biomarker discovery and proteomics, gene therapy, drug delivery, and protein engineering. Design of components for tissue engineering processes, nanodrug delivery and nanotechnology based disease detection. Lecture 3 hours per week. Pre- or Corequisite: BENG 3723. Prerequisite: BIOL 2533/2531L, or BIOL 2013/2011L.

**BENG3653 Global Bio-Energy Engineering (Sp)** Global energy sources with a focus on renewable energy, solar and biomass derived fuels. Biomass energy production from crops and organic residues or waste products. Conversion of biomass to usable fuels. Utilization of renewable energy in society. Includes detailed systems analyses to examine inputs, efficiencies, usable outputs and by-products. Systems design to select and integrate components which meet client needs while maximizing sustainable global impacts. Three hours of lecture per week. Pre- or Corequisite: BENG 2643 and (MEEG 2403 or CHEG 2313).

**BENG3712 Engineering Properties of Biological Materials (Fa)** Measuring and predicting the physical, chemical, and biological properties of biological materials necessary for the analysis and design of production and processing systems. Lecture 2 hours per week. Prerequisite: BENG 2622.

**BENG3723 Unit Operations in Biological Engineering (Sp)** Design of basic unit operations typical of biological engineering practice; unit operations include pump-pipe, fan-duct, moist air (psychrometric) processes (cool/heater/humidifier/dryer), air mixing, aeration, and refrigeration; unit operations design will account for unique constraints imposed by biological systems. Lecture 2 hours and lab 3 hours per week. Corequisite: Lab component. Prerequisite: (MEEG 2403 or CHEG 2313) and (CVEG 3213 or CHEG 2133 or MEEG 3503).

**BENG3733 Transport Phenomena in Biological Systems (Fa)** Basic principles governing transport of energy and mass. Estimating transfer of energy (heat) through solid bodies and liquid/gas boundary layers through conduction, convection, and radiation. Modeling the rates at which biological reactions occur (kinetics). Estimating the transfer of diffusing mass (gas or liquid) through solid bodies and liquid/gas boundary layers, including processes such as drying and oxygen diffusion. Three hours lecture per week. Pre- or Corequisite: (CVEG 3213 or MEEG 3503 or CHEG 2133.) Prerequisite: (MEEG 2403 or CHEG 2313) and MATH 2584.

**BENG3743 Food and Bio-Product Systems Engineering (Sp)** Sustainable bio-product engineering through biosystem design, analysis, modeling, control, and optimization. Life cycle phases for bio-products (food, fiber, feed, and fuel). System analysis of inputs and outputs of energy, water and mass for the purpose of producing and processing biomass for human uses. Advanced bio-process design topics to utilize enzymes, cells, tissues and organisms to create bio-products and methods for deactivating biological agents to preserve the quality and safety of food and other bio-products. Three hours lecture per week. Prerequisite: BENG 3723 and BENG 3733.

**BENG3803 Mechanical Design in Biological Engineering (Sp)** Introduction to the mechanical design process applied to biological engineering, with examples of mechanical components interfacing with biological systems. Engineering properties of materials, loading, combined stress analysis, theories of failure. Systems approach in design, including safety, reliability and cost. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: MEEG 3013 and GNEG 1122.

**BENG3933 Sustainable Watershed Engineering (Sp)** Provides students with expertise in using advanced tools in watershed monitoring, assessment, and design. Builds on core competencies in hydrology and hydraulics to allow student to evaluate water used by sector in water management regions; evaluate and quantify water demands by sector with emphasis on irrigation; develop risk-based simulations of hydrologic processes, including precipitation, evapo-transportation, infiltration, runoff, and stream flow; quantify and simulate constituent loading to watersheds using GIS-based models, and un-

derstand the applications of these methods in water resource management policy. Three hours lecture per week. Prerequisite: CVEG 3223 or BENG 4903.

**BENG4103 Measurement and Control for Biological Systems (Fa)** Principles of sensors, instruments, measurements, controls, and data acquisition systems, with emphasis on applications for biological systems. Including sensor calibration and signal conditioning, elementary control algorithms, basic electro-mechanical controls, and digital controls. Autonomous field and process monitoring and controls. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: ELEG 3903.

**BENG4103H Honors Measurement and Control for Biological Systems (Fa)** Principles of sensors, instruments, measurements, controls, and data acquisition systems, with emphasis on applications for biological systems. Including sensor calibration and signal conditioning, elementary control algorithms, basic electro-mechanical controls, and digital controls. Autonomous field and process monitoring and controls. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: ELEG 3903.

**BENG4113 Risk Analysis for Biological Systems (Odd years, Fa)** Principles of risk assessment including exposure assessment, dose response, and risk management. Methods of risk analysis modeling and simulation with computer software. Applications of risk analysis in medical, animal, food and environmental systems. Prerequisite: MATH 2564 and BIOL 2013.

**BENG4123 Biosensors & Bioinstrumentation (Odd years, Sp)** Principles of biologically based sensing elements and interfacing techniques. Design and analysis methods of biosensing and transducing components in bioinstrumentation. Applications of biosensors and bioinstrumentation in bioprocessing, bioenvironmental, biomechanical and biomedical engineering. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BIOL 2013 or BIOL 2533 and BENG 4104.

**BENG4133 Digital Remote Sensing and GIS (Irregular)** Basic digital image processing techniques and geo-spatial analysis applied to monitoring of natural processes and resources. Course topics include introduction to electromagnetic radiation, concept of color, remote sensing systems, and light attenuation by atmosphere, objects and sensors. Advanced topics include data models, spectral transforms, spatial transforms, correction and calibration, geo-rectification, and image classification with hyperspectral and multi-spectral images acquired with aerial and satellite sensors. Raster GIS is integrated into the course throughout the semester. Will use software such as ENVI, ArcGIS and ArcView. Lecture 2 hours, lab 3 hours per week.

**BENG4203 Biomedical Engineering Principles (Fa)** Engineering principles applied to the design and analysis of systems affecting human health. This is an introductory course focusing on fundamentals of physiological systems and modeling and how this relates to analysis and equipment design. Topics include: brief overview of anatomy and physiology; bioelectric phenomena, physiological modeling, cardiovascular system, biomechanics, computational biology. Requires a background in circuits, fluid dynamics, mechanics, biology, and chemistry. Lecture 3 hours per week. Prerequisite: MATH 2584 and Senior standing.

**BENG4223 Numerical Methods in Biomedical Engineering (Sp)** Application of mathematical techniques and numerical methods for analyzing biological data and solving biological problems. The emphasis will be computer simulation and mathematical modeling applications in biomedical engineering. Prerequisite: MATH 2584.

**BENG4233 Tissue Engineering (Fa)** Introduction to tissue engineering. Topics include quantitative cell and tissue biology, tissue dynamics, cellular-fate processes, coordination of cellular-fate processes, stem cell differentiation and organ regeneration, biomaterials and tissue scaffolding, gene therapy, and clinical implementation of tissue engineered products. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CHEM 3613.

**BENG4243 Biomaterials (Sp)** Study of different classes of biomaterials and their interactions with human tissues. From absorbable sutures to Zirconium alloy hip implants, biomaterials science influences nearly every aspect of medicine. Topics include: biocompatibility factors; natural and synthetic biopolymers, ceramics and metals; orthopedic, dental and cardiovascular implants; ophthalmological and dermatological materials; degradable polymers for drug delivery; nanobiomaterials; smart biomaterials and the regulation of devices and materials by the FDA. Three lectures per week. Prerequisite: (BENG 3712 or MEEG 2103) and MEEG 3013.

**BENG4283 Electronic Response of Biological Tissues (Irregular)** Understand the electric and magnetic response of biological tissues with particular reference to neural and cardiovascular systems. Passive and active forms of electric signals in cell communication. We will develop the central electrical mechanisms from the membrane channel to the organ, building on those excitation, dielectric models for tissue behavior, Debye, Cole-Cole models. Role of bound and free water on tissue properties. Magnetic response of tissues. Experimental methods to measure tissue response. Applications to Electrocardiography & Electroencephalography, Microwave Medical Imaging, RF Ablation will be discussed that are common to many electrically active cells in the body. Analysis of Nernst equation, Goldman equation, linear cable theory, and Hodgkin-Huxley Model of action potential generation and propagation. High frequency response of tissues to microwave. Prerequisite: ELEG 3703 or equivalent; MATH 2584 or equivalent; basic biology. (Same as ELEG 4773)

**BENG450V Special Problems (Sp, Su, Fa) (1-4)** Selected problems in biological engineering are pursued in detail. Prerequisite: senior standing. May be repeated for up to 4 hours of degree credit.

**BENG451VH Honors Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Honors candidacy.

**BENG452V Special Topics in Biological Engineering (Irregular) (1-6)** Special topics in biological engineering not covered in other courses. May be repeated for up to 8 hours of degree credit.

**BENG4663 Sustainable Biosystems Designs (Fa)** Process and methodologies associated with measuring, assessing, and designing sustainable systems in water, energy and food. Quantitatively rigorous methodology for life cycle analysis (LCA) for inventory, assessment and impact analyses. Use of other systems analyses and process control theory to evaluate and design sustainable systems. Application of the methods to a project to gain experience in defining, quantifying and utilizing sustainable metrics. Three hours of lecture per week. Prerequisite: BENG 3653 and BENG 3743 and BENG 3933.

**BENG4703 Biotechnology Engineering (Fa)** Introduction to biotechnology topics ranging from principles of microbial growth, mass balances, bioprocess engineering as well as emerging principles in the design of biologically based microbial and enzymatic production systems. Application areas such as biofuels, and fine and bulk chemical production. Lecture 2 hours, laboratory 3 hours per week. Prerequisite: BENG 2622. Corequisite: Lab component.

**BENG4733 Kinetics and Transport Phenomena in Biological Systems (Fa)** Applications of the principles of kinetics and heat and mass transfer to the analysis and design of biological engineering processes. Biological engineering processes will encompass examples in the realms of biotechnology, ecological, and biomedical engineering. Lecture 3 hours per week. Prerequisite: MATH 2584 and BENG 3723. Pre- or Corequisite: CHEM 3813.

**BENG4813 Senior Biological Engineering Design I (Fa)** Design concepts for equipment and processes used in biological, food and agricultural industries. Initiation of comprehensive two-semester team-design projects; defining design objectives, developing functional/mechanical criteria, standards, reliability, safety, ethics and professionalism issues. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BENG 3723. Pre- or Corequisite: BENG 4733.

**BENG4822 Senior Biological Engineering Design II (Sp)** Continuation of BENG 4813. Design concepts for equipment and processes used in biological and agricultural industries. Completion of 2-semester team design projects. Construction, testing, and evaluation of prototypes. Written and oral design reports. Discussion of manufacturing methods, safety, ergonomics, analysis/synthesis/design methods as appropriate for particular design projects. Laboratory/design 4 hours per week. Prerequisite: BENG 4813.

**BENG4903 Watershed Eco-Hydrology (Sp)** Engineering principles involved in assessment and management of surface water flow and hydrologic processes within ecosystems. Includes frequency analysis of rainfall, infiltration, runoff, evapotranspiration. Use of GIS/mathematical models to quantify hydrologic processes at the watershed-landscape scale. Design/implementation of best management practices and ecological engineering principles and processes for advanced ecological services. Lecture 3 hours per week. Prerequisite: CVEG 3213.

**BENG4923 Ecological Engineering Design (Fa)** Design of low impact development techniques to enhance ecological services, reduce peak runoff, and capture sediments, nutrients and other pollutants resulting from urban development. Techniques may include: bio-swales, retention basins, and

filter strips. Design of sustainable ecological processes for the treatment and utilization of wastes/residues. Techniques may include: direct land application to soils/crops, composting systems, lagoons and constructed wetlands. Design goals include optimization of ecological services to maintain designated uses of land, water and air, including enhancement of habitat for wildlife and recreation, and the discovery of economically viable methods for coexistence of urban and agricultural land uses. Lecture 3 hours per week. Prerequisite: BENG4903.

**BENG500V Advanced Topics in Biological Engineering (Irregular) (1-6)** Special problems in fundamental and applied research. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**BENG5103 Advanced Instrumentation in Biological Engineering (Even years, Sp)** Applications of advanced instrumentation in biological systems. Emphasis on updated sensing and transducing technologies, data acquisition and analytical instruments. Lecture 2 hours, lab 3 hours per week. Corequisite: Lab component. Prerequisite: BENG 4104.

**BENG5113 DIGITAL Remote Sensing and GIS (Irregular)** Basic digital image processing techniques and geo-spatial analysis applied to monitoring of natural processes and resources. Course topics include introduction to electromagnetic radiation, concept of color, remote sensing systems, and light attenuation by atmosphere, objects and sensors. Advanced topics include data models, spectral transforms, spatial transforms, correction and calibration, geo-rectification, and image classification with hyperspectral and multi-spectral images acquired with aerial and satellite sensors. Raster GIS is integrated into course throughout the semester. Will use software such as ENVI, ArcGIS and ArcView. Requires a class project in the student's area of interest. Lecture 2 hours, lab 3 hours per week. Students may not earn credit for both BENG 5113 and BENG 4133. Corequisite: Lab component. Prerequisite: MATH 2584.

**BENG5203 Mathematical Modeling of Physiological Systems (Sp)** Application of mathematical techniques to physiological systems. The emphasis will be on cellular physiology and cardiovascular system. Cellular physiology topics include models of cellular metabolism, membrane dynamics, membrane potential, excitability, wave propagation and cellular function regulation. Cardiovascular system topics include models of blood cells, oxygen transport, cardiac output, cardiac regulation, and circulation. Background in biology and physiology highly recommended. Lecture 3 hours per week. Prerequisite: MATH 2584. (Same as BMEEG 5203)

**BENG5213 Introduction to Bioinformatics (Irregular)** Application of algorithmic techniques to the analysis and solution of biological problems. Topics include an introduction to molecular biology and recombinant DNA technology, biological sequence comparison, and phylogenetics, as well as topics of current interest. (Same as CSCE 5213)

**BENG5223 Biomedical Engineering Research Internship (Sp, Su, Fa)** Minimum six-week program (possibly up to several months) in a medical research environment working on an original engineering research project. Possible specialty areas include Anesthesiology, Cardiology, Informatics, Ophthalmology, Orthopedic Surgery, and Radiology. Prerequisite: Graduate standing and approval of coordinator.

**BENG5233 Tissue Engineering (Fa)** Introduction to tissue engineering. Topics include quantitative cell and tissue biology, tissue dynamics, cellular-fate processes, coordination of cellular-fate processes, stem cell differentiation and organ regeneration, biomaterials and tissue scaffolding, gene therapy, and clinical implementation of tissue engineered products. Lecture 2 hours, laboratory 3 hours per week. Students may not earn credit for both BENG 5233 and BENG 4233. Corequisite: Lab component. Prerequisite: CHEM 3613.

**BENG5243 Biomaterials (Sp)** Study of different classes of biomaterials and their interactions with human tissues. From absorbable sutures to Zirconium alloy hip implants, biomaterials science influences nearly every aspect of medicine. Topics include: biocompatibility factors; natural and synthetic biopolymers, ceramics and metals; orthopedic, dental and cardiovascular implants; ophthalmological and dermatological materials; degradable polymers for drug delivery; nanobiomaterials; smart biomaterials and the regulation of devices and materials by the FDA. Three lectures per week. Students may not earn credit for both BENG 5243 and BENG 4233. Prerequisite: BENG 3712 or MEEG 2303, and MEEG 3013

**BENG5253 Bio-Mems (Irregular)** Topics include the fundamental principles of microfluidics, Navier-Stokes Equation, bio/abio interfacing technology, bio/abio hybrid integration of microfabrication technology, and various biomedical and biological problems that can be addressed with microfabrication technology and the engineering challenges associated with it. Lecture 3 hour per week. Prerequisite: MEEG 3503 or CVEG

3213 or CHEG 2133. (Same as MEEG 5253)

**BENG5263 Biomedical Engineering Principles (Fa)** Engineering principles applied to the design and analysis of systems affecting human health. This is a course focusing on fundamentals of physiological systems and modeling. Topics include: brief overview of anatomy and physiology, bioelectric phenomena and neuronal model, compartmental modeling, cardiovascular system and blood flow, biomechanics, computational biology and signal transduction. Requires a background in circuits, fluid dynamics, mechanics, biology, and/or biochemistry. Lecture 3 hours per week. Students may not earn credit for both BENG 5263 and BENG 4203. Prerequisite: MATH 2584 or equivalent and graduate standing.

**BENG5273 Numerical Methods in Biomedical Engineering (Sp)** Application of mathematical techniques and numerical methods for analyzing biological data and solving biological problems. The emphasis will be computer simulation and mathematical modeling applications in biomedical engineering. Lecture 3 hours per week. Students may not earn credit for both BENG 5273 and BENG 4223. Prerequisite: MATH 2584.

**BENG5283 Electronic Response of Biological Tissues (Irregular)** Understand the electric and magnetic response of biological tissues with particular reference to neural and cardiovascular systems. Passive and active forms of electric signals in cell communication. We will develop the central electrical mechanisms from the membrane channel to the organ, building on those that are common to many electrically active cells in the body. Analysis of Nernst equation, Goldman equation, linear cable theory, and Hodgkin-Huxley Model of action potential generation and propagation. High frequency response of tissues to microwave excitation, dielectric models for tissue behavior, Debye, Cole-Cole models. Role of bound and free water on tissue properties. Magnetic response of tissues. Experimental methods to measure tissue response. Applications to Electrocardiography & Electroencephalography, Microwave Medical Imaging, RF Ablation will be discussed. Students may not receive credit for both BENG 4283 and BENG 5283. Prerequisite: MATH 2584, ELEG 3703 or PHYS 3414, BIOL 2533 or equivalent. (Same as ELEG 5773)

**BENG5303 Fundamentals of Biomass Conversion (Fa)** Web-based overview of the technology involved in the conversion of biomass to energy, including associated sustainability issues. Overview of biomass structure and chemical composition; biochemical and thermochemical conversion platforms; issues, such as energy crop production related to water consumption and soil conservation. Further topics include: biomass chemistry, logistics and resources; biological processes; and thermochemical processes. Two web-based lectures/meetings per week. Prerequisite: Graduate standing or instructor consent.

**BENG5313 Fundamentals of Bioprocessing (Sp)** This course covers the fundamentals of mass and energy balances, fluid dynamics, heat and mass transfer, as applied to Bioprocessing. The microbial growth, kinetics and fermenter operation as applicable to Bioprocessing will be covered in this course. Industrial Bioprocessing case studies that involve the integration of the course contents will be discussed. This course is offered on-line in collaboration with the AG\*IDEA consortium of land grant universities. The principal instructor will be a non-UA faculty member at a participating university. Prerequisite: MATH 2554, CHEM 3813, and PHYS 2054.

**BENG5323 Bioseparations (Even years, Sp)** Study of separations important in food and biochemical engineering such as leaching, extraction, expression, absorption, ion exchange, filtration, centrifugation, membrane separation, and chromatographic separations. This course is offered on-line in collaboration with the AG\*IDEA consortium of land grant universities. The principal instructor will be a non-UA faculty member at a participating university. Prerequisite: Instructor Consent.

**BENG5333 Biochemical Engineering (Odd years, Sp)** The analysis and design of biochemical processing systems with emphasis on fermentation kinetics, continuous fermentations, aeration, agitation, scale up, sterilization, and control. This course is offered on-line in collaboration with the AG\*IDEA consortium of land grant universities. The principal instructor will be a non-UA faculty member at a participating university. Prerequisite: Instructor Consent Required.

**BENG5343 Advanced Biomass Thermochemical Conversion (Odd years, Fa)** Advanced study, evaluation, and application of thermochemical conversion pathways in biofuel production. Specific topics include biomass gasification, pyrolysis, liquefaction, and heterogeneous catalysts. This course is offered on-line in collaboration with the AG\*IDEA consortium of land grant universities. The principal instructor will be a non-UA faculty member at a participating university. Prerequisite: Instructor Consent.

**BENG5351 Sustainability Seminar (Su)** Topics in environmental sustainability, green engineering, life cycle analysis, sustainable development and sustainability science. This course is offered on-line in collaboration with the AG\*IDEA consortium of land grant universities. The principal instructor will be a non-UA faculty member at a participating university. Prerequisite: CHEM 1123.

**BENG5613 Simulation Modeling of Biological Systems (Irregular)** Application of computer modeling and simulation of discrete-event and continuous-time systems to solve biological and agricultural engineering problems. Philosophy and ethics of representing complex processes in simplified form. Deterministic and stochastic modeling of complex systems, algorithm development, application limits, and simulation interpretation. Emphasis on calibration, validation and testing of biological systems models for the purposes of system optimization, resource allocation, real-time control and/or conceptual understanding. Prerequisite: AGST 4023 or STAT 4003 or INEG 3333.

**BENG5623 Life Cycle Assessment (Sp)** This course will examine the process and methodologies associated with life cycle analysis (LCA). The course will explore the quantitatively rigorous methodology for life cycle inventory (LCI), LCA and life cycle impact assessment (LCIA). This course is offered on-line. The principal instructor will be a UA faculty member.

**BENG5633 Linkages Among Technology, Economics and Societal Values (Sp, Fa)** Addresses how macro-level change is influenced by the linkages among technology, economics and societal values. Three major course initiatives: 1) Developing a conceptual model for understanding how macro-level change has occurred over history; 2) Examining recorded history in order to develop a contextual appreciation for Society's current situation; and 3) Using statistical data to identify six overriding world trends that are likely to greatly impact society's goal of achieving sustainable prosperity and well-being in the foreseeable future. Prerequisite: Graduate standing or instructor permission. (Same as OMTG 5633)

**BENG5703 Design and Analysis of Experiments for Engineering Research (Irregular)** Principles of planning and design of experiments for engineering research. Propagation of experimental error. Improving precision of experiments. Analysis of experimental data for optimal design and control of engineering systems using computer techniques. Students must have an introductory background in statistics. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component.

**BENG5723 Food Safety Engineering (Even years, Fa)** Principles of engineering methods applied to food and safety and sanitation. Principles of engineering methods applied to food safety and security. Discussion of thermal, chemical and electrical pasteurization or sterilization in food processing. Demonstration of monitoring and detecting techniques for food safety, including image analysis, biosensors and modeling. Lecture 3 hours per week. Prerequisite: BENG 4103 and FDSC 4123 (or equivalent).

**BENG5733 Advanced Biotechnology Engineering (Odd years, Fa)** Applications of the principles of bioprocess/biochemical engineering to microbiological and biomedical problems. Topics include applied enzymology, metabolic engineering, molecular genetics and control, and bioinformatics and nanobiotechnology in addition to classical applied enzyme and cell-growth kinetics and advanced bioreactor design. Prerequisite: BENG 3733 or BENG 4703 or BENG 5743 or equivalent.

**BENG5743 Biotechnology Engineering (Fa)** Introduction to biotechnology topics ranging from principles of microbial growth, mass balances, bioprocess engineering as well as emerging principles in the design of biologically based microbial and enzymatic production systems. Application areas such as biofuels, and fine and bulk chemical production. Lecture 2 hours, laboratory 3 hours per week. Students may not earn credit for both BENG 5743 and BENG 4703. Prerequisite: Graduate standing. Corequisite: Lab component.

**BENG5801 Graduate Seminar (Sp)** Reports presented by graduate students on topics dealing with current research in biological engineering. Prerequisite: Graduate standing.

**BENG5923 Nonpoint Source Pollution Control and Modeling (Irregular)** Control of hydrologic, meteorologic, and land use factors on nonpoint source (NPS) pollution in urban and agricultural watersheds. Discussion of water quality models to develop NPS pollution control plans and total maximum daily loads (TMDLs), with consideration of model calibration, validation, and uncertainty analysis. Prerequisite: BENG 4903 or CVEG 3223.

**BENG5933 Environmental and Ecological Risk Assessment (Sp)** Process and methodologies associated with human-environmental and ecological risk assessments. Environmental risk assessments based on human receptors as

endpoints, addressing predominantly abiotic processes. Ecological risk assessments based on non-human receptors as endpoints. Approach using hazard definition, effects assessment, risk estimation, and risk management. Application of methods to student projects to gain experience in defining and quantifying uncertainty associated with human perturbation, management and restoration of environmental and ecological processes.

**BENG5943 Watershed Eco-Hydrology (Sp)** Engineering principles involved in assessment and management of surface water flow and hydrologic processes within ecosystems. Includes frequency analysis of rainfall, infiltration, runoff, evapotranspiration. Use of GIS/mathematical models to quantify hydrologic processes at the watershed-landscape scale. Design/implementation of best management practices and ecological engineering principles and processes for advanced ecological services. Lecture 3 hours per week. Students may not earn credit for both BENG 5943 and BENG 4903. Prerequisite: CVEG 3213 or equivalent.

**BENG5953 Ecological Engineering Design (Fa)** Design of low impact development techniques to enhance ecological services, reduce peak runoff, and capture sediments, nutrients and other pollutants resulting from urban development. Techniques may include: bio-swales, retention basins, filter strips. Design of sustainable ecological processes for the treatment and utilization of wastes/residues. Techniques may include: direct land application to soils/crops, composting systems, lagoons and constructed wetlands. Design goals include optimization of ecological services to maintain designated uses of land, water and air; including enhancement of habitat for wildlife and recreation, and the discovery of economically viable methods for co-existence of urban and agricultural land uses. Lecture 3 hours per week. Students may not earn credit for both BENG 5953 and BENG 4923. Prerequisite: BENG 4903 or equivalent.

**BENG600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**BENG700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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#### Biology (BIOL)

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**BIOL1541M Honors Principles of Biology Laboratory (Sp, Fa)** This course is designed for the well prepared student in the Honors program. It focuses on teaching students experimental and observational techniques used in the science of biology. It emphasizes the acquisition and interpretation of results that illustrate the major principles of biology. Corequisite: BIOL 1543H or BIOL 1543. (Same as BIOL 1541L)

**BIOL1541L Principles of Biology Laboratory (Sp, Su, Fa)** Experimental and observational techniques used in biology with emphasis on the acquisition and interpretation of results that illustrate major biological principles. Corequisite: BIOL 1543.

**BIOL1543 Principles of Biology (Sp, Su, Fa)** Principles that unify biology with emphasis on scientific study that demonstrates how all organisms are the product of evolution and are parts of interacting systems from the molecular to the ecosystem level. Corequisite: BIOL 1541L.

**BIOL1543H Honors Principles of Biology (Sp, Fa)** This course is designed for the well prepared student in Honors program. It focuses on the principles that unify the science of biology. Students will be exposed to how scientific principles have been used to demonstrate that all organisms are the products of evolution and are parts of interacting systems from the molecular to the ecosystem level. Corequisite: BIOL 1541M or BIOL 1541L.

**BIOL1601M Honors Principles of Zoology Laboratory (Fa)** (Formerly ZOO 1611M) Laboratory exercises illustrating animal structure, physiology, genetics, and ecology. Corequisite: BIOL 1603. (Same as BIOL 1601L)

**BIOL1601L Principles of Zoology Laboratory (Su, Fa)** (Formerly ZOO 1611L) Laboratory exercises illustrating animal structure, physiology, genetics, and ecology. Corequisite: BIOL 1603.

**BIOL1603 Principles of Zoology (Su, Fa)** (Formerly ZOO 1613) Introduction to zoological principles relating to cells, organ systems, development, genetics, ecology, and animal phyla. Corequisite: BIOL 1601L or BIOL 1601M. Prerequisite: BIOL 1543 and BIOL 1541L.

**BIOL1611M Honors Plant Biology Laboratory (Sp)** (Formerly BOTY 1611M) Pre- or Corequisite: BIOL 1613. (Same as BIOL 1611L)

**BIOL1611L Plant Biology Laboratory (Sp, Su)** (Formerly BOTY 1611L) Pre- or Corequisite: BIOL 1613.

**BIOL1613 Plant Biology (Sp, Su)** (Formerly BOTY 1613)

Consideration of basic flowering plant structure, growth, development, physiology, genetics, ecology, and a brief survey of other plant groups. Lecture 3 hours per week. BIOL 1611L is recommended as a corequisite and both are required for partial fulfillment of the Fulbright College natural sciences requirement. Prerequisite: BIOL 1543 and BIOL 1541L.

**BIOL2011M Honors General Microbiology Laboratory (Sp, Su, Fa)** Techniques for handling microorganisms. Does not count towards BS in Biology. Corequisite: BIOL 2013. (Same as BIOL 2011L)

**BIOL2011L General Microbiology Laboratory (Sp, Su, Fa)** Techniques for handling microorganisms. Does not count toward BS in Biology. Corequisite: BIOL 2013.

**BIOL2013 General Microbiology (Sp, Su, Fa)** Basic concepts of microbiology including diversity, genetics, metabolism, growth, control of growth, pathogenesis, and immunology. Does not count towards BS in Biology. Corequisite: BIOL 2011L. Prerequisite: BIOL 1543/1541L and (CHEM 1073/1071L or CHEM 1103 or CHEM 1123/1121L or CHEM 1213/1211L).

**BIOL2211L Human Physiology Laboratory (Sp, Fa)** (Formerly ZOOL 2211L) Exercises include experiments on osmosis, reflexes, senses, muscle, cardiovascular system, ventilation, metabolism, renal function, etc. Data collection, analysis, and report writing. Does not satisfy the Fulbright College writing requirement. Does not count toward BS in Biology. Corequisite: BIOL 2213.

**BIOL2213 Human Physiology (Sp, Fa)** (Formerly ZOOL 2213) Fundamental concepts of physiology with emphasis in the human. Does not count toward BS in Biology. Corequisite: BIOL 2211L. Prerequisite: (CHEM 1023 and CHEM 1021L) or (CHEM 1074 and CHEM 1071L) or (CHEM 1103) or (CHEM 1123 and CHEM 1121L) and MATH 1203.

**BIOL2321L General Genetics Laboratory (Fa)** Analysis of genetic problems and experiments with emphasis on "hands-on" experience with a variety of organisms. May require time outside laboratory period. Laboratory 3 hours per week. Pre- or Corequisite: BIOL 2323.

**BIOL2323 General Genetics (Fa)** Surveys of Mendelian, molecular, and population mechanisms of inheritance and gene expression in prokaryotes and eukaryotes. Lecture 3 hours per week. Prerequisite: (BIOL 1543 and BIOL 1541L) and (CHEM 1123 and CHEM 1121L or CHEM 1223 and 1221L) and (MATH 1203 or STAT 2023 or equivalent).

**BIOL2441L Human Anatomy Laboratory (Sp, Su, Fa)** Laboratory 3 hours exercises in mammalian anatomy. Cannot be taken without prior credit in BIOL 2443 or concurrent enrollment in BIOL 2443. Does not count toward BS in Biology. Corequisite: BIOL 2443.

**BIOL2443 Human Anatomy (Sp, Su, Fa)** Description of human body as a series of organ systems and their interrelationships. Does not count towards BS in Biology. Corequisite: BIOL 2441L. Prerequisite: 4 hours of biological sciences.

**BIOL2531L Cell Biology Laboratory (Sp, Fa)** Introduction to methods and techniques used in Cell Biology research. Laboratory experiences to highlight topics covered in BIOL 2533. Pre- or Corequisite: BIOL 2533

**BIOL2533 Cell Biology (Sp, Fa)** Introduction to cell structure, cell processes, biological polymers, energetics, and diversity. An introduction to biochemistry and cell chemistry. Pre- or Corequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1223 and CHEM 1221L) or equivalent. Prerequisite: BIOL 1543 and BIOL 1541L.

**BIOL3004 Principles of Plant Pathology (Fa)** Examination of the causes and symptoms of plant disease and the genetics of plant disease. Physiology, and ecology of host-pathogen interactions. Spread of disease and principles of disease control. Corequisite: Lab component. (Same as PLPA 3004)

**BIOL3011L Introduction to Insect Identification Lab (Fa)** Introductory lab course on insect identification, collection, and curation techniques, primarily designed as an intensive add-on to BIOL 3013 for students wanting a more in-depth examination of insect diversity. Insect collection required. Course includes field trips. Students are encouraged to contact instructor before enrolling. Pre- or corequisite: BIOL 3013. (Same as ENTO 3011L)

**BIOL3013 Introduction to Entomology (Fa)** Fundamentals of insect biology including structure and function, development, ecology, behavior, plant feeding and disease transmission. Lecture 3 hours/week. Students interested in a more intensive examination of insects, including collection, curation, and identification techniques, should sign up for the separate one credit lab BIOL 3011L. Suggested prerequisite: BIOL 1543. (Same as ENTO 3013)

**BIOL3023 Evolutionary Biology (Fa)** An introduction to the mechanisms and patterns of evolutionary change. Seeks to

develop logical, scientific skills and to apply them in understanding how life has changed during the history of the earth. Corequisite: Drill component. Prerequisite: BIOL 1543 and BIOL 1541L. Pre- or Corequisite: BIOL 2323.

**BIOL3123 Prokaryote Biology (Sp)** An in-depth coverage of prokaryote diversity, genetics, metabolism, growth, structures and functions. Prerequisite: BIOL 2533.

**BIOL3123H Honors Prokaryote Biology (Sp)** An in-depth coverage of prokaryote diversity, genetics, metabolism, growth, structures and functions. Prerequisite: BIOL 2533.

**BIOL3353 Mechanics of Human Movement (Sp, Su, Fa)** An introduction to basic analysis of motor skills. Prerequisite: BIOL 2443 and BIOL 2441L.

**BIOL3404 Comparative Vertebrate Morphology (Sp, Fa)** Anatomy of selected vertebrate animals with emphasis upon homologous structures in various animal groups. The recommended anatomy course for Biology BS majors. Lecture 2 or 3 hours, laboratory 4 or 6 hours per week. Corequisite: Lab component. Prerequisite: BIOL 1543 and BIOL 1541L.

**BIOL3861L General Ecology Laboratory (Fa)** Pre- or Corequisite: BIOL 3863.

**BIOL3863 General Ecology (Sp, Fa)** Ecological principles and concepts; environmental factors and interactions that determine distribution and abundance of organisms. Prerequisite: 7 hours of biological science.

**BIOL3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: honors candidacy (not restricted to candidacy in biological sciences). May be repeated for credit.

**BIOL4003 Laboratory in Prokaryote Biology (Sp)** Laboratory techniques in prokaryote culture, identification, physiology, metabolism, and genetics. Laboratory 6 hours per week. Prerequisite: BIOL 3123.

**BIOL4013 Insect Behavior and Chemical Ecology (Even years, Sp)** Basic concepts in insect senses and patterns of behavioral responses to various environmental stimuli. Previous knowledge of basic entomology is helpful, but not required. Lecture 2 hours, laboratory/discussion 2 hours per week. Corequisite: Lab component. (Same as ENTO 4013)

**BIOL4024 Insect Diversity and Taxonomy (Even years, Fa)** Principles and practices of insect classification and identification with emphasis on adult insects. Corequisite: Lab component. Prerequisite: ENTO 3013. (Same as ENTO 4024)

**BIOL4053 Insect Ecology (Even years, Fa)** To develop understanding of important ecological concepts through study of dynamic relationships among insects and their environment. To become familiar with the literature of insect ecology, and interpretation and critique of ecological research. Previous knowledge of basic entomology and/or ecology will be assumed. Corequisite: Lab component. (Same as ENTO 4053)

**BIOL4104 Taxonomy of Flowering Plants (Sp)** Identifying, naming, and classifying of wildflowers, weeds, trees, and other flowering plants. Emphasis is on the practical aspects of plant identification. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BIOL 1613 and BIOL 1611L and BIOL 2323 and BIOL 3023

**BIOL4114 Dendrology (Odd years, Fa)** Morphology, classification, geographic distribution, and ecology of woody plants. Lecture 3 hours, laboratory 3 hours per week, and fieldtrips. Prerequisite: BIOL 3863.

**BIOL4121L Food Microbiology Lab (Sp)** A hands-on laboratory course designed to teach students microbiological techniques and certain enumeration and plating techniques of specific food spoilage and pathogenic bacteria. Pre- or Corequisite: BIOL 4123.

**BIOL4123 Food Microbiology (Sp)** The study of food microbiology including classification/taxonomy, contamination, preservation and spoilage of different kinds of foods, pathogenic microorganisms, food poisoning, sanitation, control and inspection and beneficial uses of microorganisms. Prerequisite: BIOL 2013/2011 or BIOL 2533. (Same as FDSC 4123)

**BIOL4133 Plant Disease Control (Fa)** Principles, methods and mechanics of plant disease control. Emphasis is given to the integration of control measures and epidemiology of plant diseases. Lecture 3 hours per week. Prerequisite: PLPA 3004. (Same as PLPA 4223)

**BIOL4154 Biology of Global Change (Sp)** Covers impact of global change on sustainability and adaptability of biological systems. Prerequisite: BIOL 1543/1541L and junior standing.

**BIOL4154H Honors Biology of Global Change (Sp)** Covers impact of global change on sustainability and adaptability of biological systems. Prerequisite: BIOL 1543/1541L and junior standing.

**BIOL4163 Dynamic Models in Biology (Irregular)** Mathematical and computational techniques for developing, executing, and analyzing dynamic models arising in the biological sci-

ences. Both discrete and continuous time models are studied. Applications include population dynamics, cellular dynamics, and the spread of infectious diseases. Prerequisite: MATH 2554. (Same as MATH 4163)

**BIOL4233 Genomics and Bioinformatics (Sp)** Principles of molecular and computational analyses of genomes. Prerequisite: BIOL 2533 and BIOL 2323.

**BIOL4233H Honors Genomics and Bioinformatics (Sp)** Principles of molecular and computational analyses of genomes. Prerequisite: BIOL 2533 and BIOL 2323.

**BIOL4234 Comparative Physiology (Fa)** Comparison of fundamental physiological mechanisms in various animal groups. Adaptations to environmental factors at both the organismal and cellular levels are emphasized. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BIOL 2533 and CHEM 3613 and CHEM 3611L

**BIOL4263 Cell Physiology (Fa)** In-depth molecular coverage of cellular processes involved in growth, metabolism, transport, excitation, signalling and motility, with emphasis on function and regulation in eukaryotes, primarily animals. Prerequisite: BIOL 2533 and BIOL 2323 and CHEM 3813 and PHYS 2033.

**BIOL4263H Honors Cell Physiology (Fa)** In-depth molecular coverage of cellular processes involved in growth, metabolism, transport, excitation, signalling and motility, with emphasis on function and regulation in eukaryotes, primarily animals. Prerequisite: BIOL 2533 and BIOL 2323 and CHEM 3813 and PHYS 2033.

**BIOL4303 Plant Physiology (Fa)** An introductory course in plant physiology focusing on cellular processes that support the metabolic, developmental, and reproductive needs of plants. Prerequisite: BIOL 2533 or CHEM 3813 or CHEM 5843.

**BIOL4313 Molecular Cell Biology (Sp)** In-depth molecular coverage of transcription, cell cycle, translation, and protein processing in eukaryotes and prokaryotes. Prerequisite: BIOL 2533 and BIOL 2323 and CHEM 3603 and CHEM 3601L and CHEM 3613 and CHEM 3611L.

**BIOL4313H Honors Molecular Cell Biology (Sp)** In-depth molecular coverage of transcription, cell cycle, translation, and protein processing in eukaryotes and prokaryotes. Prerequisite: BIOL 2533 and BIOL 2323 and CHEM 3603 and CHEM 3601L and CHEM 3613 and CHEM 3611L.

**BIOL4333 Biotechnology in Agriculture (Fa)** Discussion of the techniques, applications, and issues of biotechnology as it is being used in modern agriculture. Coverage includes the basics of molecular biology, production of transgenic plants and animals, and new applications in the agricultural, food, and medical marketplace. Lecture and discussion, 3 hours per week. (Same as PLPA 4333)

**BIOL4353 Ecological Genetics/Genomics (Odd years, Fa)** Analysis of the genetics of natural and laboratory populations with emphasis on the ecological bases of evolutionary change. Prerequisite: BIOL 2323 and BIOL 2321L and MATH 2554 and STAT 2023 or equivalents.

**BIOL4404 Comparative Botany (Sp)** A comparative approach to organisms classically considered to be plants with emphasis on morphology, life history, development, and phylogeny. Three hours lecture, 4 hours lab per week. Corequisite: Lab component. Prerequisite: BIOL 2323 and BIOL 2533.

**BIOL4424 Mycology (Fa)** Form and function of the fungi. Lecture 2 hours, laboratory 4 hours per week. Corequisite: Lab component. Prerequisite: BIOL 2323 and BIOL 2533 or Graduate Standing.

**BIOL4433 Principles of Evolution (Even years, Fa)** Advanced survey of the mechanisms of evolutionary change with special emphasis on advances since the Modern Synthesis. Historical, theoretical, and population genetics approaches are discussed. Recommended BIOL 3023 and BIOL 2321L and BIOL 3861L. Prerequisite: BIOL 2323 and BIOL 3863.

**BIOL4463 Physiological Ecology (Odd years, Sp)** Interactions between environment, physiology, and properties of individuals and populations on both evolutionary and ecological scales. Prerequisite: BIOL 3863 and BIOL 4234 and its lab component.

**BIOL4511L Population Ecology Laboratory (Even years, Fa)** Pre- or Corequisite: BIOL 4513.

**BIOL4513 Population Ecology (Even years, Fa)** Survey of theoretical and applied aspects of population processes stressing models of growth, interspecific interactions, and adaptation to physical and biotic environments. Prerequisite: BIOL 3863.

**BIOL4523 Plant Ecology (Even years, Sp)** To develop understanding of important ecological concepts through study of dynamics relationships among plants and their environment. To become familiar with the literature of plant ecology, and in-

terpretation and critique of ecological research. Prerequisite: BIOL 3863.

**BIOL4554 Developmental Biology (Fa)** An analysis of the concepts of mechanisms of development emphasizing the experimental approach. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BIOL 2533 and BIOL 2323 or graduate standing.

**BIOL4563 Cancer Biology (Fa)** An introduction to the fundamentals of cancer biology. Prerequisite: BIOL 2533. (Same as BIOL 5563) May be repeated for up to 6 hours of degree credit.

**BIOL4613 Primate Adaptation and Evolution (Sp)** Introduction to the biology of the order Primates. This course considers the comparative anatomy, behavioral ecology and paleontology of our nearest living relatives. Prerequisite: BIOL 3023 or ANTH 1013. (Same as ANTH 4613)

**BIOL4693 Forest Ecology (Irregular)** Introduction to the various biological, ecological and historical aspects of forest communities, with particular emphasis on the forests of the central and southeastern United States. Prerequisite: BIOL 3863.

**BIOL4703 Mechanisms of Pathogenesis (Fa)** A survey of the events causing human disease at the molecular, cellular and genetic levels. Seeks to develop an appreciation that both the tricks pathogens use and the body's own defenses contribute to pathology. Prerequisite: BIOL 2533.

**BIOL4703H Honors Mechanisms of Pathogenesis (Fa)** A survey of the events causing human disease at the molecular, cellular and genetic levels. Seeks to develop an appreciation that both the tricks pathogens use and the body's own defenses contribute to pathology. Prerequisite: BIOL 2533.

**BIOL4711 Basic Immunology Laboratory (Sp)** Corequisite: BIOL 4713.

**BIOL4713 Basic Immunology (Sp)** (Formerly MBIO 4714) A general overview of immunity with emphasis on the underlying cellular, molecular, and genetic events, and discussions of more specialized issues in immunology, such as disease states involving the immune system, and other interesting problems in modern immunology. Lecture 2 hours, laboratory 4 hours per week. Prerequisite: BIOL 2323 and BIOL 2533.

**BIOL4713H Honors Basic Immunology (Sp)** A general overview of immunity with emphasis on the underlying cellular, molecular, and genetic events, and discussions of more specialized issues in immunology, such as disease states involving the immune system, and other interesting problems in modern immunology. Prerequisite: BIOL 2323 and BIOL 2533.

**BIOL4724 Protistology (Odd years, Fa)** The biology of eukaryotes other than animals, land plants, and fungi with emphasis on morphology and modern approaches to phylogenetic systematics. Three hours lecture, four hours lab/week. Involves writing term papers. Corequisite: Lab component. Prerequisite or Corequisite: BIOL 3023 or graduate standing. Prerequisite: BIOL 2533 and BIOL 2323 or graduate standing.

**BIOL4734 Wildlife Management Techniques (Odd years, Sp)** To familiarize students with techniques used in the management of wildlife populations. Students will be exposed to field methods, approaches to data analysis, experimental design, and how to write a scientific paper. Management applications will be emphasized. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BIOL 3863.

**BIOL4744 Fish Biology (Odd years, Sp)** Morphology, classification, life history, population dynamics, and natural history of fishes and fish-like vertebrates. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: 12 hours of biological science.

**BIOL4753 General Virology (Sp)** An introduction to viral life-cycles, structure, and host cell interactions. Emphasis placed on molecular and biochemical aspects of virology. Two hour lecture and one hour discussion. Prerequisite: BIOL2533 and BIOL2323

**BIOL4763 Ornithology (Even years, Sp)** Taxonomy, morphology, physiology, behavior, and ecology of birds. Lecture, laboratory, and field work. Corequisite: Lab component. Prerequisite: BIOL 3863

**BIOL4774 Biometry (Even years, Sp)** Students learn biological statistics and experimental design by actually designing experiments and analyzing data, as well as through lecture, discussion, reading, writing, and problem solving. Lecture 3 hours, laboratory 3 hours each week. Corequisite: Lab component. Prerequisite: STAT 2023 or equivalent, BIOL 3863.

**BIOL4783 Mammalogy (Even years, Fa)** Lectures and laboratory dealing with classification, morphology, distribution, ecology, behavior, and physiology of mammals. Two hours lecture, 4 hours laboratory. Corequisite: Lab component. Prerequisite: 10 hours Biological Sciences.

**BIOL4793 Introduction to Neurobiology (Sp)** Exploration of the neurological underpinnings of perception, action, and

experience including: how sense receptors convert information in the world into electricity, how information flows through the nervous systems, how neural wiring makes vision possible, how the nervous system changes with experience, and how the system develops. Prerequisite: BIOL 2533

**BIOL480V Special Topics in Biological Sciences (Sp, Su, Fa) (1-6)** Consideration of new areas of biological sciences not yet treated adequately in other courses. Prerequisite: 8 hours of biological sciences.

**BIOL480VH Honors Special Topics in Biological Sciences (Sp, Su, Fa) (1-6)** Consideration of new areas of biological sciences not yet treated adequately in other courses. Prerequisite: 8 hours of biological sciences.

**BIOL4814 Limnology (Odd years, Fa)** Physical, chemical and biological conditions of inland waters. Lecture 3 hours, laboratory by arrangement. Corequisite: Lab component. Prerequisite: (CHEM 1123 and CHEM 1121L) or equivalent and BIOL 3863 or instructor's permission.

**BIOL4833 Animal Behavior (Odd years, Fa)** Organization, regulation, and phylogeny of animal behavior, emphasizing vertebrates. Lecture, laboratory, and field work. Corequisite: Lab component.

**BIOL4844 Community and Ecosystem Ecology (Odd years, Fa)** Survey of theoretical and applied aspects of community processes stressing structure, tropic dynamics, community interactions, and major community types. Corequisite: Lab component. Prerequisite: BIOL 3863.

**BIOL485V Field Ecology (Sp, Su) (1-3)** Project oriented approach employing current field and laboratory techniques, experimental design, and data analysis. Field trip is required.

**BIOL4863 Analysis of Animal Populations (Even years, Sp)** Basic principles of design and analysis for population studies of fish and wildlife species. Students will be instructed in the use of the latest software for estimating population parameters. Focus will be on both concepts and applications. Management applications of estimated parameters will be emphasized. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: BIOL 3863.

**BIOL498V Senior Thesis (Sp, Su, Fa) (1-6)**

**BIOL499V Research In Biological Sciences (Sp, Su, Fa) (1-4)** Prerequisite: senior standing. May be repeated for up to 8 hours of degree credit.

**BIOL499VH Honors Research in Biological Sciences (Sp, Su, Fa) (1-4)** Prerequisite: Senior standing. May be repeated for up to 8 hours of degree credit.

**BIOL5001 Seminar in Biology (Sp, Fa)** Discussion of selected topics and review of current literature in any area of the biological sciences. (Same as CEMB 5911) May be repeated for up to 2 hours of degree credit.

**BIOL5003 Laboratory in Prokaryote Biology (Sp)** Laboratory techniques in prokaryote culture, identification, physiology, metabolism, and genetics. Laboratory 6 hours per week. Prerequisite: BIOL 3123.

**BIOL5063 Climate Through Time (Irregular)** The earth's climate history over the last 2 million years and the influence various factors have had on it; compilation and paleoclimatic histories and methods of dating climatic effects. Prerequisite: GEOG 4363 or equivalent. (Same as ENDY 5063, GEO 5063)

**BIOL5133 Applied Molecular Genetics (Even years, Sp)** A hands on course in applied molecular genetic techniques used in agricultural research including molecular diagnostics and population genetics. Students will learn how to apply advanced molecular genetic methodologies and Internet database resources to the organism that they are using for their graduate research. Prerequisite: ANSC 3123. (Same as ENTO 5133)

**BIOL5233 Genomics and Bioinformatics (Sp)** Principles of molecular and computational analyses of genomes. Prerequisite: BIOL 2533 or BIOL 2323.

**BIOL5263 Cell Physiology (Fa)** In-depth molecular coverage of cellular processes involved in growth, metabolism, transport, excitation, signaling and motility, with emphasis on function and regulation in eukaryotes, primarily animals. Prerequisite: BIOL 2323, BIOL 2533, BIOL 2531L, CHEM 3813, and PHYS 2033.

**BIOL5303 Plant Physiology (Fa)** Introductory course in plant physiology focusing on cellular processes that support the metabolic, developmental, and reproductive needs of plants. Prerequisite: Cell Biology or Biochemistry.

**BIOL5313 Molecular Cell Biology (Sp)** In-depth molecular coverage of transcription, cell cycle, translation, and protein processing in eukaryotes and prokaryotes. Prerequisite: BIOL 2533 and BIOL 2323 and CHEM 3603 and CHEM 3601L and CHEM 3613 and CHEM 3611L.

**BIOL5334 Biochemical Genetics (Sp)** Lectures and laboratories based on modern molecular genetic techniques for analyses of eukaryotes and manipulation of prokaryotes. A

hands-on course in recombinant DNA techniques: laboratory practices in gene identification, cloning, and characterization. Lecture 2 hours, laboratory 6 hours per week. Corequisite: Lab component. Prerequisite: BIOL 3323 (or equivalent) and CHEM 3813 (or equivalent).

**BIOL5343 Advanced Immunology (Sp)** Aspects of innate, cell-mediated, and humoral immunity in mammalian and avian species. Molecular mechanisms underlying the function of the immune system are emphasized. A course in Basic Immunology prior to enrollment in Advanced Immunology is recommended but not required. Lecture 3 hours per week. (Same as POSC 5343)

**BIOL5352L Immunology in the Laboratory (Sp)** Laboratory course on immune-diagnostic laboratory techniques and uses of antibodies as a research tool. Included are cell isolation and characterization procedures, immunochemistry, flow cytometry, ELISA and cell culture assay systems. Laboratory 6 hours per week. Prerequisite: POSC 5343 or BIOL 5343.

**BIOL5353 Ecological Genetics/genomics (Odd years, Fa)** Analysis of the genetics of natural and laboratory populations with emphasis on the ecological bases of evolutionary change. Prerequisite: BIOL 2323 and BIOL 2321L, BIOL 3023 and MATH 2554 and STAT 2023 or equivalents.

**BIOL5404 Comparative Botany (Odd years, Fa)** A comparative approach to organisms classically considered to be plants with emphasis on morphology, life history, development, and phylogeny. Three hours lecture, 4 hours lab per week. Corequisite: Lab component. Prerequisite: graduate standing.

**BIOL5423 Human Evolutionary Anatomy (Irregular)** Paleobiologists reconstruct past lifeways and systematic relationships of our ancestors using comparative studies of bony morphology and associated soft tissues. This course surveys methods and theories used to infer function and phylogeny, and details relevant aspects of the anatomy of humans, living great apes, and fossil human ancestors. Prerequisite: ANTH 1013 and BIOL 1543. (Same as ANTH 5423)

**BIOL5433 Principles of Evolution (Even years, Fa)** Advanced survey of the mechanisms of evolutionary change with special emphasis on advances since the Modern Synthesis. Historical, theoretical, and population genetics approaches are discussed. Recommended: BIOL 3023 and BIOL 3321L and BIOL 3861L. Prerequisite: BIOL 3323 and BIOL 3863.

**BIOL5463 Physiological Ecology (Odd years, Sp)** Interactions between environment, physiology, and properties of individuals and populations on both evolutionary and ecological scales. Prerequisite: BIOL 3863 and BIOL 4234.

**BIOL5511L Population Ecology Laboratory (Even Years, Fa)** Demonstration of the models and concepts from BIOL 5513. Pre- or Corequisite: BIOL 5513.

**BIOL5513 Population Ecology (Even years, Fa)** Survey of theoretical and applied aspects of populations processes stressing models of growth, interspecific interactions, and adaptation to physical and biotic environments. Corequisite: BIOL 5511L. Prerequisite: BIOL 3864.

**BIOL5523 Plant Ecology (Even years, Sp)** To develop understanding of important ecological concepts through study of dynamics relationships among plants and their environment. To become familiar with the literature of plant ecology, and interpretation and critique of ecological research. Prerequisite: BIOL 3864.

**BIOL5524 Developmental Biology (Fa)** An analysis of the concepts and mechanisms of development emphasizing the experimental approach. Corequisite: Lab component.

**BIOL5553 Astrobiology (Irregular)** Discusses the scientific basis for the possible existence of extraterrestrial life. Includes the origin and evolution of life on Earth, possibility of life elsewhere in the solar system (including Mars), and the possibility of life on planets around other stars. Prerequisite: Instructor consent. (Same as SPAC 5553)

**BIOL5563 Cancer Biology (Fa)** An introduction to the fundamentals of cancer biology. Prerequisite: BIOL 2533 (Same as BIOL 4563) May be repeated for up to 6 hours of degree credit.

**BIOL5643 Eukaryote Phylogeny (Odd years, Sp)** Molecular analysis of the eukaryotic tree of life, phylogenetic tree reconstruction, and eukaryote diversity and evolutionary relationships.

**BIOL5703 Mechanisms of Pathogenesis (Fa)** A survey of events causing human disease at the molecular, cellular and genetic levels. Seeks to develop an appreciation that both the tricks pathogens use and the body's own defenses contribute to pathology.

**BIOL5713 Basic Immunology (Sp)** A general overview of immunity with emphasis on the underlying cellular, molecular and genetic events controlling immune reactions. Reading of the primary literature on disease states involving the immune system.

## Biomedical Engineering (BMEG)

**BIOL5723 Fish Biology (Odd years, Sp)** Morphology, classification, life histories, population dynamics, and natural history of fishes and fish-like vertebrates. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: 12 hours of biological sciences.

**BIOL5743 Herpetology (Even years, Sp)** Morphology, classification and ecology of amphibians and reptiles. Lecture 2 hours, laboratory 1 hour per week. Corequisite: Lab component.

**BIOL5753 General Virology (Sp)** An introduction to viral life-cycles, structure, and host cell interactions. Emphasis placed on molecular and biochemical aspects of virology. Two hour lecture and one hour discussion. Prerequisite: BIOL 2533 and BIOL 2323.

**BIOL5763 Ornithology (Even years, Sp)** Taxonomy, morphology, physiology, behavior, and ecology of birds. Lecture, laboratory, and field work. Corequisite: Lab component. Prerequisite: 10 hours of biological sciences.

**BIOL5783 Mammalogy (Fa)** Lectures and laboratory dealing with classification, morphology, distribution, ecology, behavior, and physiology of mammals. Two hours lecture, 4 hours laboratory. Corequisite: Lab component.

**BIOL580V Special Topics in Biological Sciences (Sp, Su, Fa) (1-6)** Consideration of new areas of biological sciences not yet treated adequately in other courses. Prerequisite: 8 hours of biological sciences. May be repeated for up to 6 hours of degree credit.

**BIOL5814 Limnology (Odd years, Fa)** Physical, chemical and biological conditions of inland waters. Lecture 3 hours per week, laboratory arranged. Corequisite: Lab component. Prerequisite: (CHEM 1123 and CHEM 1121L) or equivalent and 12 hours of biological sciences.

**BIOL5833 Animal Behavior (Odd years, Fa)** Organization, regulation, and phylogeny of animal behavior, emphasizing vertebrates. Lecture, laboratory, and field work. Corequisite: Lab component.

**BIOL5843 Conservation Biology (Irregular)** The study of direct and indirect factors by which biodiversity is impacted by human activity. It is a synthetic field of study that incorporates principles of ecology, biogeography, population genetics, economics, sociology, anthropology, philosophy, geology, and geography. Prerequisite: BIOL 3863.

**BIOL5844 Community Ecology (Odd years, Fa)** Survey of theoretical and applied aspects of community processes stressing structure, trophic dynamics, community interactions, and major community types. Corequisite: Lab component. Prerequisite: BIOL 3864.

**BIOL585V Field Ecology (Irregular) (1-3)** Project-oriented approach employing current field and laboratory techniques, experimental design and data analysis. Field trip is required. May be repeated for credit.

**BIOL5914 Stream Ecology (Even years, Fa)** Current concepts and research in lotic ecosystem dynamics. Lecture, laboratory, field work and individual research projects required. Corequisite: Lab component. Corequisite: Lab component. Prerequisite: Some previous course work in ecology is essential.

**BIOL5933 Global Biogeochemistry: Elemental Cycles and Environmental Change (Odd Years, Sp)** This course explores the chemical, biological, and geological processes occurring within ecosystems. An understanding of these processes is used to investigate how they form the global biogeochemical cycles that provide energy and nutrients necessary for life. Class discussions focus on global change and the effects of more recent anthropogenic influences. Prerequisite: College level chemistry or biochemistry and ecology.

**BIOL600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**BIOL6113 Insect Physiology (Even years, Sp)** General and comparative physiology of insects. Previous knowledge of basic entomology is helpful, but not required. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. (Same as ENTO 6113)

**BIOL700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing. May be repeated for up to 18 hours of degree credit.

## Business Law (BLAW)

**BLAW3033 Commercial Law (Sp)** A study of the laws applicable to commercial transactions. Topics covered include the common law of contracts, Articles Two (Sales) and Three (Commercial Paper) of the Uniform Commercial Code, secured transactions, suretyship, and bankruptcy.

**BMEG2613 Introduction to Biomedical Engineering (Fa)** An introductory course for undergraduate biomedical engineering students. It covers topics such as recombinant DNA technologies, cell and tissue engineering, stem cell and organ regeneration, the biomechanics, bioinstrumentation, engineering of immunity, and bio- and medical imaging, etc. The application of nano-biotechnology in developing clinical products such as tissue engineered products, drug delivery systems, etc. will be emphasized in the course.

**BMEG2633 Biomaterials (Sp)** Introduction to the engineering properties of materials used in biomedical devices and applications. Topics include: structure-property-processing relationships, bulk engineering properties, surface and interfacial properties and applications of materials in biology and medicine. Students will review the history of biomaterials as related to a specific biomedical device. Prerequisite: BMEG 2613 and CHEM 1123.

**BMEG2813 Biomechanics (Sp)** This course introduces basic concepts and principles of biomechanics to biomedical and other engineering students. The course topics include mechanics and materials, viscoelastic properties, bone, cartilage, ligament, tendon, muscle, cardiovascular dynamics, clinical gait analysis, etc. After taking this course, students are expected to understand the application of engineering kinetics to describe motions of human body and mechanic properties of tissues. MATLAB will be used to write and solve biomechanical static and dynamic equations. Lecture 3 hours per week. Prerequisite: MATH 2584, MATH 2564, PHYS 2074, CHEM 1123 and BMEG 2613.

**BMEG2813H Honors Biomechanics (Sp)** This course introduces basic concepts and principles of biomechanics to biomedical and other engineering students. The course topics include mechanics and materials, viscoelastic properties, bone, cartilage, ligament, tendon, muscle, cardiovascular dynamics, clinical gait analysis, etc. After taking this course, students are expected to understand the application of engineering kinetics to describe motions of human body and mechanic properties of tissues. MATLAB will be used to write and solve biomechanical static and dynamic equations. Lecture 3 hours per week. Prerequisite: MATH 2584, MATH 2564, PHYS 2074, CHEM 1123 and BMEG 2613.

**BMEG3103 Electronic Instrumentation for Biomedical Systems (Fa)** This course is designed for biomedical engineering undergraduate students to learn both theoretical and practical concepts of bioinstrumentation and their applications in modern life science and medicine. Analytical experiments will be practiced in the laboratory along with the lecture section. This course covers basic topics in circuits such as charge current, voltage, resistance, power energy, linear network analysis, inductors, capacitors, operational amplifier, time-varying signals, active analog filters, bioinstrumentation design etc. The application of these principles and theories in bioinstrumentation design and development is particularly emphasized in this course. The lab section requires team work, planning, and data sharing. Prerequisite: BMEG 2613, ELEG 3933, PHYS 2074, and MATH 2584.

**BMEG3653 Biomedical Modeling and Numerical Methods (Sp)** Application of mathematical techniques to physiological systems. The emphasis will be on cellular physiology and cardiovascular system. Cellular physiology topics include models of cellular metabolism, membrane dynamics, membrane potential, excitability, wave propagation and cellular function regulation. Cardiovascular system topics include models of blood cells, oxygen transport, cardiac output, cardiac regulation, and circulation. Prerequisite: BMEG 2613, MATH 2574, and MATH 2584.

**BMEG3811L Biomolecular Engineering Lab (Sp)** Biomolecular Engineering is to design and produce biomolecules, especially proteins, for uses ranging from pharmaceuticals, materials, sensors, transducers, to functional interfaces with conventional engineering materials. The course begins with an introduction to the tools and techniques of molecular biology that are used for protein engineering. Additional topics include recombinant DNA techniques, biochemical kinetics, cell growth reaction and kinetics, bioreactors, membrane processes, and bioproduct purification. There is an associated laboratory with exercises related to lecture topics. Corequisite: BMEG 3823 Prerequisite: CHEM 1123 and BIOL 2533.

**BMEG3823 Biomolecular Engineering (Sp)** Biomolecular Engineering is to design and produce biomolecules, especially proteins, for uses ranging from pharmaceuticals, materials, sensors, transducers, to functional interfaces with conventional engineering materials. The course begins with an introduction to the tools and techniques of molecular biology that

are used for protein engineering. Additional topics include recombinant DNA techniques, biochemical kinetics, cell growth reaction and kinetics, bioreactors, membrane processes, and bioproduct purification. There is an associated laboratory with exercises related to lecture topics. Prerequisite: CHEM 1123 and BIOL 2533.

**BMEG4243 Advanced Biomaterials and Biocompatibility (Sp)** From Absorbable sutures to Zirconium alloy hip implants, biomaterials science influences nearly every aspect of medicine. This course focuses on the study of different classes of biomaterials and their interactions with human tissues. Topics include: biocompatibility; biofouling; hemocompatibility; wound healing response; foreign body response; design of orthopedic, dental and cardiovascular implants; ophthalmological and dermatological materials; degradable polymers for drug delivery; nanobiomaterials; smart biomaterials and the regulation of devices and materials by the FDA. Pre- or Corequisite: BMEG 4623. Prerequisite: BMEG 2633.

**BMEG4413 Tissue Engineering (Fa)** This course introduces Tissue Engineering approaches at genetic and molecular, cellular, tissue, and organ levels. Topics include cell and tissue in vitro expansion, tissue organization, signaling molecules, stem cell and stem cell differentiation, organ regeneration, biomaterial and matrix for tissue engineering, bioreactor design for cell and tissue culture, dynamic and transportation in cell and tissue cultures, clinical implementation of tissue engineered products, and tissue-engineered devices. Corequisite: Lab component. Prerequisite: BIOL 2533 and BMEG 3823.

**BMEG450VH Honors Thesis (Sp, Su) (1-4)** Provides Biomedical Engineering students an opportunity to explore a topic in depth through an independent research or design project. Prerequisite: Honors standing.

**BMEG460VH Individual Study (Sp, Su, Fa) (1-3)** Individual study and research of a topic mutually agreeable to the student and faculty member.

**BMEG4623 Biomedical Transport Phenomena (Fa)** An introduction to the modeling of complex biological systems using principles of transport phenomena and biochemical kinetics. This course will cover molecular transport due to velocity, concentration and thermal gradients. Topics include the conservation relations; rheology of Newtonian and non-Newtonian physiological fluids; regulation of blood flow; steady and transient diffusion in reacting systems; dimensional analysis; transport processes in disease pathology. Prerequisite: MATH 2584 and CHEG 2133 or equivalent, CHEG 2313 or equivalent, and BENG 3653.

**BMEG470V Special Topics in Biomedical Engineering (Irregular) (1-4)** Consideration of current biomedical engineering topics not covered in other courses. Prerequisite: Senior standing.

**BMEG4743 Drug and Gene Delivery (Sp)** An advanced course covering important issues in drug and gene delivery in tumor and normal tissues. The course emphasizes quantitative analysis of molecule and nanoparticle transport through mathematical modeling and computer simulation. Various engineering-related topics on drug and gene delivery are discussed. These topics include physiologically-based pharmacokinetic analysis, transvascular transport, interstitial transport, transport across cell membrane, drug and gene carriers, targeted delivery of drugs, oxygen transport, delivery of effector cells and genes. Pre- or Corequisite: BMEG 4623.

**BMEG4813 Biomedical Engineering Design I (Fa)** First semester of a two semester capstone biomedical engineering design class covered from the perspective of FDA design mandates. Students will design and prototype a medical device using Food and Drug Administration (FDA) requirements for Design Control. The course is designed as a partnership between end users (clinicians and patients) and student engineering teams. The users supply the ideas and clinical relevancy while the student teams develop requirements, build prototypes and conduct testing. The course is designed to mirror the FDA regulated product design approach that is taken by industry thereby exposing students to current best practices. All projects will be planned, managed and executed using FDA Design Control Requirements. To accomplish this, projects will utilize customer driven inputs to motivate the development of product specifications. Prototypes will be fabricated based on these specifications. The prototypes will be tested and evaluated to ensure the specifications are met. All projects will be implemented using a planned, multidisciplinary, ethics-based team approach. Corequisite: Lab component. Pre- or Corequisite: BMEG 4623.

**BMEG4873 Bionanotechnology (Sp)** This is an introductory course relevant to bionanotechnology. The topics covered in this course include nanobiomaterials, nanoparticles, nanow-

ires, nanobiochips, nanobiosensors, and nanobiodevices. The applications of these nanomaterials and devices in clinical diagnostics, disease treatment, point-of-care test and/or point-of-care diagnostics, tele-medical cares, controlled and targeted drug delivery, etc. will be particularly emphasized in the lecture. Prerequisite: BMEG 3823/BMEG 3811L, BMEG 2813, and CHEG 2133.

**BMEG4923 Biomedical Engineering Design II (Fa)** Continuation of BMEG 4813. Initial designs will be prototyped before going through a design review. Design verification issues and improvements will then be solved in a redesign phase following a design process based on Food and Drug Administration Quality System Regulation (FDA-QSR). Projects will be team oriented and lead to increased project management skills. In addition, discussions on design considerations will continue. A final written design document and an oral presentation of the working prototype will culminate the class. Prerequisite: BMEG 4813.

**BMEG4973 Advanced Tissue Engineering and Regenerative Medicine (Fa)** This is an advanced course focusing on tissue engineering and regenerative medicine. Topics include stem cell tissue engineering, cell signaling, transport and kinetics, biomaterials and scaffolds, surface interactions, viral and nonviral-based gene delivery, tissue engineered organs, organ transplantation, nanomedicine, cell replacement therapy, and organ regenerative therapy. Technologies used to grow clinical relevant cells and tissues in lab will also be discussed in this course. Prerequisite: BMEG 4413, BIOL 2533, BMEG 3823/BMEG 3811L, and BMEG 2813.

**BMEG5203 Mathematical Modeling of Physiological Systems (Sp)** Application of mathematical techniques to physiological systems. The emphasis will be on cellular physiology and cardiovascular system. Cellular physiology topics include models of cellular metabolism, membrane dynamics, membrane potential, excitability, wave propagation and cellular function regulation. Cardiovascular system topics include models of blood cells, oxygen transport, cardiac output, cardiac regulation, and circulation. Prerequisite: MATH 2584. (Same as BENG 5203)

**BMEG560V Advanced Individual Study (Irregular) (1-6)** Individual study and research of a topic mutually agreeable to the student and faculty member. Prerequisite: Graduate standing.

**BMEG570V Advanced Special Topics (Irregular) (1-6)** Consideration of current biomedical engineering topics not covered in other courses. Prerequisite: Graduate standing.

**BMEG5801 Graduate Seminar (Sp, Fa)** A weekly seminar series comprised of presentations by invited speakers and graduate students as well as didactic instruction in relevant topics including professional development, research ethics, authorship, technology transfer, intellectual property, biosafety, and the use of animals in biomedical research. Prerequisite: Graduate standing.

**BMEG600V Master's Thesis (Irregular) (1-6)** Master's Thesis. Prerequisite: Graduate standing.

**BMEG700V Doctoral Dissertation (Irregular) (1-6)** Doctoral Dissertation. Prerequisite: Graduate standing.

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Career and Technical Education (CATE)

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**CATE1001 Practicum in Career & Technical Education (Sp, Fa)** This practicum is a requirement for entry into the Career & Technical teacher preparation program. Students will be involved in documented experiences with children for a minimum of 60 hours with at least 20 of them being in career & technical education classrooms at three schools with diverse populations. (Same as CIED 1011, PHED 1003)

**CATE380V Supervised Work Experience (Sp, Su, Fa) (1-9)** Supervision in business and industry under guidance. Designed for students who desire or need directed occupational experience. May be repeated for up to 6 hours of degree credit.

**CATE390V Competency Based Teacher Development: Program Organization (Sp, Su, Fa) (3-12)** Development of competencies related to the methodology of instructional planning, execution, and evaluation. Provided by PBTE modules and University resource person. Enrollment before CATE 391V and 392V. Prerequisite: Employed in service vocational-technical education field based instructor. May be repeated for up to 12 hours of degree credit.

**CATE391V Competency Based Teacher Development - Teaching Adults (Sp, Su, Fa) (3-12)** Development of competencies related to vocational guidance, contemporary instructional techniques, and student vocational organizations. Provided by PBTE modules and University resource person. Prerequisite: Completion of 12 credit hours of CATE 390V and employee in-service-vocational-technical education field

based instructor. May be repeated for up to 24 hours of degree credit.

**CATE392V Competency Based Teacher Development: Teaching & Learning (Sp, Su, Fa) (3-12)** Development of competencies related to program planning, development, evaluation; school community relations; and professional development. Provided by CBTD modules and University resource person. Prerequisite: Completion of 12 credit hours of CATE 391V and employee in-service-vocational-technical education field based instructor. May be repeated for up to 12 hours of degree credit.

**CATE393V Competency Based Internship: Educational Legal Issues (Sp, Su, Fa) (3-6)** In an actual school setting the student will satisfactorily demonstrate the competencies required to conduct a total vocational-technical education program. Instruction and follow-up will be provided by a University resource person. Prerequisite: Completion of 12 credit hours of CATE 392V and employee in-service-vocational-technical education field based instructor. May be repeated for up to 24 hours of degree credit.

**CATE4003 Introduction to Professionalism (Fa)** Studying and developing educational concepts in career and technical education with accepted principles of professionalism in secondary education settings.

**CATE4003H Honors Introduction to Professionalism (Fa)** Studying and developing professional concepts in vocational education with accepted principles of professionalism applied to career and technical education settings.

**CATE4013 Teaching Strategies (Fa)** Methods and techniques in the preparation and delivery of teaching.

**CATE4023 Classroom Management (Fa)** Theory and techniques in classroom management, including professional ethics and school policies related to students, faculty and programs.

**CATE4033 Assessment / Program Evaluation (Fa)** An introduction to constructing, evaluating and interpreting tests; descriptive and inferential statistics; state competency testing; and guidelines for state program evaluations.

**CATE4041 Lab Management in Career & Technical Education (Sp)** Selection, design and evaluation of laboratory experiences in business education, family and consumer sciences and technology education. Corequisite: CATE 406V.

**CATE4051 Seminar Teaching Internship (Sp)** Site-based field experiences are integrated with the course content to provide continuity between theory and practice. Classroom management, ethics and diversity are emphasized. Corequisite: VOED 406V.

**CATE406X Teaching Internship (Sp)** A minimum of 15 weeks will be spent in an off-campus school, at which time the student will have an opportunity under supervision to observe, to teach and to participate in other activities involving the school and the community. Prerequisite: Senior status, CATE 4003, CATE 4013, CATE 4023, CATE 4033, CIED 3023 and CIED 3033.

**CATE4803 Problems in Career & Technical Education (Sp, Su, Fa)** Problems and issues relating to instruction in career and technical education. You must have approval by the instructor of this course to enroll. Business education majors only.

**CATE5013 Teaching Strategies (Fa)** This course is designed to offer a variety of ideas and experiences concerning methods of teaching, planning and presenting instruction.

**CATE5016 Cohort Teaching Internship (Sp)** A minimum of 12 weeks will be spent in an off-campus school, at which time the intern will have an opportunity under supervision to observe, to teach, and to participate in other activities involving the school and the community. Prerequisite: Cohort year status.

**CATE5033 Assessment/Program Evaluation (Fa)** An introduction to constructing, evaluating, and interpreting tests; descriptive and inferential statistics; state competency testing; and guidelines for state program evaluations. Prerequisite: Graduate Status

**CATE5453 Career Orientation Programs (Su)** Provides a survey of types and sources of occupational information and methods of providing occupational-oriented experiences. Designed for teachers and future teachers of career orientation and is 1 of 2 required courses for vocational career orientation.

**CATE5463 Applications in Career Orientation (Su)** Student is introduced to various teaching methods and techniques of managing hands-on activities in career orientation class setting.

**CATE5503 Trends and Issues in Technology Education (Sp, Su, Fa)** A comprehensive technology education methods course pertaining to the teaching of standards-based curriculum materials.

**CATE5543 Technology for Teaching and Learning (Su, Fa)**

A study of computer technology as it relates to teacher education. This course concentrates on knowledge and performance and includes hands-on technology activities that can be incorporated in an educational setting. Students interact with the instructor and other students via BlackBoard and engage in weekly discussions and acquire hands-on computer technology experience.

**CATE5573 Instructional Materials (Sp, Su)** A comprehensive course designed to give students the opportunity to understand, prepare, and test materials leading toward excellence in instruction.

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Communication Disorders (CDIS)

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**CDIS2253 Introduction to Communicative Disorders (Sp, Fa)** An introductory course which surveys the professional interests of speech-language pathology and audiology with specific attention to the general recognition and classification of disorders of speech, language, and hearing, and general trends in rehabilitation. Consideration given to the classroom teacher's involvement in communication disorders.

**CDIS3103 Introduction to Audiology (Fa)** Introduction to the basic concepts for administering and interpreting hearing tests, including the anatomy and physiology of the auditory system, disorders of the ear, and techniques for administering and interpreting basic pure tone threshold tests. Prerequisite or Corequisite: PHYS 1023/1021L, PHYS 2013/2011L or CHEM 1073/1071L.

**CDIS3124 Normal Phonology and Articulatory Process (Fa)** Analysis of the English speech sounds as a basis for speech improvement; physiological positions and movements; acoustic qualities and transcription in the international phonetic alphabet. Corequisite: Lab component.

**CDIS3203 Articulation Disorders (Sp)** A study of the definition, etiology, pathology, and treatment procedures of problems of articulation. Prerequisite: CDIS 3124 and CDIS 3213.

**CDIS3213 Anatomy of Physiology of the Speech and Hearing Mechanisms (Fa)** Structure and function of the organic mechanisms responsible for speech, language, and audition. Pre or Corequisite: BIOL 1543/1541L or higher.

**CDIS3224 Language Development in Children (Fa)** Study of the nature of language behavior and of the typical development of speech and language functions for communicative purposes, with primary emphasis on the preschool and early school-age child. Corequisite: Lab component. Pre or Corequisite: PSYC 2003.

**CDIS3224H Honors Language Development in Children (Fa)** Study of the nature of language behavior and of the typical development of speech and language functions for communicative purposes, with primary emphasis on the preschool and early school-age child. Corequisite: Lab component. Pre or Corequisite: PSYC 2003.

**CDIS3233 Introduction to Clinical Practice (Sp)** An introduction to the various aspects of clinical operations including technical and interpersonal relationship skills necessary for case management and a survey of professional standards. Pre- or Corequisite: COMM 1313.

**CDIS3923H Honors Colloquium (Irregular)** Treats a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in speech or dramatic art). May be repeated for credit.

**CDIS399VH Honors Course (Irregular) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**CDIS4001 Clinical Practicum Undergrad (Sp, Fa)** Entry-level training in speech-language clinical practicum activities. This course is taken for satisfactory or unsatisfactory credit. Prerequisite: CDIS 2224 and CDIS 3203 and CDIS 3223 and CDIS 3234 plus satisfactory completion of specific program requirements for admission to clinical practice.

**CDIS4133 Introduction to Aural Rehabilitation (Sp)** Study of the technique used in the rehabilitation of speech and language problems of the hearing impaired including the role of amplification, auditory training, and speech reading in rehabilitation. Prerequisite: CDIS 3103.

**CDIS4183 Clinical Assessment of Speech and Language Disorders (Sp)** Study of the basic diagnostic procedures used in speech-language pathology. Emphasis is placed on the clinical processes of assessment, including criteria for test selection, techniques in test administration, and interpretation of test. Pre- or Corequisite: Prior coursework in CDIS and ANTH 1023.

**CDIS4213 Introduction to Speech and Hearing Science (Sp)** Study of the acoustic structure of oral speech and the auditory skills underlying speech perception. Pre- or Corequisite: MATH 1203 or higher. Prerequisite: CDIS 3203, CDIS 3213,



CDIS 3124 and its lab component.

**CDIS4223 Language Disorders in Children (Sp)** Study of disorders of language acquisition and usage in children and adolescents, with emphasis upon the nature, assessment, and treatment of such disorders. Prerequisite: CDIS 3223.

**CDIS4253 Neurological Bases of Communication (Fa)** A study of the structures and functions of the central and peripheral nervous systems as they relate to human speech, language, and cognition. Prerequisite: CDIS 3213.

**CDIS4263 Advanced Audiology (Fa)** Study of the basic techniques used in audiological assessment of children and adults, including pure tone audiometry, speech audiometry, and special tests of hearing function. Prerequisite: CDIS 3103.

**CDIS4273 Communication Behavior and Aging (Fa)** Study of the effects upon communication of normal aspects of the aging process, from early adulthood throughout the lifespan. Changes in speech, language, and hearing functioning are identified; common alterations in communicative disorders commonly associated with advanced age are discussed.

**CDIS490V Special Problems (Sp, Su, Fa) (1-3)** Prerequisite: Advanced standing. May be repeated for up to 3 hours of degree credit.

**CDIS5102 Research Methodology in Communication Disorders (Su)** An examination of methods of research in speech-language pathology and audiology and of the use of bibliographic tools. Focuses on purposes and problems of various forms of communication disorders research, procedures and instruments employed, and reporting of research. Prerequisite: Graduate standing.

**CDIS5112 Seminar in Early Intervention (Sp)** Study of a family-centered, transdisciplinary approach to early intervention with infants and toddlers at-risk for communication disorders. Topics include early communication development, service delivery in a family context, coordination with other disciplines, and legislation mandating services. Prerequisite: CDIS 3223 or equivalent, and graduate standing.

**CDIS5121 Feeding and Swallowing Disorders Lab (Fa)** Observation and interpretation of techniques used for assessment and remediation of feeding and swallowing disorders in children and adults. Corequisite: CDIS 5122. Prerequisite: CDIS 3213 and graduate standing.

**CDIS5122 Feeding and Swallowing Disorders (Fa)** Study of the etiology, assessment, and remediation of feeding and swallowing disorders in children and adults. Prerequisite: CDIS 3213 or equivalent, and graduate standing.

**CDIS5133 Discourse Analysis and Treatment (Fa)** Study of discourse behaviors and discourse analysis procedures appropriate for communicatively disordered children and adults, along with review of management approaches associated with impaired discourse performance. Prerequisite: Previous course work in language process and disorders, and graduate standing.

**CDIS5143 Cognitive-Communication Development and Disorders (Fa)** Study of normal cognitive development, the role of communication in this development, and shifts that may occur in conjunction with various speech, language and/or hearing disorders. Prerequisite: CDIS 3223.

**CDIS5152 TBI and Right-Hemisphere Disorders (Irregular)** Study of the speech and language disorders commonly resulting from traumatic brain injury and right hemisphere disorders. Prerequisite: CDIS 4253 or equivalent, and graduate standing.

**CDIS5163 Seminar in Language Topics (Irregular)** Study of selected topics in normal and disordered language acquisition and/or language use. Implications of current research are reviewed and applied to evaluation and management of language impairment(s). Prerequisite: Graduate standing.

**CDIS5193 Seminar in Problems of Oral Communication (Sp, Su, Fa)** Investigation of research in selected problems of oral communication; recent developments in speech-language pathology and audiology; individual problems for investigation. Prerequisite: Graduate standing.

**CDIS5214 Voice and Resonance Disorders (Su)** Study of disorders of phonation and resonance, including etiologies, diagnosis, and intervention strategies. Prerequisite: Graduate standing.

**CDIS5222 Fluency Disorders (Fa)** Speech disfluency, including theoretical etiological assumptions and management consideration. Prerequisite: Graduate standing.

**CDIS5232 Seminar in Misarticulation (Sp)** Etiology, diagnosis and treatment of disorders of speech articulation. Prerequisite: Graduate standing.

**CDIS5244 Language Disorders in Adults (Sp)** Cognitive and communicative breakdown due to neurological trauma, including etiology, characteristics, assessment and treatment for aphasia, traumatic brain injury, and right hemisphere disorders. Prerequisite: Graduate standing.

**CDIS5253 Motor Speech Disorders (Sp)** Study of motor speech production disorders related to damage to central or peripheral nervous system motor centers and pathways. Cerebral palsy, adult dysarthria, apraxia, and dysphagia are emphasized. Both theoretical and treatment considerations are addressed. Prerequisite: CDIS 4253 or equivalent, and graduate standing.

**CDIS5273 Language, Learning and Literacy (Su)** An examination of language-based literacy skills, including consideration of development, disorders, assessment and intervention.

**CDIS528V ADV CP: Speech-Language (Sp, Su, Fa) (1-6)**

**CDIS5293 Augmentative and Alternative Communication (Fa)** Approaches to communication management with the severely and profoundly handicapped child or adult, with primary emphasis on augmentative and alternative communication assessment and intervention. Prerequisite: Graduate standing.

**CDIS5381 Diagnostic Practicum (Sp, Su, Fa)** Practicum activities in speech-language assessment. Prerequisite: Graduate standing.

**CDIS5391 Clinical Practicum: Hearing Disorders (Sp, Su, Fa)** Practicum in audiology.

**CDIS548V Off-Campus Practicum: Public School Site (Sp, Fa) (1-6)** Practicum activities in speech-language disorders in a public school setting. Prerequisite: Graduate standing.

**CDIS558V Internship: Clinical Site (Sp, Su, Fa) (3-6)** Field placement in approved clinical setting for clock hours in speech-language pathology assessment and treatment. Students in the master's program must enroll in a minimum of 3 credit hours of CDIS 558V or CDIS 578V during their last semester of graduate studies. Prerequisite: Graduate standing; completion of other required practicum courses. May be repeated for up to 6 hours of degree credit.

**CDIS568V Off-Campus Practicum: Clinical Site (Sp, Su, Fa) (1-6)** Practicum activities in speech-language disorders in an off-campus clinical site. Prerequisite: Graduate standing; completion of at least 2 semesters of CDIS 528V.

**CDIS578V Internship: Public School Site (Sp, Su, Fa) (3-6)** Field placement in approved public school setting for clock hours in speech-language pathology assessment and treatment. Students in the Master's program must enroll in a minimum of 3 credit hours of CDIS 578V or CDIS 558V during their last semester of graduate studies. Prerequisite: Graduate standing; completion of other required practicum courses.

**CDIS590V Special Problems (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**CDIS599V Seminar in Professional Issues (Sp, Fa) (1-3)** Selected topics in professional issues in speech-language pathology and audiology.

**CDIS600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**CDIS699V Seminar in Communication Sciences and Disorders (Irregular) (1-6)** Discussion of pertinent topics and issues in the discipline of communication sciences and disorders. Prerequisite: Advanced graduate standing. May be repeated for up to 18 hours of degree credit.

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#### Cell and Molecular Biology (CEMB)

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**CEMB590V Special Topics in Cell and Molecular Biology (Sp, Su, Fa) (1-6)** Consideration of new areas in Cell and Molecular Biology not yet treated adequately in textbooks or in other courses. May be repeated for up to 6 hours of degree credit.

**CEMB5911 Seminar in Cell and Molecular Biology (Sp, Fa)** Discussion of current topics in Cell and Molecular Biology. All graduate students in the Cell and Molecular Biology degree program must enroll every fall and spring semester in this course or an approved alternate seminar course. Prerequisite: Graduate standing. May be repeated for credit. (Same as BIOL 5001)

#### CEMB599T CEMB TRANSFER COURSE

**CEMB600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**CEMB700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing.

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#### Chemical Engineering (CHEG)

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**CHEG1113 Introduction to Chemical Engineering (Sp)** Introduction to the field of chemical engineering. Industries, careers, and the curriculum are discussed. Basic chemical engineering terms, concepts, and calculations are presented. Mass balance calculations are performed and the application of computers to chemical engineering problems is introduced. Pre- or Corequisite: CHEM 1123 or CHEM 1133 or CHEM 1223.

**CHEG1123H Honors Introduction to Chemical Engineering II (Sp)** Multiple-reaction, multi-unit mass balances; vapor-liquid equilibrium, enthalpy balances; rate concepts; thermodynamics and equilibrium stage concepts; engineering economics; professionalism; ethics; computer applications; and introduction to process simulation. Prerequisite: CHEG 1113 and CHEM 1123.

**CHEG1212L Chemical Engineering Laboratory I (Sp, Fa)** Experimental measurements of various physical properties and comparison with published values and theoretical predictions. Interpretation of results using graphical, numerical and statistical tools, and presentation of results in written technical reports and oral briefings. Corequisite: CHEM 1103 or CHEM 1113 or CHEM 1213.

**CHEG2123 Introduction to Chemical Engineering II (Sp)** Multiple-reaction, multi-unit mass balances; vapor-liquid equilibrium, enthalpy balances; rate concepts; thermodynamics and equilibrium stage concepts; engineering economics; professionalism; ethics; computer applications; and introduction to process simulation. Corequisite: Drill component. Prerequisite: CHEG 1113 and (CHEM 1123 or CHEM 1133 or CHEM 1223).

**CHEG2133 Fluid Mechanics (Sp, Su, Fa)** Analysis and design of fluids handling equipment and systems. Application of the principles of fluid statics, fluid dynamics, compressible flow, etc. Pre- or Corequisite: MATH 2574.

**CHEG2133H Honors Fluid Mechanics (Sp, Su, Fa)** Analysis and design of fluids handling equipment and systems. Application of the principles of fluid statics, fluid dynamics, compressible flow, etc. Pre- or Corequisite: MATH 2574.

**CHEG2313 Thermodynamics of Single-Component Systems (Sp, Su, Fa)** A detailed study of the thermodynamic "state principles," energy and entropy balances, and their application to the solution of problems involving single-component physical systems and processes. Pre- or Corequisite: MATH 2574.

**CHEG2313H Thermodynamics of Single-Component Systems (Sp, Su, Fa)** A detailed study of the thermodynamic "state principles," energy and entropy balances, and their application to the solution of problems involving single-component physical systems and processes. Pre- or Corequisite: MATH 2574.

**CHEG3143 Heat Transport (Sp, Fa)** Application of the principles of conduction, convection and radiation to the analysis and design of chemical processing heat transfer equipment and systems such as double-pipe and shell-and tube heat exchangers, multiple-effect evaporators, condensers, and boilers. Prerequisite: CHEG 2133 and CHEG 2313.

**CHEG3143H Honors Heat Transport (Sp, Fa)** Application of the principles of conduction, convection and radiation to the analysis and design of chemical processing heat transfer equipment and systems such as double-pipe and shell-and tube heat exchangers, multiple-effect evaporators, condensers, and boilers. Prerequisite: CHEG 2133 and CHEG 2313.

**CHEG3153 Non-Equil Mass Transfer (Sp, Su)** Fundamentals of chemical diffusional processes. Applications in chemical engineering design of stagewise and continuous separations. Prerequisite: CHEG 2133 and CHEG 3323.

**CHEG3153H Honors Non-Equil Mass Transfer (Sp, Su)** Fundamentals of chemical diffusional processes. Applications in chemical engineering design of stagewise and continuous separations. Prerequisite: CHEG 2133 and CHEG 3323.

**CHEG3232L Chemical Engineering Laboratory II (Sp, Fa)** Experimental investigations of fluid flow, heat transfer, and thermodynamics. Complete written reports are required. Pre- or Corequisite: CHEG 3143. Corequisite: Drill component. Prerequisite: CHEG 1212L.

**CHEG3253 Chemical Engineering Computer Methods (Sp)** Application of computer methods to chemical engineering problems including a review of structured programming principles. Corequisite: CHEG 3143 and drill component. Prerequisite: MATH 2584.

**CHEG3323 Thermodynamics of Multi-Component Systems (Sp, Fa)** The use of the state principle and energy and entropy balance developed in CHEG 2313 is extended to allow processes. Physical and chemical equilibrium processes are considered in detail. Prerequisite: CHEG 2313 and MATH 2574.

**CHEG3323H Honors Thermodynamics of Multi-Component Systems (Sp, Fa)** The use of the state principle and energy and entropy balance developed in CHEG 2313 is extended to allow processes. Physical and chemical equilibrium processes are considered in detail. Prerequisite: CHEG 2313 and MATH 2574.

**CHEG3333 Chemical Engineering Reactor Design (Sp, Su)**

Principles of kinetics of homogeneous and heterogeneous reactions, catalysis, and reactor design with applications, drawn from industrial processes. Pre- or Corequisite: CHEG 3253. Prerequisite: CHEG 1123 and MATH 2584.

**CHEG3333H Honors Chemical Engineering Reactor Design (Sp, Su)** Principles of kinetics of homogeneous and heterogeneous reactions, catalysis, and reactor design with applications, drawn from industrial processes. Prerequisite: CHEG 1123 and MATH 2584.

**CHEG3713 Chemical Engineering Materials Technology (Sp)** Selection of metals, polymers and ceramics for service in process conditions (including corrosion). In addition to static strains on materials, specialized materials such as semiconductors, composites, and nano-materials are studied. The relationship between molecular structure and macroscopic properties is emphasized including processing and manufacture. Prerequisite: CHEM 3603 and PHYS 2054 and CHEG 3323.

**CHEG4163 Equil Stage Mass Transfer (Fa)** Applications of chemical engineering design to stagewise and continuous separations in systems approaching equilibrium. Prerequisite: CHEG 3323.

**CHEG4163H Honors Equil Stage Mass Transfer (Fa)** Applications of chemical engineering design to stagewise and continuous separations in systems approaching equilibrium. Prerequisite: CHEG 3323.

**CHEG4273 Corrosion Control (Sp)** Qualitative and quantitative introduction to corrosion and its control. Application of the fundamentals of corrosion control in the process industries is emphasized. Prerequisite: CHEG 2313.

**CHEG4332L Chemical Engineering Laboratory III (Sp, Su, Fa)** Experimental investigations of mass transfer and kinetics/reactor design. Special attention to attaining a high order of accuracy and to presenting results in complete written reports, with emphasis on quality rather than quantity work performed. Pre- or Corequisite: CHEG 3153, CHEG 3333, and CHEG 4163. Corequisite: Drill component. Prerequisite: CHEG 3232L.

**CHEG4413 Chemical Engineering Design I (Sp, Fa)** Principles of cost estimation, profitability, economic analysis, and economic balances as practiced in the chemical process industries. Special emphasis on the solution of problems involving the combination of engineering principles and economics. Corequisite: Drill component. Pre- or Corequisite: CHEG 4163 and CHEG 3143 and CHEG 3333.

**CHEG4413H Honors Chemical Engineering Design I (Sp, Fa)** Principles of cost estimation, profitability, economic analysis, and economic balances as practiced in the chemical process industries. Special emphasis on the solution of problems involving the combination of engineering principles and economics. Corequisite: Drill component. Pre- or Corequisite: CHEG 4163 and CHEG 3153. Prerequisite: ECON 2013 (or ECON 2143) and CHEG 3143 and CHEG 3333.

**CHEG4423 Automatic Process Control (Sp)** Application of mathematical modeling methods to the description of transient phenomena of interest to process engineers. Modes of control and principles of feedback control are introduced with applications to process engineering problems. Prerequisite: CHEG 3143 and CHEG 3253.

**CHEG4423H Honors Automatic Process Control (Sp)** Application of mathematical modeling methods to the description of transient phenomena of interest to process engineers. Modes of control and principles of feedback control are introduced with applications to process engineering problems. Prerequisite: CHEG 3143 and CHEG 3253.

**CHEG4443 Chemical Engineering Design II (Sp, Fa)** Responsibility for decision making is placed on the students in the solution of a comprehensive, open ended problem based on an industrial process. Both formal oral and formal written presentation of results are required. Corequisite: Drill component. Prerequisite: CHEG 4413 and CHEG 4163.

**CHEG4443H Honors Chemical Engineering Design II (Sp, Fa)** Responsibility for decision making is placed on the students in the solution of a comprehensive, open ended problem based on an industrial process. Both formal oral and formal written presentation of results are required. Corequisite: Drill component. Prerequisite: CHEG 4413 and CHEG 4163.

**CHEG4813 Chemical Process Safety (Fa)** Application of chemical engineering principles to the study of safety, health, and loss prevention. Fires and explosions, hygiene, toxicology, hazard identification, and risk assessment in the chemical process industries. Prerequisite: CHEG 2133 and CHEG 3323.

**CHEG4813H Honors Chemical Process Safety (Fa)** Application of chemical engineering principles to the study of safety, health, and loss prevention. Fires and explosions, hygiene, toxicology, hazard identification, and risk assessment in the

chemical process industries. Prerequisite: Senior standing.

**CHEG488V Special Problems (Sp, Su, Fa) (1-6)** Prerequisite: Senior standing. May be repeated for up to 6 hours of degree credit.

**CHEG5013 Membrane Separation and System Design (Fa)** Theory and system design of cross flow membrane process-reverse osmosis, nanofiltration, ultrafiltration, and microfiltration--and applications for pollution control, water treatment, food and pharmaceutical processing. Prerequisite: CHEG 3153.

**CHEG5033 Technical Administration (Irregular)** Contemporary issues affecting the domestic and global Chemical Process Industries (CPI). Emphasis is on process economics, market and corporate strategy as well as advances in technology to improve corporate earnings while addressing the threats and opportunities in the CPI. Prerequisite: Senior or graduate standing.

**CHEG5113 Transport Processes I (Fa)** Fundamental concepts and laws governing the transfer of momentum, mass, and heat. Pre- or Corequisite: MATH 3423. Prerequisite: CHEG 2313 (or equivalent).

**CHEG5133 Advanced Reactor Design (Fa)** Applied reaction kinetics with emphasis on the design of heterogeneous reacting systems including solid surface catalysis, enzyme catalysis, and transport phenomena effects. Various types of industrial reactors, such as packed bed, fluidized beds, and other non-ideal flow systems are considered. Prerequisite: CHEG 3333.

**CHEG5213 Advanced Chemical Engineering Calculations (Sp)** Developments of and solutions of equations and mathematical models of chemical processes and mechanisms. Prerequisite: CHEG 3333 and CHEG 3253.

**CHEG5273 Corrosion Control (Sp)** Qualitative and quantitative introduction to corrosion and its control. Application of the fundamentals of corrosion control in the process industries is emphasized. Prerequisite: CHEG 2313.

**CHEG5313 Planetary Atmospheres (Irregular)** Origins of planetary atmospheres, structures of atmospheres, climate evolution, dynamics of atmospheres, levels in the atmosphere, the upper atmosphere, escape of atmospheres, and comparative planetology of atmospheres. (Same as SPAC 5313)

**CHEG5333 Advanced Thermodynamics (Fa)** Methods of statistical thermodynamics, the correlation of classical and statistical thermodynamics, and the theory of thermodynamics of continuous systems (non-equilibrium thermodynamics). Prerequisite: CHEG 3323.

**CHEG5353 Advanced Separations (Sp)** Phase equilibrium in non-ideal and multicomponent systems, digital and other methods of computation are included to cover the fundamentals of distillation, absorption, and extraction. Prerequisite: CHEG 4163.

**CHEG5513 Biochemical Engineering Fundamentals (Sp)** An introduction to bioprocessing with an emphasis on modern biochemical engineering techniques and biotechnology. Topics include: basic metabolism (prokaryote and eucaryote), biochemical pathways, enzyme kinetics (including immobilized processes), separation processes (e.g. chromatography) and recombinant DNA methods. Material is covered within the context of mathematical descriptions (calculus, linear algebra) of biochemical phenomenon. Prerequisite: CHEG 3143.

**CHEG5733 Polymer Theory and Practice (Fa)** Theories and methods for converting monomers into polymers are presented. Topics include principles of polymer science, commercial processes, rheology, and fabrication. Prerequisite: CHEM 3603 or CHEM 3613.

**CHEG5801 Graduate Seminar (Sp, Fa)** Oral presentations are given by master's candidates on a variety of chemical engineering subjects with special emphasis on new developments. Prerequisite: Graduate standing.

**CHEG588V Special Problems (Sp, Su, Fa) (1-6)** Opportunity for individual study of an advanced chemical engineering problem not sufficiently comprehensive to be a thesis. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**CHEG600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**CHEG6123 Transport Processes II (Sp)** Continuation of CHEG 5113.

**CHEG6203 Preparation of Research Proposals (Sp)** Prerequisite: Graduate standing.

**CHEG6801 Graduate Seminar (Sp, Fa)** Oral presentations are given by doctoral students on a variety of chemical engineering subjects with special emphasis on new developments. Prerequisite: graduate standing.

**CHEG688V Special Topics in Chemical Engineering (Sp, Su, Fa) (1-3)** Advanced study of current Chemical Engineering

topics not covered in other courses. Prerequisite: Doctoral students only. May be repeated for up to 3 hours of degree credit.

**CHEG700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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 Chemistry (CHEM)
 

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**CHEM1051L Chemistry in the Modern World Laboratory (Sp)** Laboratory exercises appropriate to Chemistry in the Modern World. Meets 2 hours per week. Corequisite: CHEM 1053.

**CHEM1053 Chemistry in the Modern World (Sp)** The impact of chemical developments upon contemporary society. Chemical problems of ecological, environmental, nutritional, economic, and sociological concern. Designed for non-science majors. Lecture 3 hours per week. Corequisite: CHEM 1051L.

**CHEM1071L Fundamentals of Chemistry Laboratory (Su, Fa)** Laboratory exercises in principles and practices of Fundamental Chemistry. Meets 2 hours per week. Corequisite: CHEM 1073.

**CHEM1073 Fundamentals of Chemistry (Su, Fa)** Fundamental principles of chemistry for students majoring in Home Economics or Nursing. Lecture 3 hours, recitation 1 hour per week. Corequisite: CHEM 1071L and related course component drill section for CHEM 1073.

**CHEM1101L University of Chemistry I Laboratory (Su, Fa)** Laboratory exercises illustrating qualitative concepts and laboratory techniques in chemistry. Meets 3 hours per week for 1 hour credit. (Same as CHEM 1211L)

**CHEM1103 University Chemistry I (Su, Fa)** Survey of basic chemical principles designed as an introductory course for science, engineering or agriculture majors. CHEM 1101L is a recommended laboratory for students who do not have credit for chemistry laboratory work at the high school level. Corequisite: Drill component and CHEM 1101L. Pre- or Corequisite: MATH 1203 or higher (or satisfactory performance on the mathematics proficiency exam). (Same as CHEM 1213)

**CHEM1113 University Chemistry for Engineers I (Su, Fa)** Develops the topics of dimensional analysis, atomic structure and periodicity, bonding, stoichiometry, thermodynamics, kinetics, solution chemistry, and chemical equilibrium in detail. Students may not receive degree credit for both CHEM 1103 and CHEM 1113. Corequisite: drill component for CHEM 1113. Prerequisite: MATH 1203 or higher and ENGR student.

**CHEM1121M Honors University Chemistry II Laboratory (Sp, Fa)** Quantitative laboratory with data interpretation and exercises covering the topics of stoichiometry, thermodynamics, kinetics, chemical equilibrium, and descriptive inorganic chemistry. Designed for students in the honors programs. Laboratory 3 hours per week. Corequisite: CHEM 1123H. (Same as CHEM 1121L, CHEM 1221L)

**CHEM1121L University Chemistry II Laboratory (Sp, Su, Fa)** Quantitative laboratory with data interpretation and exercises covering the topics of stoichiometry, thermodynamics, kinetics, chemical equilibrium, and descriptive inorganic chemistry. Laboratory 3 hours per week for 1 credit hour. Upon successful completion of 1121 with a grade of "C" or better, credit for 1101L will also be given for students who passed the 1103 proficiency exam. Corequisite: CHEM 1123 and related course component drill section for CHEM 1123. (Same as CHEM 1221L)

**CHEM1123 University Chemistry II (Sp, Su, Fa)** Presents the topics of periodicity, bonding, stoichiometry, thermodynamics, kinetics, and chemical equilibrium in detail. Lecture 3 hours per week. Students who pass the CHEM 1103 Freshman Chemistry Proficiency Exam and enroll in CHEM 1123/1121L and receive a grade of C or better in these courses will also receive credit for CHEM 1103/1101L. Corequisite: CHEM 1121L and related course component drill section for CHEM 1123. Prerequisite: CHEM 1103 (or CHEM 1213 or satisfactory performance on the chemistry proficiency examination) and MATH 1203 or higher or satisfactory performance on the mathematics proficiency examination. (Same as CHEM 1223)

**CHEM1123H Honors University Chemistry II (Sp, Fa)** Presents the topics of periodicity, bonding, stoichiometry, thermodynamics, kinetics, and chemical equilibrium in detail. Lecture 3 hours per week. Upon successful completion of 1123 with a grade of "C" or better, credit for 1103 can be requested by students who passed the 1103 proficiency exam. Corequisite: CHEM 1121M and related course component drill section for CHEM 1123H. Prerequisite: CHEM 1103 (or CHEM 1213 or satisfactory performance on the chemistry proficiency examination) and MATH 1203 or higher or satisfactory performance on the mathematics proficiency examination.

**CHEM1131L University Chemistry for Engineers II Labora-**

**tory (Sp, Su)** Quantitative laboratory experience with data interpretation and exercises covering the topics of stoichiometry, thermodynamics, kinetics, chemical equilibrium, descriptive inorganic chemistry, and properties of matter. Designed especially for students in the College of Engineering enrolled in CHEM 1133. Students may not receive degree credit for both CHEM 1131L and CHEM 1121L. Corequisite: Drill component and CHEM 1133. Prerequisite: CHEM 1113.

**CHEM1133 University Chemistry for Engineers II (Sp, Su)** Develops further the topics of solution chemistry, characteristics of the various states of matter, chemical reactivity, thermochemistry, atomic structure, theories of bonding, solubility, electrochemistry, nuclear chemistry, coordination chemistry, descriptive chemistry, and the chemistry of organic and biological molecules. Students may not receive degree credit for both CHEM 1133 and CHEM 1123. Corequisite: Drill component and CHEM 1131L. Prerequisite: CHEM 1113.

**CHEM1133H Honors University Chemistry for Engineers II (Sp, Su)** Develops further the topics of solution chemistry, characteristics of the various states of matter, chemical reactivity, thermochemistry, atomic structure, theories of bonding, solubility, electrochemistry, nuclear chemistry, coordination chemistry, descriptive chemistry, and the chemistry of organic and biological molecules. Students may not receive degree credit for both CHEM 1133 and CHEM 1123. Corequisite: Drill component and CHEM 1131L. Prerequisite: CHEM 1113.

**CHEM1211L Chemistry for Majors I Laboratory (Fa)** Laboratory 3 hours per week. Students may not receive credit for both CHEM 1211L and CHEM 1101L. Corequisite: CHEM 1213. (Same as CHEM 1101L)

**CHEM1213 Chemistry for Majors I (Fa)** The first half of a two-semester course designed especially for students planning to major in chemistry or biochemistry. Students may not receive credit for both CHEM 1213 and CHEM 1103. Corequisite: CHEM 1211L and related course component drill section for CHEM 1213. Pre- or Corequisite: MATH 1203 or higher or satisfactory completion of the mathematics proficiency exam. (Same as CHEM 1103)

**CHEM1221L Chemistry for Majors II Laboratory (Sp)** Laboratory 3 hours per week. Students may not receive credit for both CHEM 1221L and CHEM 1121L. Corequisite: CHEM 1223. (Same as CHEM 1121L)

**CHEM1223 Chemistry for Majors II (Sp)** The second half of a two-semester course designed specifically for students planning to major in chemistry or biochemistry. Students may not receive credit for both CHEM 1223 and CHEM 1123. Pre- or Corequisite: MATH 2554. Corequisite: CHEM 1221L and related course component drill section for CHEM 1223. Prerequisite: CHEM 1213 and CHEM 1211L (or CHEM 1103 and CHEM 1101L). (Same as CHEM 1123)

**CHEM2261L Analytical Chemistry Laboratory (Sp, Fa)** Provides experience in the techniques of classical and instrumental methods of chemical separation and analysis. Primarily for students in agricultural, biological, and physical sciences. Laboratory 4 hours per week. Pre- or Corequisite: CHEM 2263. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L) or (CHEM 1073 and CHEM 1071L) and MATH 1203 or higher.

**CHEM2263 Analytical Chemistry Lecture (Sp, Fa)** Principles of chemical separations and analysis by classical and instrumental methods. The role of chemical equilibrium in physical and biological systems. Primarily for students in agriculture, biological, and physical sciences. Lecture 3 hours per week. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L) or (CHEM 1073 and CHEM 1071L) and MATH 1203 or higher.

**CHEM2611L Organic Physiological Chemistry Laboratory (Sp, Su)** Laboratory 3 hours per week. Corequisite: CHEM 2613.

**CHEM2613 Organic Physiological Chemistry (Sp, Su)** Survey of organic chemistry necessary for understanding of biological systems, with some related physiological chemistry. Lecture 3 hours per week. Corequisite: CHEM 2611L and related course component drill section for CHEM 2613. Prerequisite: (CHEM 1073 and CHEM 1071L) or (CHEM 1123 and CHEM 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L).

**CHEM3203 Forensic Chemistry (Fa)** Survey of chemistry used in criminal investigations. Topics may include detection and identification of drugs, alcohol, toxins, explosives and gun powder residue. Chemical analysis of paint, ink, paper, soil, glass and fibers. Chemical detection of blood and fingerprints. Extraction of DNA from evidence, DNA fingerprinting. Prerequisite: CHEM 3613 (recommended) or CHEM 2613.

**CHEM3451L Elements of Physical Chemistry Laboratory (Fa)** Techniques of physical measurements of chemical sys-

tems; error analysis and report writing. Experiments in thermochemistry, kinetics, and measurement of properties of matter using a variety of techniques. Laboratory 4 hours per week. Corequisite: CHEM 3453.

**CHEM3453 Elements of Physical Chemistry (Fa)** Fundamental concepts of physical chemistry primarily for B.A. Chemistry majors and pre-professional and agriculture students, presented with some recourse to calculus and with applications to life processes and biochemistry. Lecture 3 hours per week. B.A. chemistry majors must enroll in CHEM 3451L concurrently. Prerequisite: CHEM 2263, CHEM 2261L, PHYS 2033/PHYS 2031L (or PHYS 2074) and MATH 2554 (or MATH 2043).

**CHEM3504 Physical Chemistry (Fa)** Introduction to atomic and molecular structure, kinetic theory of gases, and elementary statistical mechanisms. Lecture and recitation 4 hours per week. Pre- or Corequisite: MATH 2564. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L) and PHYS 2074.

**CHEM3512L Physical Chemistry Laboratory (Sp)** Experimental studies of molecular structure, thermochemistry, and chemical kinetics, and the determination of other physicochemical properties of matter. Laboratory 8 hours per week. Pre- or Corequisite: CHEM 3504.

**CHEM3514 Physical Chemistry II (Sp)** Chemical thermodynamics, phase equilibria, chemical equilibrium; introduction to the structure and properties of solution, liquid state and solid state; and chemical kinetics. Lecture and recitation 4 hours per week. Prerequisite: CHEM 3504.

**CHEM3601L Organic Chemistry I Laboratory (Su, Fa)** Laboratory exercises in organic chemistry. Meets 3 hours per week. Corequisite: CHEM 3603.

**CHEM3602M Honors Organic Chemistry I Laboratory (Su, Fa)** Corequisite: CHEM 3603H and related course component drill section for CHEM 3602M. (Same as CHEM 3601L)

**CHEM3603 Organic Chemistry I (Su, Fa)** Lecture 3 hours per week. Primarily for non-majors and B.A. chemistry majors who do not take the CHEM 3703/3702L-3713/ 3712L sequence. Corequisite: CHEM 3601L and related course component drill section for CHEM 3603. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L).

**CHEM3603H Honors Organic Chemistry I (Su, Fa)** Corequisite: CHEM 3602M and related course component drill section for CHEM 3603H. Prerequisite: (CHEM 1123 and 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L).

**CHEM3611L Organic Chemistry II Laboratory (Sp, Su)** Laboratory exercise in organic chemistry. Meets 3 hours per week. Corequisite: CHEM 3613.

**CHEM3612M Honors Organic Chemistry II Laboratory (Sp, Su)** Corequisite: CHEM 3613H and related course component drill section for CHEM 3612M. (Same as CHEM 3611L)

**CHEM3613 Organic Chemistry II (Sp, Su)** Lecture 3 hours per week. Primarily for non-majors and B.A. chemistry majors who do not take the CHEM 3703/3702L and 3713/3712L sequence. Corequisite: CHEM 3611L and related course component drill section for CHEM 3613. Prerequisite: (CHEM 3603 and CHEM 3601L) or (CHEM 3603H and CHEM 3602M) or (CHEM 3703 and CHEM 3702L).

**CHEM3613H Honors Organic Chemistry II (Sp, Su)** Corequisite: CHEM 3612M and related course component drill section for CHEM 3613H. Prerequisite: CHEM 3603H and CHEM 3602M.

**CHEM3702L Organic Chemistry I Lab for Majors (Fa)** Introduction to basic techniques for separation, purification, and identification of organic compounds. Lecture-discussion 1 hour, laboratory 3 hours per week. Corequisite: CHEM 3703 and related course component drill section for CHEM 3702L.

**CHEM3703 Organic Chemistry I Lecture for Majors (Fa)** Basic chemistry of the compounds of carbon. Primarily for B.S. and B.A. chemistry majors. Lecture 3 hours per week. Corequisite: CHEM 3702L and related course component drill section for CHEM 3703. Prerequisite: Chemistry major; (CHEM 1123 and CHEM 1121L) or (CHEM 1123H and CHEM 1121M) or (CHEM 1223 and CHEM 1221L).

**CHEM3712L Organic Chemistry II Lab for Majors (Sp)** Continuation of CHEM 3702L and introduction to basic techniques of synthesis, isolation, and determination of structure and reactivity of organic compounds. Lecture-discussion and laboratory 8 hours per week. Corequisite: CHEM 3713 and related course component drill section for CHEM 3712L.

**CHEM3713 Organic Chemistry II Lecture for Majors (Sp)** Basic chemistry of the compounds of carbon. Primarily for B.S. and B.A. chemistry majors. Lecture 3 hours per week. Corequisite: CHEM 3712L and related course component drill

section for CHEM 3713. Prerequisite: CHEM 3703 and CHEM 3702L.

**CHEM3813 Introduction to Biochemistry (Su, Fa)** Primarily for students in the agricultural, biological, and related sciences. Survey of the fundamentals of biochemistry. Credit may not be applied to the minimum hourly requirements for a B.S. major in chemistry. Lecture 3 hours per week. Prerequisite: (CHEM 3613 and CHEM 3611L) or (CHEM 3613H and CHEM 3611M) or (CHEM 3713 and CHEM 3712L) or (CHEM 2613 and CHEM 2611L).

**CHEM3923H Honors Colloquium (Irregular)** Covers a special topic or issue. Offered as a part of the honors program. Prerequisite: honors candidacy (may not be restricted to candidacy in chemistry). May be repeated for credit.

**CHEM400V Chemistry Research (Sp, Su, Fa) (1-4)** Research problems. May be repeated for credit.

**CHEM4011H Honors Seminar (Sp)** Research seminar for chemistry majors enrolled in the program. Enrollment is required each spring semester for honors students. Senior honors students must make one research presentation to graduate with honors. Prerequisite: Junior standing.

**CHEM405V Special Topics in Chemistry (Irregular) (1-4)** Potential topics include: advanced spectroscopic methods, bioanalytical chemistry, bioinorganic chemistry, bioorganic chemistry, biophysical chemistry, chemical sensors, drug discovery and design, nanomaterials, pharmaceutical chemistry, process analytical chemistry, and protein folding and design. Prerequisite: Instructor consent.

**CHEM4123 Advanced Inorganic Chemistry I (Fa)** Reactions and properties of inorganic compounds from the standpoint of electronic structure and the periodic table. Emphasis on recent developments. Prerequisite: CHEM 3514.

**CHEM4211L Instrumental Analysis Laboratory (Sp)** Provides laboratory experience in parallel with the lecture material in CHEM 4213. Laboratory 3 hours per week. Pre- or Corequisite: CHEM 4213.

**CHEM4213 Instrumental Analysis (Sp)** Provides students, especially those in the agricultural, biological, and physical sciences, with an understanding of modern instrumental techniques of analysis. Lecture 3 hours per week. Prerequisite: (CHEM 2263 and CHEM 2261L and CHEM 3613/3611L) or (CHEM 3713/3712L) and (CHEM 3514 or CHEM 3453).

**CHEM4723 Experimental Methods in Organic and Inorganic Chemistry (Fa)** Introduction to the application of synthetic and spectroscopic methods in organic and inorganic chemistry, including mass spectroscopy, nuclear magnetic resonance, ultraviolet-visible, and infrared spectroscopy. Other laboratory techniques applicable to chemical research will be included. Lecture 1 hour, laboratory 6 hours per week. Chemistry students may not receive graduate credit for this course and CHEM 5753. Corequisite: Drill component and Lab component. Prerequisite: CHEM 3613 and CHEM 3611L (or CHEM 3713 and CHEM 3712L) and CHEM 3504 and CHEM 3514.

**CHEM4813H Honors Biochemistry I (Fa)** The first of a two-course series covering biochemistry for undergraduate students in biology, agriculture, and chemistry. Topics covered include protein structure and function, enzyme kinetics, enzyme mechanisms, and carbohydrate metabolism. Prerequisite: (CHEM 3613 and CHEM 3611L) or (CHEM 3613H and CHEM 3611M) or (CHEM 3713 and CHEM 3712L).

**CHEM4843H Honors Biochemistry II (Sp)** A continuation of CHEM 4813H covering topics including biological membranes and bioenergetics, photosynthesis, lipids and lipid metabolism, nucleic acid structure, structure and synthesis, and molecular biology. Prerequisite: CHEM 4813H

**CHEM4853 Biochemical Techniques (Sp)** Techniques for handling, purifying and analyzing enzymes, structural proteins, and nucleic acids. Lecture 1 hour, laboratory 6 hours per week. Pre- or Corequisite: CHEM 5813 or CHEM 3813.

**CHEM498V Senior Thesis (Sp, Su, Fa) (1-6)**

**CHEM5101 Introduction to Research (Sp, Fa)** Introduces new graduate students to research opportunities and skills in chemistry and biochemistry. Meets 1 hour per week during which new students receive information from faculty regarding research programs in the department and training in the use of research support facilities available in the department.

**CHEM5143 Advanced Inorganic Chemistry II (Irregular)** Chemistry of metallic and non-metallic elements emphasizing molecular structure, bonding and the classification of reactions. Emphasis on recent developments. Prerequisite: CHEM 4123.

**CHEM5153 Structural Chemistry (Irregular)** Determination of molecular structure by spectroscopic, diffraction, and other techniques. Illustrative examples will be chosen mainly from inorganic chemistry. Pre- or Corequisite: CHEM 3504 and CHEM 4123.

**CHEM5223 Chemical Instrumentation (Odd years, Sp)** Use and application of operational amplifiers to chemical instrumentation; digital electronic microprocessor interfacing; software development and real-time data acquisition. Prerequisite: CHEM 4213 and PHYS 2074.

**CHEM5233 Chemical Separations (Even years, Fa)** Modern separation methods including liquid chromatography (adsorption, liquid-liquid partition, ion exchange, exclusion) and gas chromatography. Theory and instrumentation is discussed with emphasis on practical aspects of separation science. Prerequisite: CHEM 4213.

**CHEM5243 Electrochemical Methods of Analysis (Even years, Sp)** Topics will include: diffusion, electron transfer kinetics, and reversible and irreversible electrode processes; followed by a discussion of chronoamperometry, chronocoulometry, polarography, voltammetry and chronopotentiometry. Prerequisite: CHEM 4213 and MATH 2574.

**CHEM5253 Spectrochemical Methods of Analysis (Odd years, Fa)** Principles and methods of modern spectroscopic analysis. Optics and instrumentation necessary for spectroscopy is also discussed. Topics include atomic and molecular absorption and emission techniques in the ultraviolet, visible, and infrared spectral regions. Prerequisite: CHEM 4213.

**CHEM5263 Nuclear Chemistry (Odd years, Fa)** Nuclear structure and properties, natural and artificial radioactivity, radioactive decay processes, nuclear reaction and interactions of radiation with matter. Prerequisite: CHEM 3514.

**CHEM5273 Cosmochemistry (Odd years, Sp)** Laws of distribution of the chemical elements in nature, cosmic and terrestrial abundance of elements; origin and age of the earth, solar system, and the universe. Prerequisite: CHEM 3514.

**CHEM5473 Chemical Kinetics (Sp)** Theory and applications of the principles of kinetics to reactions between substances, both in the gaseous state and in solution. Prerequisite: CHEM 3514.

**CHEM5513 Biochemical Evolution (Even years, Sp)** Abiotic synthesis of biomolecules on Earth, the origin of cells, genetic information, origin of life on Earth and elsewhere, evolution and diversity, ecological niches, bacteria, archaea, eukaryotes, novel metabolic reshaping of the environment, life being reshaped by the environment, molecular data and evolution. Prerequisite: CHEM 5813.

**CHEM5603 Physical Organic Chemistry (Fa)** Introduction to the theoretical interpretation of reactivity, reaction mechanisms, and molecular structure of organic compounds. Application of theories of electronic structure; emphasis on recent developments. Prerequisite: (CHEM 3514 and CHEM 3713 and CHEM 3712L).

**CHEM5633 Organic Reactions (Fa)** The more important types of organic reactions and their applications to various classes of compounds. Prerequisite: (CHEM 3514 and CHEM 3713 and CHEM 3712L).

**CHEM5753 Methods of Organic Analysis (Fa)** Interpretation of physical measurements of organic compounds in terms of molecular structure. Emphasis on spectroscopic methods (infrared, ultraviolet, magnet resonance, and mass spectra). Prerequisite: (CHEM 3712L and CHEM 3713 and CHEM 3514).

**CHEM5813 Biochemistry I (Fa)** The first of a two-course series covering biochemistry for graduate students in biology, agriculture, and chemistry. Topics covered include protein structure and function, enzyme kinetics, enzyme mechanisms, and carbohydrate metabolism. Prerequisite: CHEM 3712L and CHEM 3713 (or CHEM 3613 and CHEM 3611L) and CHEM 3514 (or CHEM 3453 and CHEM 3451L).

**CHEM5843 Biochemistry II (Sp)** A continuation of CHEM 5813 covering topics including biological membranes and bioenergetics, photosynthesis, lipids and lipid metabolism, nucleic acid structure, structure and synthesis, and molecular biology. Prerequisite: CHEM 5813.

**CHEM600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**CHEM6011 Chemistry Seminar (Sp, Fa)** Members of the faculty, graduate and advanced students meet weekly for discussion of current chemical research. Weekly seminar sections are offered for the Departmental seminar and for divisional seminars in biochemistry and in analytical, inorganic, nuclear, organic, and physical chemistry. Chemistry graduate students register for the Departmental seminar section and one of the divisional seminar sections each semester they are in residence. Seminar credit does not count toward the minimum hourly requirements for any chemistry graduate degree. Prerequisite: (CHEM 3514 and CHEM 3713 and CHEM 3712L) and senior or graduate standing. May be repeated for up to 1 hours of degree credit.

**CHEM619V Special Topics in Inorganic Chemistry (Irregular) (1-3)** Topics which have been covered in the past include:

technique and theory of x-ray diffraction, electronic structure of transition metal complexes, inorganic reaction mechanisms, and physical methods in inorganic chemistry. May be repeated for credit.

**CHEM6283 Mass Spectrometry (Odd years, Sp)** This course is devoted to the fundamental principles and applications of analytical mass spectrometry. Interactions of ions with magnetic and electric fields and the implications with respect to mass spectrometer design are considered, as are the various types of mass spectrometer sources. Representative applications of mass spectrometry in chemical analysis are also discussed. Prerequisite: Graduate standing.

**CHEM629V Special Topics in Analytical Chemistry (Irregular) (1-3)** Topics that have been presented in the past include: electroanalytical techniques, kinetics of crystal growth, studies of electrode processes, lasers in chemical analysis, nucleosynthesis and isotopic properties of meteorites, thermoluminescence of geological materials, early solar system chemistry and analytical cosmochemistry. May be repeated for credit.

**CHEM649V Special Topics in Physical Chemistry (Irregular) (1-3)** Topics which have been covered in the past include advanced kinetics, solution chemistry, molecular spectra, nuclear magnetic resonance spectroscopy, and methods of theoretical chemistry. May be repeated for credit.

**CHEM6633 Chemistry of Organic Natural Products (Irregular)** Selected topics concerned with structure elucidation and synthesis of such compounds as alkaloids, antibiotics, bacterial metabolites, plant pigments, steroids, terpenoids, etc. Prerequisite: CHEM 5603 and CHEM 5633.

**CHEM6643 Organometallic Chemistry (Irregular)** Theories and principles of organometallic chemistry. Concepts include bonding, stereochemistry, structure and reactivity, stereochemical principles, conformational, steric and stereoelectronic effects. Transition metal catalysis of organic reactions will also be described. Prerequisite: CHEM 3504, and CHEM 3514, and CHEM 3703, and CHEM 3713 or permission of instructor.

**CHEM6673 Organic Reaction Mechanisms (Odd years, Fa)** A detailed description of the fundamental reactions and mechanisms of organic chemistry. Prerequisite: CHEM 5633.

**CHEM669V Special Topics in Organic Chemistry (Irregular) (1-3)** Topics which have been presented in the past include heterogeneous catalysis, isotope effect studies of organic reaction mechanisms, organometallic chemistry, stereochemistry, photochemistry, and carbanion chemistry. May be repeated for credit.

**CHEM6823 Physical Biochemistry (Even years, Fa)** Physical chemistry of proteins, nucleic acids, and biological membranes. Ultracentrifugation, absorption and fluorescent spectrophotometry, nuclear magnetic resonance spectroscopy, x-ray diffraction, and other techniques. Prerequisite: (CHEM 3514 and CHEM 5813) or graduate standing.

**CHEM6863 Enzymes (Odd years, Fa)** Isolation, characterization, and general chemical and biochemical properties of enzymes. Kinetics, mechanisms, and control of enzyme reactions. Prerequisite: (CHEM 5813 and CHEM 5843) or graduate standing.

**CHEM6873 Molecular Biochemistry (Odd years, Sp)** Nucleic acid chemistry in vitro and in vivo, synthesis of DNA and RNA, genetic diseases, cancer biochemistry and genetic engineering. Prerequisite: CHEM 5813 and CHEM 5843.

**CHEM6883 Bioenergetics and Biomechanics (Even years, Sp)** Cellular energy metabolism, photosynthesis, membrane transport, properties of membrane proteins, and the application of thermodynamics to biological systems. Prerequisite: CHEM 5813 and CHEM 5843.

**CHEM700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing. May be repeated for up to 18 hours of degree credit.

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Chinese (CHIN)

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**CHIN1003 Elementary Chinese I (Fa)**

**CHIN1013 Elementary Chinese II (Sp)** Elementary courses stress correct pronunciation, Aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**CHIN2003 Intermediate Chinese I (Fa)** Intermediate courses lead to greater facility in spoken language and to more advanced reading skills.

**CHIN2013 Intermediate Chinese II (Sp)** Continued development of basic speaking comprehension and writing skills and intensive development of reading skills.

**CHIN3003 Advanced Chinese (Fa)** Continues to develop speaking, listening, reading and writing skills and presents more complex forms and structures of the language as well as

additional characters. Prerequisite: CHIN 2013

**CHIN3033 Conversation (Sp)** Guided conversation practice for the post-intermediate student. Prerequisite: CHIN 2013 or equivalent.

**CHIN3103 Chinese Culture and Film (Fa)** A course based on film and readings designed to give insight into Chinese civilization and culture with special emphasis on ethnicity, modern history, contemporary society, education, language, customs, and visual arts. This course is taught in English. May be repeated for up to 6 hours of degree credit.

**CHIN3983 Special Studies (Irregular)** May be offered in subject not specifically covered by courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**CHIN4313 Business Culture & Society in China (Fa)** Introduction of key principles, customs, and behaviors in Chinese society to help students understand the Chinese business context. Discusses the implications for economic development, intercultural management and international business conduct through case studies. This course is taught in English. Prerequisite: Chinese proficiency or instructor permission.

**CHIN4333 Business Chinese Language in Speaking and Writing (Sp)** Introduction of Chinese vocabulary, formats, and expressions in business environments, such as company structures, management, banking and accounting, as well as how to read and write contracts, letters, and other business documents. Prerequisite: CHIN 3003 or equivalent Chinese proficiency.

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Community Health Promotion (CHLP)

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**CHLP1103 Personal Health and Safety (Sp, Fa)** Health and safety problems with emphasis on the promotion of individual health and safety.

**CHLP1203 Prevention of Drug Abuse (Fa)** Provides an overview of drugs of use and abuse in society. Also assists the student in evaluating drug abuse prevention approaches for public, private, or community settings.

**CHLP1303 Introduction to Human Sexuality (Sp)** An examination of human sexuality with a critical analysis of male and female attitudes and values affecting self-understanding and gender identity.

**CHLP2101 Special Topics (Sp, Fa)** Examination and application of health promotion concepts based on individualized health hazard appraisal. (Not to replace content courses leading to teacher certification in health education). May be repeated for up to 5 hours of degree credit.

**CHLP2613 Foundations of Community Health (Sp)** History and philosophy of health education discipline; organization and administration of health education programs; curriculum development and evaluation of educational efforts; and student observation in school and non-school settings.

**CHLP2662 Terminology for the Health Professions (Sp, Fa)** Emphasis is on word roots and combined forms of words describing various facets of health and disease. Descriptive definitions with application of practical significance included for the health professional.

**CHLP310V Seminar (Irregular) (1-3)** Synthesis and critical analysis of current literature in the area of community health promotion. May be repeated for up to 12 hours of degree credit.

**CHLP3633 First Responder-First Aid (Sp, Su, Fa)** Prepares persons to administer cardiopulmonary resuscitation and emergency aid to victims of serious bleeding, poisoning, shock, fracture, and other forms of injury until emergency medical services personnel arrive at the scene.

**CHLP3643 Community Health Planning and Promotion (Even years, Fa)** Emphasis on community analysis; defining and verifying community health problems; establishing program goals; defining and assessing health behaviors; formulating educational goals, objectives, methods, and activities; promoting programs; and designing program evaluation.

**CHLP3663 Principles and Practice of Mental Health Promotion (Irregular)** Understanding and practicing the principles of sound mental health are key elements in achieving high level wellness. This course encourages students' exploration of the mental dimensions of holistic health and presents strategies to achieve a more healthful balance in life.

**CHLP3683 Health Care Consumerism (Irregular)** Study of products and services provided by the health care delivery system; an analysis of those components lacking scientific credibility, yet promoted for the maintenance or restoration of health status.

**CHLP3683H Honors Health Care Consumerism (Even years, Sp)** Study of products and services provided by the health care delivery system; an analysis of those components

lacking scientific credibility, yet promoted for the maintenance or restoration of health status.

**CHLP4043 Internship in Community Health (Sp, Su, Fa)** Designed to provide the student with an extended work experience in a selected community health program. The student works under college supervision with a professional in the health care delivery field. Prerequisite: Junior standing and HLSC or CHLP major. May be repeated for up to 6 hours of degree credit.

**CHLP410V Global Health: Issues, Concepts and Perspectives (Su) (3-6)** Emphasis placed on needs assessment, development, implementation, evaluation, and sustainability of public health initiatives designed to improve the health and well-being of community members at all levels of the health continuum; topics of focus will include determinants of health, mental health, environmental health, nutrition, maternal and child health, sexual health, injuries and chronic and infectious diseases. Prerequisite: Approval from Study Abroad to participate in the Community Development Service Learning Program.

**CHLP4553 Environmental Health (Odd years, Fa)** This course explores current environmental problems and issues related to public health. Topics include health risk assessment, management, and communication; sources of pollution, environmental and health effects of war, food safety and other environmental health topics. Also discussed are the roles of the environment in human health and disease, the basic principles of environmental health practice, and major environmental health legislation and policy. Format for course will include lecture web based seminars, and small group seminars.

**CHLP4603 Application of Health Behavior Theories in Health Education (Odd years, Sp)** Understanding the reasons for health behavior is vital for the health education professional. It is necessary to assist in the development of services and programs that are likely to move an individual from an unhealthy behavior to one that is more appropriate for a healthy lifestyle. This course surveys the major health behavior theories used in health education and applications of the theories will be used in the class.

**CHLP4613 Principles of Epidemiology (Fa)** Distribution and patterns of disease or physiological conditions within populations; an examination of the nature of epidemiological research. Prerequisite: Senior standing and BIOL 2013 and BIOL 2011L. May be repeated for up to 6 hours of degree credit.

**CHLP4623 Human Diseases (Fa)** (Formerly HLSC 3623) An examination of the variety, behavior, distribution, and management of both infectious and noninfectious diseases in human populations. Prerequisite: BIOL 1603 (or BIOL 1543 and BIOL 1541L).

**CHLP4643 Multicultural Health (Even years, Sp)** Through lecture, discussion, simulations, and case studies, students will develop an appreciation for the cultural traditions and practices of different groups. The importance and implications of these traditions on health outcomes and health status will be examined. Students will also develop skills of cultural competence that are essential for public health practitioners today. Prerequisite: Senior standing or consent.

**CHLP5353 Health Counseling (Odd years, Fa)** A review of the role and function of the health counselor including a focus on problem solving approaches for coping with daily problems of living, decision making, and life style planning.

**CHLP5333 Models and Theories of Health Behavior (Fa)** This course will provide a basic foundation in the social and behavioral sciences relevant to public health. Students will learn the role of social and behavioral determinants in the health of individuals and of populations. Then, students will learn models and theories of health behavior, both generally and specifically. Generally, the student will learn how to identify, analyze, and use theoretical constructs and principles with particular attention to the use of theory in professional public health practice. Specifically, the student will learn the constructs and principles of several theories commonly used in public health behavior research and intervention design. The course will cover the four major individual that focus on intrapersonal factors (i.e., Health Belief Model, Transtheoretical Model, Theory of Reasoned Action/Planned Behavior, and Social Cognitive Theory) as well as several social, organizational, and community theories that are beyond the individual level.

**CHLP5543 Contemporary Issues in Human Sexuality (Irregular)** In-depth analysis of the social, biological, and behavioral factors associated with the development of one's sexuality.

**CHLP5563 Public Health: Practices and Planning (Sp)** Acquaints the student with the structure, functions, and current problems in public health and with the role of education

in public health. Prevention and control practices and planning will be emphasized.

**CHLP5573 Principles of Health Education (Fa)** Current trends, basic issues, controversial issues, and fundamental principles of health education.

**CHLP5633 Health Services Administration (Irregular)** Emphasis is on an examination of administrative factors related to health services. Administrative and professional authority, boards, consumers, delivery of services, federal role, and cost containment will also be addressed.

**CHLP5643 Multicultural Health (Even years, Sp)** Through lecture, discussion, simulations, and case studies, students will develop an appreciation for the cultural traditions and practices of different groups. The importance and implications of these traditions on health outcomes and health status will be examined. Particular attention will be paid to the role of the public health educator in mediating the impact of health disparities, including advocacy. Students will develop skills of cultural competence that are essential for public health practitioners today. Prerequisite: Graduate standing or consent.

**CHLP574V Internship (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

**CHLP589V Independent Research (Sp, Su, Fa) (1-6)** Development, implementation, and completion of graduate research project. Prerequisite: M.S. degree in Community Health Promotion and HHPR 5353 and ESRM 5393.

**CHLP600V Master's Thesis (Sp, Su, Fa) (1-6)**

**CHLP605V Independent Study (Sp, Su, Fa) (1-6)** Provides students with an opportunity to pursue special study of education problems. May be repeated for up to 6 hours of degree credit.

**CHLP6333 Health Behavior Research (Even years, Fa)** A review of human behavior and its relationship to health and wellbeing. Focuses on contemporary health behavior research and instrumentation.

**CHLP6553 Environmental Health (Odd years, Fa)** An analysis and evaluation of the various environmental factors that influence our health. Causes of problem factors are identified and solutions proposed for improving environmental conditions.

**CHLP6733 Health and the Aging Process (Odd Years, Sp)** An overview of the health-related issues facing elderly populations with in-depth study of the biological and behavioral changes associated with aging.

**CHLP6803 Health Communication Theory, Research and Practice (Odd years, Sp)** This course is designed to acquaint you with the role of communication in health education and with basic principles and practices in interpersonal, group, and mass communication. Health communication theory will be discussed in the first part of the semester, followed by important research in the area of health communication, and finally putting to practice the material will be the terminal experience for the course.

**CHLP6833 Principles of Epidemiology II (Even years, Sp)** Provides students with knowledge and skills necessary to design, conduct, and interpret observational epidemiological concepts, sources of data, prospective cohort studies, retrospective cohort studies, case-control studies, cross-sectional studies, methods of sampling, estimating sample size, questionnaire design, and effects of measurement error. Prerequisite: ERSM 5393 or ESRM 6403.

**CHLP699V Seminar (Irregular) (1-6)** Discussion of selected topics and review of current literature in community health promotion. Prerequisite: Advanced graduate standing. May be repeated for up to 12 hours of degree credit.

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Curriculum and Instruction (CIED)

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**CIED1002 Introduction to Education (Sp, Fa)** Integrates psychological, sociological, and philosophical foundations of education with concurrent involvement in field experiences. Encourages prospective teachers to become reflective practitioners by emphasizing organization of school systems, planning and implementation of effective classroom environments, development of teaching styles, and new directions in education. Corequisite: CIED 1011.

**CIED1003 Introduction to Technology in Education (Sp, Su, Fa)** A study of computer technology as it relates to teacher education. This course introduces students interested in teacher education to the knowledge and skills required to demonstrate their proficiency in technology and learning.

**CIED1011 Introduction to Education: Practicum (Sp, Fa)** A 24-hour early field experience designed to give prospective teachers opportunities to observe and participate in a variety of school settings. Includes a variety of field-based activities

to encourage personal reflection. Special focus upon organization of school systems, effective classroom environments, teaching styles and new directions in education. Corequisite: CIED 1002. (Same as CATE 1001,PHED 1003)

**CIED3001 Early Childhood Education Practicum (Sp, Su, Fa)** This practicum course provides opportunities for students to observe and practice providing instruction and guidance in preschool settings. Corequisite: CIED 3003.

**CIED3003 Early Childhood Education (Sp, Su)** The study of kindergarten and preschool programs: social context of early childhood education, purposes, research basis, curriculum development, methods, and materials. Corequisite: CIED 3001. Prerequisite: CIED 1002 and CIED 1011.

**CIED3023 Survey of Exceptionalities (Sp, Su, Fa)** A survey of the characteristics of students with exceptional needs. Reviews the definitions of exceptionalities, learning and behavior characteristics of individuals with exceptionalities and the legal basis for the education of persons with exceptionalities in both elementary and secondary schools. Prerequisite: CIED 1002 and CIED 1011; or MUED 2012; or CATE 1001; or AGED 1123 and 1031, or HESC 1501 or PSYC 2003.

**CIED3033 Classroom Learning Theory (Sp, Su, Fa)** A survey of the major theories of learning with special emphasis on human learning and implications for education. Prerequisite: CIED 1002 and CIED 1011; or MUED 2012; or PHED 1003; or CATE 1001; or AGED 1123 and 1031; and PSYC 2003.

**CIED3043 Introduction to Middle Level Principles and Methods (Fa)** A comprehensive overview of the key components, principles, methodologies, and research foundations to middle level education. Reflective activities and site-based field experience are integrated with course content to provide continuity between theory and practice. Portfolio expectations will be a primary means of course evaluation. Prerequisite: CIED 3053.

**CIED3053 The Emerging Adolescent (Sp)** This course is a study of the developmental characteristics (social, emotional, physical, moral, and intellectual) of early adolescents (ages 10-15 years). The implications of these changes for motivation, instruction, learning, and classroom management in the classroom are emphasized. Course has field component. Pre- or corequisite: CIED 3033. Prerequisite: CIED 1011 or CIED 1002, or CATE 1001, and PSYC 2003.

**CIED3063 Literacy Strategies for Middle Level Learners (Sp)** This course is designed to examine theories and practice regarding literacy development and assessment grounded in the knowledge of the characteristics of the middle level learner. A ten-hour field experience is required. Corequisite: CIED 3073. Prerequisite: CIED 3043.

**CIED3063H Honors Literacy Strategies for Middle Level Learners (Sp)** This course is designed to examine theories and practice regarding literacy development and assessment grounded in the knowledge of the characteristics of the middle level learner. A ten-hour field experience is required. Corequisite: CIED 3073 and honors candidacy. Prerequisite: CIED 3043.

**CIED3073 Early Adolescent Literature (Sp)** A study of rationales and strategies for incorporating early adolescent literature across the middle level curriculum. Includes an examination of genres and selected texts from each. Corequisite: CIED 3063. Prerequisite: CIED 3043.

**CIED3073H Honors Early Adolescent Literature (Sp)** A study of rationales and strategies for incorporating early adolescent literature across the middle level curriculum. Includes an examination of genres and selected texts from each. Corequisite: CIED 3063. Prerequisite: CIED 3043 and honors candidacy.

**CIED3093 Essentials of Literacy (Sp, Fa)** An undergraduate foundational course focusing on literacy development and processes of children from the emergent to developmental stages, materials and effective research-based teaching strategies for classroom practice. Not for credit in Childhood Education (CHED) degree program.

**CIED3103 Children's Literature (Fa)** A survey of children's literary works, authors, and illustrators with emphasis on the preschool and primary grade literature.

**CIED3103H Honors Children's Literature (Fa)** A survey of children's literary works, authors, and illustrators with emphasis on the preschool and primary grade literature. Corequisite: CIED 3113.

**CIED3113 Emergent and Developmental Literacy (Fa)** This course focuses on theories of children's emerging literacy and on the continuing development of literacy abilities in pre-kindergarten and early elementary years. Prerequisite: PSYC 2003, ENGL 1013, ENGL 1023, and CIED 3263.

**CIED3113H Honors Emergent and Developmental Literacy (Fa)** This course focuses on theories of children's emerging

literacy and on the continuing development of literacy abilities in pre-kindergarten and early elementary years. Prerequisite: PSYC 2033, ENGL 1013, ENGL 1023, and CIED 3263.

**CIED3123 Mathematics Methods (Sp, Su)** An examination of the content of elementary mathematics courses. Special emphasis given to methods of teaching the content as well as enrichment materials. Prerequisite: MATH 1203, MATH 2213 and MATH 2223.

**CIED3133 Integrated Social Studies (Sp)** Focuses on the methodology of facilitating pre-K and elementary children's development in language arts and social studies. Integrates the curriculum and teaching strategies in language arts and social studies. Prerequisite: PLSC 2003 and (HIST 2003 or HIST 2013) or (HIST 2003 or HIST 2013) and GEOG 1123 or higher.

**CIED3143 Teaching Science in the Elementary Grades (Sp, Fa)** Study of the methods and materials in teaching science. Classroom applications of teaching strategies with analysis of teacher effectiveness in seminar settings are emphasized.

**CIED3263 Language Development for the Educator (Sp, Fa)** Nature of speech-language development in preschool and school-aged children, including cognitive prerequisites, social contexts, and relationships between language acquisition and literacy. Language differences (dialectal, bilingual) and speech-language disorders are explored. The role of the educator in facilitating language acquisition is emphasized.

**CIED4003 Elementary Seminar (Sp)** This course is designed to synthesize the foundational content presented in the Bachelor of Science in Education, Elementary Education program. It focuses on refinement of generalized knowledge to accommodate specialized content relevant to young children.

**CIED4013 Capstone Course for Foreign Language Licensure (Sp)** This course is designed to identify and provide evidence of content language specific proficiencies in the four skills of reading, writing, listening, and speaking a foreign language.

**CIED4023 Teaching in Inclusive Secondary Settings (Su)** This course is designed to prepare pre-service teachers to teach in inclusive classroom settings at the secondary level. Course content will focus on the ways in which exceptionalities, specifically focused on high-incidence disabilities and culture, specifically focused on English language learners mediate the learning experiences of secondary level students.

**CIED4101 Practicum (Sp)** Practicum. Corequisite: CIED 4113

**CIED4101H Honors Practicum (Sp)** Practicum. Corequisite: CIED 4113.

**CIED4113 Integrated Communication Skills (Su)** Focuses on the methodology of facilitating pre-kindergarten, kindergarten, and early elementary children's literacy development. Emphasis is on the integration of the communication skills of reading, writing, speaking, and listening across the curriculum. Prerequisite: CIED 3103 and CIED 3113.

**CIED4113H Honors Integrated Communication Skills (Su)** Focuses on the methodology of facilitating pre-kindergarten, kindergarten, and early elementary children's literacy development. Emphasis is on the integration of the communication skills of reading, writing, speaking, and listening across the curriculum. Prerequisite: CIED 3103 and CIED 3113.

**CIED4123 Literacy Assessment (Sp, Fa)** An undergraduate course focusing on literacy assessment and intervention for prospective classroom teachers. Participants become familiar with assessment procedures and instruments for identifying student strengths and weaknesses in literacy, determining effective intervention strategies for literacy improvement, and principles of reporting assessment and intervention outcomes. Prerequisite: CIED 3093.

**CIED4131 Practicum in Secondary Education (Sp, Su, Fa)** This practicum is a requirement for entry into the Secondary Master of Arts (M.A.T.) in teaching program. Students will be involved in documented experiences with children for a minimum of 60 hours with at least 20 of them being in schools with children in grades 7 through 12.

**CIED4133 Measurement, Research, and Readings (Su)** This course is designed to provide an introduction to educational assessment, research methods, and what research has to say about trends and topics in elementary education.

**CIED4143 Curriculum Design (Su)** A course in the design and adaptation of curriculum for students in regular, elementary classrooms. Theoretical bases and curriculum models will be reviewed.

**CIED4153 Classroom Management (Fa)** This course focuses on a number of different management techniques for Pre-K through upper elementary grades that can be used in general education settings.

**CIED4163 Senior Project (Su)** This course is designed to provide students with the research skills necessary to complete their senior project.

**CIED4173 Student Teaching (Sp, Fa)** This course is a field-based practicum experience.

**CIED4323 Instructional Design for Teachers (Fa)** Study of the design of instruction for students with exceptionalities. Emphasis is placed on synthesizing a broad range of existing and emerging perspectives and methods of instruction and applying them to practical classroom practice. Prerequisite: CIED 3023.

**CIED4403 Understanding Cultures in the Classroom (Su, Fa)** This course provides pre-and in-service teachers knowledge and skills necessary for educating ethnically and linguistically diverse classrooms. Students have the opportunity to understand positive relationships while removing stereotypes and prejudices. It addresses issues for social justice education through understanding ways that children learn and communicate in their homes and communities.

**CIED4413 Acquiring a Second Language (Fa)** The course gives an introduction to the basics in research and learning theories involved in the acquisition of second languages and cultures, particularly of English.

**CIED4423 Teaching a Second Language (Sp)** This course gives an introduction to different methods used to teach individuals a second language, with an emphasis on teaching English as a second language.

**CIED4433 The Moral Mind in Action (Fa)** The Moral Mind in Action explores how people reason through moral dilemmas and prepares students to more effectively recognize and resolve moral problems. Best practices of teachers and administrators of K-16 character education programs are discussed.

**CIED4443 Moral Courage (Sp)** Moral Courage explores the factors that support translating moral thinking into moral action. This course draws from the field of positive psychology to guide students as they leverage existing strengths and develop new strategies for acting with moral courage in their personal and professional lives. Best practices of teachers and administrators of K-16 character education programs are discussed.

**CIED4513 Teaching Children with Mild Disabilities (Sp, Fa)** This course is a study of the characteristics of young students with disabilities and methods for teaching this group of students. The course will provide future teachers with an understanding of interventions useful in teaching individuals with special learning needs during grades P-4.

**CIED4513H Honors Teaching Children with Mild Disabilities (Irregular)** This course is a study of the characteristics of young students with disabilities and methods for teaching this group of students. The course will provide future teachers with an understanding of interventions useful in teaching individuals with special learning needs during grades P-4.

**CIED4523 Teaching Children with Severe Disabilities (Sp, Su)** This course is a study of the characteristics of young students with severe disabilities and methods for teaching this group of students. The course will provide future teachers with an understanding of interventions useful in teaching individuals with special learning needs during grades P-4.

**CIED4523H Honors Teaching Children with Severe Disabilities (Sp, Su)** This course is a study of the characteristics of young students with severe disabilities and methods for teaching this group of students. The course will provide future teachers with an understanding of interventions useful in teaching individuals with special learning needs during grades P-4.

**CIED5003 Childhood Seminar (Sp)** This course is designed to synthesize the foundational content presented in the Master of Arts in Teaching core courses. It focuses on refinement of the generalized knowledge to accommodate specialized content children. Professional attitudes, knowledge and skills relevant to young children. Professional attitudes, knowledge and skills applicable to today's early childhood educator are addressed. Prerequisite: Admission to the CHED M.A.T.

**CIED5012 Measurement, Research, and Statistical Concepts for Teachers (Su)** An introduction to constructing, analyzing, and interpreting tests, types of research and the research process, qualitative and quantitative techniques for assessment, and descriptive and inferential statistics.

**CIED5013 Measurement, Research and Statistical Concepts in the Schools (Su)** An introduction to constructing, analyzing, and interpreting tests; types of research and the research process; qualitative and quantitative techniques for assessment; and descriptive and inferential statistics. Prerequisite: Admission to graduate school.

**CIED5022 Classroom Management Concepts (Fa)** A number of different classroom management techniques are studied. It is assumed that a teacher must possess a wide range of knowledge and skills to be an effective classroom manager. Prerequisite: Admission to the M.A.T. program.

**CIED5032 Curriculum Design Concepts for Teachers (Sp)** The design and adaptation of curriculum for students in regular and special classrooms. Theoretical bases and curriculum models are reviewed. Concurrent clinical experiences in each area of emphasis are included. Prerequisite: Admission to the M.A.T. program.

**CIED5043 Content Area Reading in Elementary Grades (Su, Fa)** This course teaches the integration of reading and writing in the content areas. Reading and writing as integrated strands of the language process is presented in the context of instructional principles and suggested teaching practices. A solid research base is emphasized while keeping the focus on practical application. Prerequisite: Admission to the M.A.T. program.

**CIED5052 Seminar: Multicultural Issues (Su)** This seminar provides an introduction to the major concepts and issues related to multicultural education. The ways in which race, ethnicity, class, gender, and exceptionalities influence students' behavior are discussed. Prerequisite: Admission to the M.A.T. program.

**CIED5053 Multicultural Issues in Elementary Education (Su)** This course provides an introduction to the major concepts and issues related to multicultural education in elementary classrooms. The ways in which race, class, gender and exceptionalities influence students' behavior are discussed. Prerequisite: Admission to grad. school.

**CIED5062 Literacies Across the Curriculum (Sp)** This course teaches the integration of reading, writing, and new literacies in the content areas. Theory and strategy are presented as integrated strands of the language process as presented in the context of instructional principles and suggested teaching practices. A solid research base is emphasized while keeping the focus on practical application. Prerequisite: Admission in Secondary M.A.T. Program.

**CIED5073 Case Study in Childhood Education (Sp)** Provides the students with experience in conducting case studies related to childhood education. In addition, students gain knowledge regarding practices used in ethnographic research. Prerequisite: Admission to M.A.T. program.

**CIED508V Childhood Education Cohort Teaching Internship (Sp, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**CIED5093 Methods of Instruction for Middle Level I (Su)** A study of methods and materials in the special content areas (math, science, English/language arts, and social studies). The planning of instruction, microteaching, and the development of middle school instructional materials are included. Prerequisite: Admission to M.A.T. program.

**CIED5103 Advanced Middle Level Principles (Sp)** An in-depth examination of recent research on the major issues, practices, and policies for middle level education. Emphasis is on analysis of cutting edge issues germane to the life, education, and welfare of the early adolescent via the integration of theory and practice. Prerequisite: Admission to Masters of Arts in Teaching program.

**CIED5113 Reading in Middle Schools (Sp, Su, Fa)** An overview of methods and materials for teaching reading to early adolescents. Reflective activities and site-based field experiences are integrated with course content to provide continuity between theory and practice. Portfolio expectations will be a primary means of course evaluation. Prerequisite: Admission to the middle level education program and CIED 3113.

**CIED5123 Writing Process Across the Curriculum (Middle Level) (Sp)** This course will provide an overview of the research, and methods for incorporating writing across all curriculum. Writing as a process will be emphasized. Reflective activities and site-based field experience will be integrated into the course content. Prerequisite: Admission to M.A.T. Program.

**CIED5132 Research in Middle Level Curriculum and Instruction (Fa)** An introduction to inquiry and research in middle level curriculum and instruction. It examines the principles, strategies, and techniques of research, especially qualitative inquiry. Practicum in educational research and evaluation is done as part of the class. Prerequisite: Admission to the MAT program.

**CIED5143 Internship: Middle Level (Sp, Su, Fa)** The internship for middle level education is an extended field experience in which a pre-service teacher integrates knowledge and skills developed in education classes with practice in the field. Prerequisite: Admission to the M.A.T. program.

**CIED5162 Applied Practicum (Fa)** Provides laboratory experiences for RDNG 5123 (Literacy Assessment) and RDNG 113 (Reading in Early Childhood Education). Corequisite: CIED 5183 and CIED 5173. Prerequisite: Admission to the M.A.T. program.

**CIED5173 Literacy Assessment and Intervention (Su, Fa)** Focuses on assessment of young children's literacy skills. Techniques discussed include informal observation, miscue analysis, and portfolio assessment. Prerequisite: Admission to graduate school.

**CIED5183 Readings in Early Childhood Education (Fa)** Will continue to develop understandings of classic studies and will explore the impact these have had on the most recent issues in early childhood education. Prerequisite: Admission to the CHED M.A.T.

**CIED5193 Methods of Instruction for Middle School II (Fa)** Second special methods course for teaching at the middle level. Emphasizes further refinement of teaching skills and methods; the integration of the sciences, mathematics, and technology; science, technology, and society (STS) issues; and the integration of social studies and English language arts. Prerequisite: CIED 5092 and admission to the M.A.T. program.

**CIED5203 Problem-Based Mathematics (Irregular)** This graduate level course focuses on sharing, modeling and practicing strategies to support the meaningful integration of science, technology, engineering and mathematics (STEM) with the emphasis on mathematics in the K-4 classroom. A strong foundation for integrating the STEM disciplines through a problems-based approach within the elementary curriculum will be developed by providing students with theoretical frameworks, research, resources, and methods related to appropriate and effective classroom practice. Prerequisite: CIED 3123 (Mathematical Methods).

**CIED5213 Teaching Problem-Based Science in the Elementary Grades (Sp)** This graduate level course focuses on sharing, modeling and practicing strategies to support the meaningful integration of science, technology, engineering and mathematics (STEM) with the emphasis on science in the K-4 classroom. A strong foundation for integrating the STEM disciplines through a problems-based approach within the elementary curriculum will be developed by providing students with theoretical frameworks, research, resources, and methods related to appropriate and effective classroom practice. Prerequisite: Successful completion of CIED 3143 (Teaching Science) and admission to the M.A.T. program or enrollment in the M. Ed. program.

**CIED5223 Issues and Principles of Secondary Education (Su)** This course provides an introduction to the Secondary Education M.A.T. program. It provides the student with information about foundation issues in education, including history and philosophy of American Education, current trends and issues in education, psychological and social theories of education, characteristics of learners, and learning processes. Prerequisite: Admission to M.A.T. degree program.

**CIED5232 Interdisciplinary Studies (Sp, Su, Fa)** Introduction to the nature of interdisciplinary study: curricular content, course planning (topics and themes), instructional strategies, and evaluation and assessment. Prerequisite: Admission to the M.A.T. program.

**CIED5243 Special Methods of Instruction I (Su)** Study of the methods and materials in the special content areas. Includes philosophical, cognitive, and psychological dimensions of teaching the content area. The planning of instruction, microteaching, and the development of instructional materials are included. Prerequisite: Admission to the M.A.T. program.

**CIED5253 Special Methods of Instruction II (Fa)** Study of the methods and materials in the special content areas. Classroom applications of teaching strategies with analysis of teacher effectiveness in seminar settings. Prerequisite: Admission to the M.A.T. program.

**CIED5262 Special Methods of Instruction III (Sp)** Study of the methods and materials in the special content areas. The focus is on student-centered and interdisciplinary teaching strategies. Extended content units are developed and implemented in the partnership school setting. Prerequisite: Admission to the M.A.T. Program.

**CIED5263 Measurement and Evaluation (Sp, Su, Fa)** A study of measurement, testing, and evaluative procedures including types of tests, abuses of tests, test construction, scoring, analysis and interpretation, statistical methods, and alternative evaluation and assessment techniques. Prerequisite: Admission to the M.A.T. program.

**CIED5273 Research in Curriculum and Instruction (Sp, Su, Fa)** An introduction to inquiry and research in curriculum and instruction. It examines the principles, strategies, and techniques of research, especially qualitative inquiry. Qualitative method in assessment and evaluation are considered. Practicum in educational research and evaluation is done as part of the class. Prerequisite: Admission to the M.A.T. program.

**CIED528V Secondary Cohort Teaching Internship (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

**CIED5293 Special Methods, Interdisciplinary Section (Sp)**

The third and final part of the middle level special methods course. Provides interns with the knowledge, dispositions, and skills for developing an interdisciplinary course of study in conjunction with the members of their interdisciplinary team. Prerequisite: CIED 5092 and CIED 5913 and admission to M.A.T. program.

**CIED5303 Adolescence and Learning (Sp)** Study of the developmental characteristics (physical, emotional, social and intellectual) of early and late adolescence (ages 10-18; grades 5 to 12). The progression from early to late adolescence and the implications this evolution has for learning, motivation, instruction and classroom practices are emphasized. Prerequisite: PSYC 2003.

**CIED532V Practicum in Special Education (Irregular) (1-6)** Supervised field experiences in special education programs, schools, institutions, and other facilities for exceptional children.

**CIED5343 Analysis of Behavior for Teachers (Sp)** An advanced course in managing behaviors in students with exceptionalities. Students are provided with experiences in applying theoretical bases of classroom management through identifying, assessing graphing, and analyzing behavioral data and implementing management plans. Ethical issues in the use of functional analysis are addressed.

**CIED5353 Teaching Students with Diverse Needs in Middle Education Settings (Irregular)** To provide future scholar-practitioners with a knowledge base concerning the issues involved in the successful instruction of persons with special learning needs during middle school years.

**CIED5393 Introduction to Linguistics (Fa)** This course is an introduction to human language. The goal is to understand what it means to speak a language, including an introduction to phonetics and phonology (specifically the sound system of American English), morphology (the rules of English at the word level), syntax (rules that govern sentence level language), semantics (meanings of words) and sociolinguistics (or the study of language use in its social context).

**CIED5403 Early Childhood Education: Rationale and Curriculum (Irregular)** Rationale and curriculum of an early childhood education program, with special attention given curricular frameworks and professional organization policies.

**CIED5423 Curriculum Reconstruction (Sp, Su, Fa)** Changes in curriculum development and design as related to changing social/economic/political arenas. Theories of curriculum development, implementation and evaluation are researched.

**CIED5433 Methods and Materials for Teaching Children's and Adolescent Literature (Irregular)** Issues and trends in children's literature. Contemporary works are evaluated and reviewed based on changing social political conditions. Multicultural approach to children's literature is emphasized. Prerequisite: Undergraduate course in children's literature.

**CIED5453 Evaluation Techniques (Irregular)** Evaluation of learning using traditional means of assessment as well as alternative or authentic assessment techniques.

**CIED5483 Teaching Mathematics (Irregular)** Content, methods, and materials for teaching multiple strands of elementary school mathematics. Emphasis on principles and procedures of a conceptual and integrated approach to learning mathematics. Prerequisite: Undergrad coursework in teaching elementary or early childhood mathematics.

**CIED5493 Teaching Social Studies (Irregular)** Purpose, content, psychology, materials, and methods for teaching the social sciences in the elementary school. Emphasis on principles and procedures for combining the social studies with other areas of the curriculum in broad unit instruction. Prerequisite: Undergraduate coursework in teaching elementary or early childhood social studies.

**CIED5503 Teaching Science (Sp, Su)** The influence of science on the community, on the home, and the child. Use of science in the living and learning of the child at school.

**CIED5513 Sound System of American English (Fa)** This course will study the structure and development of American English (AE). Topics include: 1) the structure/systems of American English pronunciation, 2) vowels, 3) consonant system (including such features as minimal pairs, 4) prosody, intonation, rhythm, and stress, and 5) regionalism and social varieties, and 6) pedagogical approaches to teaching the features of American English.

**CIED5533 Teaching Language Arts (Sp)** The place of the language arts in the elementary curriculum. Exploration of materials, content, practices, and methods, used in reading, speaking, listening, and writing experiences.

**CIED5543 Structures of American English (Sp, Su)** This course provides an introduction to the grammars of English, including (but not restricted to) traditional, structural, and

transformational-generative (universal grammar). It includes approaches to the teaching of all types of grammars.

**CIED5563 Teaching Internship/Action Research (Irregular)** During this course, Master's candidates will be provided with classroom time to prepare to teach and then will be assigned to a classroom or classrooms. During this time the candidates will have an opportunity (under supervision) to observe, to teach and to participate in classroom activities. Additionally, candidates will research some area of their own pedagogy relevant to the experience.

**CIED5573 Foundations of Literacy (Sp, Su, Fa)** Teaching of reading to children; techniques, research, and modern practices.

**CIED5583 Correlates of Reading Process (Irregular)** The developmental program is emphasized through a student of the reading process. Learning theory and research are related to reading instruction and materials through the development and application of evaluative criteria based on an understanding of reading process. Prerequisite: CIED 5573.

**CIED5593 Advance Diagnosis and Intervention (Irregular)** Emphasizes the diagnosis and remediation of reading difficulties in the classroom setting. Students are expected to become familiar with cause of reading failure, diagnosis instruments and procedures, principles of report writing, and corrective instructional methods and materials. The course is open to graduate students with instructor's consent. Enrollment limited to 20. Prerequisite: CIED 5573.

**CIED5603 Innovations in School Education (Sp, Su, Fa)** An examination of the change process in education with emphasis on those elements which support or hinder change in the schools, and the detailed study of schools innovations on national, state, and local levels.

**CIED5613 Contemporary Issues in Education (Odd years, Fa)** A study of issues pertaining to the goals, objectives, organization, and curriculum of the schools with an analysis of the teacher's role in dealing with current concerns in these areas.

**CIED5623 The School Curriculum (Sp, Su, Fa)** General principles and techniques of selecting and organizing curricular materials.

**CIED5633 Analysis of Instruction (Sp)** A survey of the research and literature related to the systematic study of the field of teaching. An examination of the definitions of teaching and the knowledge base on which teaching is predicated. A study of the implications of the research of effective teaching and the key curricular and instructional issues.

**CIED564V Science Instructional Strategies (Irregular) (1-6)** Methods and materials in teaching specific science content with a focus on that content and/or the pedagogical perspectives necessary for effective and engaging instruction. May be repeated for up to 6 hours of degree credit.

**CIED5653 Methods of Middle School Instruction (Su)** Philosophy, rationale, and instructional practices of middle school instruction. Prerequisite: Graduate standing.

**CIED567V Teaching Foreign Cultures in Social Studies Curricula (Sp, Su, Fa) (1-6)** Extensive examination of foreign cultures (West Europe, USSR, China, Latin America) and methods of teaching about them in secondary school social studies.

**CIED5683 Adolescent Literature (Sp, Su, Fa)** Content course in adolescent literature including selection, reading, evaluation, and psychological basis of classic and contemporary works. Prerequisite: PSYC 3093 or equivalent.

**CIED5703 English Language Arts and Reading Standards: Contents and Quality (Irregular)** This course will (1) examine the purposes, contents, and quality of K-12 English language arts and reading standards, (2) analyze their relationship to classroom and school district curricula, student assessment, educator licensing regulations, licensure tests, and professional development, (3) and explore educational, social, and political issues raised by ELA/R standards.

**CIED5713 Integrating the Elementary Curriculum (Su)** This course focuses on meaningful integration of science, mathematics, literacy, social studies, art, and music in the elementary classroom. A strong foundation for integrating the elementary curriculum will be developed by providing students with theoretical frameworks, research, resources, and methods related to classroom practice. Strategies to coordinate the integration of these subject areas for the K-4 classroom will be modeled.

**CIED5723 Nature and Needs of Persons with Mild Disabilities (Fa)** Educational, psychological, and social characteristics of individuals who have mild disabilities with emphasis on educational methods and modifications. Prerequisite: CIED 3023.

**CIED5733 Inclusive Practices for Diverse Populations (Su)** An advanced study of the characteristics of persons with exceptional learning needs and the provision of appropriate

instruction in the general education classroom. Prerequisite: Graduate status.

**CIED5743 Teaching Persons With Physical and Health Disabilities (Sp)** This course is an advanced course at the master's level in the specialty studies. The Scholar Practitioner model at this level will pursue an in-depth study of the characteristics, needs, and methods for teaching of persons with physical and health disabilities while emphasizing advance learning in the specialty studies and the social and behavioral studies in the substantive areas. Prerequisite: Graduate status.

**CIED5753 Nature and Needs of Persons with Serious Emotional Disorders (Irregular)** A survey of the educational, psychological, and social characteristics of individuals with serious emotional disorders. Four major categories of behaviors (personality disorders, pervasive developmental disorders, and learning/behavior disorders) are reviewed in relationship to identification, assessment, and program intervention within the public school setting. Prerequisite: CIED 3023.

**CIED5763 Teaching Individuals with Severe Disabilities (Sp)** Methods and materials for teaching students with severe disabilities, including severe mental retardation, serious emotional disturbance, and severe physical disabilities.

**CIED5773 Methods for Young Children with Disabilities (Irregular)** This course is one of the substantive core courses required of all students being recommended for the P-4 Instructional Specialist license. The Scholar-Practitioner Model at this level provides an introduction to the education of young children with special learning needs and a foundation for the developing professional.

**CIED5783 Professional and Family Partnerships (Sp)** This course is an advanced course at the master's level in the specialty studies. The Scholar Practitioner model at this level will pursue an in-depth study of family-school partnerships from early childhood through the transition to adulthood while emphasizing advance learning in the specialty studies and the social and behavioral studies in the substantive areas. Prerequisite: Admission to graduate school.

**CIED5793 Practicum in Literacy (Sp, Su, Fa)** Laboratory experience in which students diagnose reading difficulties and practice remedial measures under the direct supervision of the instructor. Emphasis is given to continuous diagnosis and to the use of commercially produced materials and trade books in remediation. Enrollment limited to 15. Prerequisite: CIED 5593.

**CIED5803 Nature and Needs of the Gifted and Talented (Fa)** Educational, psychological, and social characteristics of gifted and talented children. Prerequisite: Graduate standing.

**CIED5813 Curriculum Development in Gifted and Talented (Sp)** Examines the various models for developing curriculum and providing services for students identified for gifted programs. Prerequisite: CIED 5803.

**CIED5823 Gifted and Talented (Structured) Practicum (Su)** Supervised field experience in gifted education programs, schools, institutions, and other facilities for gifted/talented children. Prerequisite: CIED 5813.

**CIED5833 Gifted and Talented (Flex) Practicum (Fa)** Students design and implement an individualized practicum experience (Type III Renzulli) that provides the opportunity to refine and enhance personal attitudes, beliefs, and skills in gifted education. Prerequisite: CIED 5823.

**CIED5843 Representations of American Education in Film (Irregular)** This course provides an examination of students, teachers, administrators, schools, and schooling as they exist on the silver screen. Of particular interest is how film representations and misrepresentations potentially affect public perceptions of education. This course draws on educational theory and the field of cultural studies.

**CIED5853 Issues in Mathematics Education (Irregular)** Study of research in mathematics education and applications to classroom teaching and learning. Emphasis will be given past and current research in the areas of students' cognitive development in mathematics, mathematics curriculum development, and teaching practices and assessment.

**CIED5863 Teaching Global Issues (Odd years, Sp)** Global interdependence and its consequent issues have become an integral part of most social studies programs in American schools. Some schools developed specific courses, required or elective, and others include them in existing history, economics, government and civic courses. Secondary social studies teachers and their students explore these issues as part of current events discussions. Prerequisite: Graduate standing.

**CIED5873 Assessment of Exceptional Students (Fa)** Methods and techniques of assessment of children in all areas of exceptionality with emphasis on diagnosis and classification.

**CIED5883 Research in Special Education (Fa)** Review of re-

search in special education including all areas of exceptionality with emphasis on diagnosis and classification.

**CIED5893 Organization, Administration and Supervision of Special Education (Irregular)** Procedures, responsibilities and problems of organization, administration, and supervision of special education programs.

**CIED5923 Second Language Acquisition (Sp)** This is one of four courses leading to Arkansas approved endorsement for teaching English as a Second Language (ESL). The course gives an introduction to the basics in research and learning theories involved in the acquisition of second languages and cultures, particularly ESL.

**CIED5933 Second Language Methodologies (Fa)** This is one of a series of four courses leading to Arkansas approved endorsement for teaching English as a Second Language (ESL). The course introduces the basics in approaches, methodologies, techniques, and strategies for teaching second languages, especially ESL.

**CIED5943 Teaching People of Other Cultures (Sp)** This is one in a series of four courses leading to Arkansas approved endorsement for teaching English as a Second Language (ESL). The course focuses on cultural awareness, understanding cultural differences, and instruction methods for integrating second cultures, especially the culture of the United States, into the curriculum.

**CIED5953 Second Language Assessment (Sp)** This is one in a series of four courses leading to Arkansas approved endorsement for teaching English as a Second Language (ESL). The course introduces basic methods for testing, assessing and evaluating second language, especially ESL, learners for placement purposes and academic performance.

**CIED5963 Reading in Middle and Secondary Schools (Irregular)** Methods and materials of teaching reading in secondary schools with emphasis on remedial and developmental reading problems of students.

**CIED5973 Practicum in Secondary Education (Sp, Fa)** Students will engage in action research in a school setting to advance their knowledge of teaching and learning venues including schools and informal learning environments. Prerequisite: Permission.

**CIED5983 Practicum in C & I (Sp, Su, Fa)** This course will provide degree candidates with advance knowledge of teaching in the elementary or secondary schools. This will be accomplished through a semester-long practicum during which an action research project will be designed, enacted, and reported. Prerequisite: Admission to the M.Ed. Program. May be repeated for up to 6 hours of degree credit.

**CIED599V Special Topics (Sp, Su, Fa) (1-18)** May be repeated for up to 18 hours of degree credit.

**CIED600V Master's Thesis (Sp, Su, Fa) (1-6)** This course is designed for students completing a thesis at the master's level in curriculum and instruction and related programs. It may be taken multiple times for 1-6 credits but no more than 6 credits will be counted toward the degree. Prerequisite: Graduate Standing May be repeated for up to 6 hours of degree credit.

**CIED6013 Curriculum Development (Fa)** Principles and concepts of curriculum and development, with an analysis of the factors basic to planning, the aims of the educational program, the organization of the curriculum, curriculum models, and elements desirable in the curriculum of schools.

**CIED6023 Instructional Theory (Irregular)** Study of psychological, anthropological, sociological, and educational theories of instruction and learning. Emphasis is placed on synthesizing a broad range of existing and emerging perspectives in understanding individual, interactional and contextual phenomena of instruction and learning. Prerequisite: EDFD 5373.

**CIED6033 Content Specific Pedagogy (Irregular)** This course explores the relationship between the content of courses taught in schools and the pedagogical principles that the teaching of the content requires. Students will discuss and synthesize findings from the research literature and from personal investigation. Prerequisite: CIED 6203.

**CIED6043 Analysis of Teacher Education (Irregular)** This course examines issues, problems, trends, and research associated with teacher education programs in early childhood, elementary, special education, and secondary education. Prerequisite: CIED 6023.

**CIED6053 Advanced Assessment (Sp)** This course provides a survey of assessment methods used to evaluate students' levels of performance in educational settings. Prerequisite: Admissions to Ed.S. or Ph.D. program.

**CIED6063 Systemic Change in Education (Sp)** This course is designed to critically examine education and society and interplay their interdependence between them, to differentiate between meaningful and superficial change, and to explore the agents of change in a diverse and complex social envi-

ronment. Prerequisite: Admission to Ed.S. or Ph.D. program.

**CIED6073 Seminar in Developing Creativity (Irregular)** A study of the facets of creativity, how they can be applied to be used in one's everyday life, how they can be applied in all classrooms, and how to encourage the development of these in students.

**CIED6083 Piaget's Theory and Instruction (Odd years, Sp)** Piaget's theory has been applied to classroom instruction in various settings. This course will investigate the theory in depth, study classroom application, and students will devise application. Prerequisite: CIED 6023.

**CIED6113 Trends and Issues in Social Studies Education (Odd years, Sp)** Analysis of social studies education including an examination of the historical, political and social issues that have shaped curriculum, pedagogy and the educator's role in the increasingly complex endeavor to prepare future citizens.

**CIED6233 Organization of Reading Programs (Sp, Su, Fa)** Study of the problem of organizing the classroom, individual school, and school system, for the improvement of reading instruction. Emphasis is given to the development of program organization rationale based on requirements of the teaching-learning setting.

**CIED6313 Issues, History, and Rationale of Science Education (Irregular)** This course is the foundation experience for those interested in the discipline of science education. It provides an overview of the fundamental issues in and vocabulary of science education. The course includes the research basis for science teaching, the literature of science education, and the issues and controversies surrounding the teaching of science.

**CIED6333 Nature of Science: Philosophy of Science for Science Educators (Irregular)** The Nature of Science is a hybrid arena consisting of aspects of the philosophy, history and sociology of science along with elements of the psychology of scientific observations all targeting the complete understanding of how science actually functions. Prerequisite: Admission to grad school.

**CIED6343 Advanced Science Teaching Methods (Irregular)** This course is designed for those educators who have had some previous instruction in science teaching methods and/or had some prior science teaching experience. Students will gain new or renewed perspectives with respect to their personal teaching ability while engaging in discussions and activities designed to assist others in professional growth in science instruction. Prerequisite: Admission to graduate school.

**CIED641V Special Topics in Special Education (Irregular) (1-6)** Discussion and advanced studies on select topics in special education. Specific focus on recent developments. May be repeated for up to 6 hours of degree credit.

**CIED6433 Legal Aspects of Special Education (Irregular)** A study of litigation and legislation in special education, federal and state laws and court cases, and due process hearings.

**CIED6443 Mixed Methods Research (Sp)** This course will provide opportunities for students to acquire the skills, knowledge, and strategies necessary to design and implement a mixed methods research study. Emphasis is upon developing research questions, developing a research design, selecting a sample, and utilizing appropriate techniques for analyzing data.

**CIED6503 Effective Teaching: Concepts and Processes (Sp)** This course is designed to assist students in examining a variety of effective teaching practices and conditions found in classrooms and in acquiring knowledge, concepts, and ideas about ways to effectively influence the interests, learning and development of students. Prerequisite: Admission to the Ph.D. program.

**CIED6533 Problem-Based Learning and Teaching (Irregular)** A course in the design, development, and delivery of the problem-based learning (PBL) model. Theoretical cases and curriculum models will be centered on issues and models related to PBL.

**CIED6603 Multicultural Education (Su)** This course is designed to trace, examine, discuss, and promote understanding of issues related to multicultural education, different views of multicultural education, and the impact of multicultural education upon the schooling process. Emphasis is upon schooling experiences of culturally diverse students, language issues, gender issues, and evaluation issues. Prerequisite: Admission to the Ph.D. program.

**CIED660V Workshop (Irregular) (1-18)** May be repeated for up to 18 hours of degree credit.

**CIED674V Internship (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**CIED6803 Teaching Students with Autism Spectrum Disorders (Fa)** This course provide students with an understanding of individuals who have been diagnosed with autism spec-



trum disorders. The course provides a life-span perspective by focusing on preschoolers, school-aged children, and adults. Students will study the characteristics of these individuals and general educational strategies for their education.

**CIED680V Ed.S. Project (Sp, Su, Fa) (1-6)** Instructor permission required to register. Prerequisite: Instructor permission.

**CIED6813 Assessment of Students with Autism Spectrum Disorders (Sp)** This course provides an in-depth study of the assessment of individuals with autism spectrum disorders. It includes formal and informal assessment measures used to assist in the identification of students with ASD, as well as provide information for program development for this group of students.

**CIED6823 Instructional Methods for Students with Autism Spectrum Disorders (Fa)** This course is designed to assist professional educators in planning and implementing instructional and support services for students with autism spectrum disorders. Students will learn how to participate in collaborative family, school, and community partnerships.

**CIED6833 Practicum in Autism Spectrum Disorders (Sp, Su, Fa)** Supervised field experiences in programs, schools, and other settings for children with autism spectrum disorders.

**CIED6843 Basic Principles of ABA (Fa)** Course provides information on: (a) the philosophical assumptions and principles of behavior analysis; (b) basic principles, processes, and concepts of applied behavior analysis; and (c) ethical and legal issues involved in its use.

**CIED6853 Behavioral Assessment in ABA (Fa)** Course content includes information on effective methods and the development of skills: (a) assessing, organizing, and interpreting behavior; (b) conducting task analysis and selecting intervention goals and strategies; (c) displaying data; and (d) making evidence-based decisions. Legal and ethical standards will be reviewed and applied to behavioral change procedures used.

**CIED6863 Behavior Change Procedures and Supports (Su)** Course content includes (a) information on behavior change procedures; (b) activities designed to acquire skill in developing and evaluating behavioral change programs; and (c) information and activities designed to acquire skills in providing and monitoring persons and systems providing support. Legal and ethical standards will be reviewed and applied to the course content.

**CIED6873 Measurement and Experimental Design (Sp)** Course content includes information on the development of skills in: (a) the measurement of the multiple dimensions of behaviors; (b) the use of methods of measuring behavior; (c) the experimental evaluation of interventions; and (d) the multiple methods of displaying and interpreting behavioral data. Legal and ethical standards will be reviewed and applied to the course content.

**CIED6883 ABA Ethical, Professional, and Legal Standards (Fa)** Course content includes information on the ethical, professional and legal standards in special education and, specifically, the area of applied behavior analysis.

**CIED694V Special Topics (Sp, Su, Fa) (1-6)** Discussion and advanced studies on selected topics in curriculum and instruction. Specific focus on recent developments. May be repeated for up to 6 hours of degree credit.

**CIED695V Independent Study (Sp, Su, Fa) (1-6)**

**CIED700V Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy

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#### Classical Studies (CLST)

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**CLST1003 Introduction to Classical Studies: Greece (Odd years, Fa)** An introduction to the world of Ancient Greece, from the Trojan War to Alexander the Great. Progresses chronologically, focusing on the literary, artistic, political, and philosophical ideas of the Greeks. Who were they and how are we like them?

**CLST1003H Honors Introduction to Classical Studies: Greece (Odd years, Fa)**

**CLST1013 Introduction to Classical Studies: Rome (Even years, Sp)** A multi-faceted introduction to Roman culture, focusing on the literature, philosophy, architecture, history, art and archeology. Source material to be read in English. Lectures liberally illustrated with slides.

**CLST1013H Honors Introduction to Classical Studies: Rome (Even years, Sp)**

**CLST399VH Honors Course (Irregular) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**CLST4003H Honors Classical Studies Colloquium (Sp)** Prerequisite: Junior standing. May be repeated for up to 3 hours of degree credit.

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#### Criminal Justice (CMJS)

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**CMJS2003 Introduction to Criminal Justice (Sp, Fa)** Survey of the field of criminal justice, with an emphasis upon law enforcement, the courts, and corrections.

**CMJS2023 Introduction to Criminology (Sp, Fa)** Examination of the extent of crime in America, patterns of criminal behavior, and the causes of criminality.

**CMJS2043 Criminal Law and Society (Sp, Fa)** Principles and problems of criminal law in contemporary society. Prerequisite: CMJS 2003.

**CMJS2053 Critical Thinking and Writing in Criminal Justice (Irregular)** An introduction to methods of critical thinking and writing in criminal justice. Prerequisite: CMJS 2003; open to majors only.

**CMJS2513 Criminal Investigation (Sp)** Survey of the theories, concepts, and legal conditions concerning the techniques used in the location, preservation and presentation of evidence. Prerequisite: CMJS 2003.

**CMJS3023 Criminology (Sp, Su, Fa)** A survey of theories of crime causation, development of law, corrections, victimization, and police and policy. Prerequisite: SOCI 2013 or SOCI 2033. (Same as SOCI 3023)

**CMJS3043 The Police and Society (Sp, Fa)** Origins, development, and practice of policing, with an emphasis on police organization, problems, and issues in contemporary society. Prerequisite: CMJS 2003.

**CMJS3203 Corrections (Fa)** A study of the origins, development, and practices related to corrections, including incarceration, community corrections and supervision, and intermediate sanctions. Prerequisite: CMJS 2003. (Same as SOCI 3203)

**CMJS3503 Criminal Procedures (Fa)** Legal principles of police work, including arrests, force, interviewing, search and seizure. Prerequisite: CMJS 2003.

**CMJS3513 Criminal Evidence (Sp)** Examination of how criminal evidence is collected by police and used by prosecutors and defense attorneys within a constitutional framework. Prerequisite: CMJS 2003. (Same as SOCI 3513)

**CMJS399VH Honors Course (Sp, Fa) (1-6)** May be repeated for up to 12 hours of degree credit.

**CMJS4003 Internship in Criminal Justice (Sp, Su)** Supervised experience in municipal, county or state criminal justice agency, or any other agency which is approved by instructor. Prerequisite: CMJS 2003.

**CMJS4013 Special Topics in Criminal Justice (Sp, Fa)** Comprehensive study of varied subjects in contemporary criminal justice. May be repeated for different topics. Prerequisite: CMJS 2003 or SOCI 2013. May be repeated for up to 9 hours of degree credit.

**CMJS403V Individual Study in Criminal Justice (Sp, Su, Fa) (1-6)** A reading and conference course on special topics in criminal justice.

**CMJS4043 Juvenile Justice (Irregular)** An introduction to the juvenile justice system and delinquent behaviors. Focuses on the extent of delinquency in America and the historical foundations and contemporary functions of the juvenile justice system. Prerequisite: CMJS 2003.

**CMJS4053 Homeland Security (Irregular)** An introduction to homeland security and the intelligence community, focusing on how counterterrorism data is collected and used, emerging threats, and balancing civil liberties with domestic intelligence gathering. Prerequisite: CJMS 2003.

**CMJS4113 Terrorism and Social Control (Irregular)** Examination of the causes, consequences, and counterterrorism policies affecting terrorism committed against Americans, whether domestic or international. Prerequisite: CMJS 2003. (Same as SOCI 4113)

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#### Counselor Education (CNED)

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**CNED1002 Life Skills Development (Fa)** Study and practice of problem solving, decision making, goals and values clarification and other developmental skills affecting personal issues and academic success. Prerequisite: Instructor consent required.

**CNED1011 Seminar (Sp, Fa)** Single topic seminar focusing on further knowledge acquisition and training in specific developmental skills. Topics offered as needed. Prerequisite: Instructor consent required. May be repeated for up to 3 hours of degree credit.

**CNED3053 The Helping Relationship (Sp, Fa)** Development of an understanding of the helping relationship. Topics include establishing a working alliance, problem recognition and referral to appropriate resources. Prerequisite: PSYC 2003.

**CNED3053H Honors The Helping Relationship (Sp, Fa)** Development of an understanding of the helping relationship. Topics include establishing a working alliance, problem rec-

ognition and referral to appropriate resources. Prerequisite: PSYC 2003.

**CNED4003 Classroom Human Relations Skills (Sp, Fa)** A study of interpersonal skills important to improving teacher-student relationships and achievement in classrooms. Human communication systems related to motivation, achievement, and educator-student relationships are studied. The attainment of effective human relations skills is emphasized. Prerequisite: Junior or Senior standing required.

**CNED5193 Clinical Mental Health Counseling (Sp)** An introductory study of community counseling. The course content includes information concerning the educational, historical, philosophical, and psychological foundations of community counseling as well as specific traits and skills of professional community counselors. In addition, the course is designed to provide introductory level concepts and skills required for future certification and licensure as counseling professionals. Prerequisite: Graduate student status.

**CNED5203 Foundations of the Counseling Profession (Su, Fa)** A study of the counseling profession applicable to school, college and community agency settings. Introduction to the basic educational, historical, philosophical foundations of counseling as well as specific traits and skills of counselors. The course is also designed to provide beginning level concepts and skills required for certification and licensure. Prerequisite: Must be taken first year in program.

**CNED5213 Lifestyle & Career Development (Su)** Theories of career development and counseling, including the use of occupational information sources and career assessment tools and techniques. Prerequisite: CNED 5333 (preferred)

**CNED5303 Individual Appraisal (Fa)** Analysis of concepts, methods, and procedures utilized in individual appraisal.

**CNED5313 Program Organization and Information Management (Fa)** Study of client information needs and strategies for effective management of counseling services.

**CNED5323 Counseling Theory (Su, Fa)** Introductory survey and critical analysis of major alternative theoretical perspectives in counseling.

**CNED5333 Basic Counseling Techniques (Sp, Fa)** Introduction to basic counseling techniques and skills common to multiple theoretical perspectives. Prerequisite: CNED masters student or instructor Permission.

**CNED5343 Counseling Practicum (Sp, Fa)** Supervised counseling practice. Pre or Co requisite: CEND 5303 and CNED 5363 and CNED 5373. Prerequisite: CNED 5203, CNED 5323, CNED 5333, CNED 5403. CNED faculty consent required.

**CNED5353 Psychopharmacology (Su)** Study of theory, research, & practice issues pertaining to psychopharmacology for non-medical practitioners. Prerequisite: CNED 5203, CNED 5323, CNED 5333.

**CNED5363 Dynamics of Group Counseling (Sp, Fa)** Therapeutic and other theoretical information is presented regarding group process and the counselor's role in that process. An experiential group experience is required. Prerequisite: CNED 5333 and CNED 5323.

**CNED5373 Ethical and Legal Issues in Counseling (Fa)** (Formerly CNED 5372) Review of ethical and legal standards governing professional counselor training, research, and counseling practice; including client rights; confidentiality; the client-counselor relationship; and counseling research, training, and supervision. Prerequisite: CNED 5103 and CNED 5203.

**CNED5383 Crisis Intervention Counseling (Su)** (Formerly CNED 5382) Analysis and application of short-term counseling intervention strategies in crisis situations, with special attention to incidents involving rape, physical, or emotional abuse, divorce, suicidal depression, grief, marital or family instability, and violent conflict. Prerequisite: CNED 5333 (preferred).

**CNED5403 Case Management and Counseling (Fa)** Procedures in case management utilizing both clinical and interview data in assisting children, adolescents, and adults in educational, vocational, personal, and social planning. Prerequisite: CNED 5303 and CNED 5323 and CNED 5333.

**CNED5513 Counseling and Human Diversity (Su)** Examination of human and cultural diversity, emphasizing issues of race, class, and socioeconomic status, and how they impact our clients as individuals and as family and society members.

**CNED574V Counseling Internship (Sp, Fa) (1-3)** A 600-clock-hour field placement in an approved setting over a minimum of two continuous semesters. Co or Prerequisite CNED 5213. Prerequisite: CNED 5203, CNED 5303, CNED 5323, CNED 5333, CNED 5343, CNED 5363, CNED 5373, CNED 5403, CNED 5513 and CNED 6203. CNED Faculty consent required. May be repeated for up to 6 hours of degree credit.

**CNED599V Seminar (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

**CNED6003 Counseling and Addictions (Su)** A study of behavioral and substance additions, including an overview of differential treatment. Prerequisite: CNED 5323 and CNED 5333 and CNED doctoral or masters standing or permission.

**CNED600V Master's Thesis (Sp, Su, Fa) (1-6)**

**CNED6013 Advanced Counseling Theory and Methods (Even years, Sp)** Critical analysis of major theoretical perspectives in counseling, including both group and individual counseling strategies for dealing with affective, cognitive, and behavioral dysfunction. Prerequisite: CNED doctoral standing or permission.

**CNED6023 Foundations of Marriage and Family Counseling Therapy (Su)** Comprehensive exploration of the current theories/techniques of marriage, family and couples counseling. Prerequisite: CNED 5323 and CNED 5333 and CNED doctoral or masters standing or permission.

**CNED6033 Advanced Group Theory and Methods (Odd years, Sp)** Comparative study of theories and processes of group counseling. Includes supervised experience in group facilitation with video recording and playback. Prerequisite: CNED 5363 or equivalent and CNED doctoral or masters standing or permission.

**CNED6043 Supervision of Counselors (Even years, Fa)** Analysis, assessment, and practical application of counselor supervision techniques in treatment and training programs. Prerequisite: CNED doctoral standing and CNED faculty consent

**CNED605V Independent Study (Sp, Su, Fa) (1-18)** May be repeated for up to 18 hours of degree credit.

**CNED6073 Research in Counseling (Odd years, Sp)** Review and analysis of research in counseling. Prerequisite: CNED doctoral standing or permission.

**CNED6083 Consultation Theory and Methods (Su)** Strategies, practical application, and techniques for effective consultation with parents, teachers, and community agencies. Prerequisite: CNED 5333 (preferred) CNED doctoral or masters standing or permission.

**CNED6093 Counseling Children and Adolescents (Sp)** Introduction to counseling children and adolescents including the process, theories, techniques, and materials applicable to children and adolescents in a pluralistic society. Prerequisite: CNED 5323 and CNED 5333 and CNED doctoral or masters standing or permission.

**CNED6123 Clinical Applications of Marriage and Family Counseling and Therapy (Odd years, Fa)** Advanced clinical methodology appropriate for family counseling, marriage counseling, and couples counseling( in all settings), with emphasis on solution-focused systems, Satir model and psycho-educational family work in schools. Includes supervision of clinical experience in marriage, family and couples counseling, video recording and school/community outreach. Prerequisite: CNED 6203 and CNED doctoral standing or permission.

**CNED6223 Foundations of Counselor Education and Supervision (Odd years, Sp)** This course is designed to enhance the professional development and acculturation of doctoral students in order to facilitate their success in professional leadership roles of counselor education, supervision, counseling practice, and research competencies. Prerequisite: CNED Doctoral status or permission.

**CNED6343 Cultural Foundations and Counseling (Even years, Fa)** To gain learning experiences in pedagogy relevant to multicultural issues and competencies, including social change theory and advocacy action planning. To identify current multicultural issues as they relate to social change theories, ethical and legal considerations, disability, gender, sexuality, social justice, and advocacy models. Prerequisite: CNED or RHAB Doctoral Standing or Permission.

**CNED6413 Advanced Individual Appraisal (Odd years, Fa)** To provide advanced knowledge and experience with those psychoeducational instruments and procedures used in conducting school related assessment. Prerequisite: CNED 5303 and CNED 5413 or equivalent and CNED doctoral standing or permission.

**CNED6711 Advanced Counseling Practicum (Sp)** Supervised counseling practice. A 100-clock hour approved practical counseling experience. Prerequisite: CNED doctoral standing. Permission of CNED faculty and Clinical Coordinator. May be repeated for up to 3 hours of degree credit.

**CNED674V Internship (Sp, Su, Fa) (1-18)** Supervised field placement (Clinical/Instructorship/Supervision/Research). Prerequisite: CNED doctoral standing, CNED faculty consent and CNED Clinical Coordinator consent. May be repeated for up to 18 hours of degree credit.

**CNED699V Seminar (Su) (1-18)** Prerequisite: CNED Doctoral

standing or permission. May be repeated for up to 18 hours of degree credit.

**CNED700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy and consent.

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Communication (COMM)

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**COMM1003 Basic Course in the Arts: Film Lecture (Sp, Su, Fa)** Introduction to film as entertainment and art. How to look at film through a study of composition, lighting, editing, sound and acting. Lectures and viewing time.

**COMM1003H Honors Basic Course in the Arts: Film Lecture (Sp, Su, Fa)** Introduction of film as entertainment and art. How to look at a film through a study of composition, lighting, editing, sound and acting. Lectures and viewing time. Corequisite: Drill component.

**COMM1023 Communication in a Diverse World (Sp, Fa)** Introductory course that focuses on the skills and understandings associated with competent communication in a diverse society within interpersonal, group, organizational and intercultural communication contexts.

**COMM1233 Media, Community and Citizenship (Sp, Fa)** Examines theory and research on how messages are processed, meanings constructed, communities formed and maintained through interaction with the media. Focus is on critical citizenship and media literacy in the context of the cognitive, social, cultural, political, and economic consequences of increasingly networked media systems.

**COMM1313 Public Speaking (Sp, Su, Fa)** Application of the communication techniques needed to organize and deliver oral messages in a public setting. Emphasis given to theory and practice of message strategies and preparation, audience analysis, presentational skills including multimedia support, speech criticism, and the listening process.

**COMM1313H Honors Public Speaking (Sp, Su, Fa)** Application of the communication techniques needed to organize and deliver oral messages in a public setting. Emphasis given to theory and practice of message strategies and preparation, audience analysis, presentational skills including multimedia support, speech criticism, and the listening process.

**COMM2303 Advanced Public Speaking (Sp, Su, Fa)** Continuing study of the invention and adaptation or oral discourse to the needs of listeners. Consideration of the problems of communication in platform presentation. Prerequisite: COMM 1313.

**COMM2323 Interpersonal Communication (Sp, Su, Fa)** Personal and interpersonal factors affecting communication in everyday life. Emphasis upon ways in which interpersonal perception, physical environment, semantic choices, and non-verbal cues affect communication primarily in the context of work, family, and other personal experiences.

**COMM2333 Introduction to Communication Research (Sp, Fa)** Introduction to the basic assumptions underlying communication inquiry; resources for and methods of data collection in communication research; and techniques for organization, interpretation, reporting, and evaluation of communication research.

**COMM2343 Introduction to Small-Group Communication (Sp, Su, Fa)** An introduction to procedures used in exchanging information, solving problems, determining policies, and resolving differences in committees and other small groups. Prerequisite: COMM 1313.

**COMM2373 Introduction to Debate (Irregular)** An introduction to the basic principles and procedures of debate as an instrument of critical choice and decision.

**COMM2382 Intercollegiate Forensics (Irregular)** Preparation and participation in public debates and other forensic activities. No more than 6 hours of credit in COMM 2382 and 3282 may be applied toward the departmental requirement. (A maximum of 12 hours in COMM 2382 and 3282 hours of credit.) Pre- or Corequisite: COMM 2373. May be repeated for up to 6 hours of degree credit.

**COMM2613 Nonverbal Communication (Irregular)** Creates an understanding of the functions of nonverbal cues operating in human communication processes and develops familiarity with recent research in the field of nonverbal communication. Prerequisite: COMM 1023.

**COMM2813 Introduction to Electronic Media (Fa)** Introduction to the industries centered around electronic media, including radio, broadcast and cable television, telephony, computer information systems, and digital media. Emphasis on the historical development, organizational patterns, and cultural functions of the media. Pre- or Corequisite: COMM 1233.

**COMM298V Topics in Communication (Irregular) (1-3)** Topics in communication not represented in other lower division

courses. Prerequisite: Completion of at least 3 hours of COMM coursework.

**COMM3143 Language and Expressive Culture** This course explores the complex interrelationship of language, culture, and social identity. Verbal art and expressive culture are examined from a variety of anthropological perspectives. Topics include ethnographies of speaking, discourse analysis, cultural performances, and the performative aspects of oral expression. (Same as ANTH 3143, ENGL 3143)

**COMM3173 Introduction to Linguistics (Irregular)** Introduction to language study with stress upon modern linguistic theory and analysis. Data drawn from various languages reveal linguistic universals as well as phonological, syntactic, and semantic systems of individual languages. Related topics: language history, dialectology, language and its relation to culture and society, and the history of linguistic scholarship. Prerequisite: Junior standing. (Same as ANTH 3173, ENGL 3173, WLLC 3173)

**COMM3263 African Americans in Film (Irregular)** A survey of the history of images of African Americans in film, especially as these images are examined in the context of stereotypical renditions and/or realistic representations of African American experiences. Issues of African American history, culture, and socio-political context will be addressed in the analyses of these films. Prerequisite: ENGL 1023, COMM 1003, and advanced standing. (Same as AAST 3263, ENGL 3263, JOUR 3263)

**COMM3282 Advanced Forensics (Irregular)** A continuation of 2382. No more than 6 hours of credit in COMM 2382 and 3282 may be applied to the departmental requirement. (A maximum of 12 hours in COMM 2382 and 3282 may be counted toward the B.A. requirements.) Prerequisite: COMM 2382. May be repeated for up to 6 hours of degree credit.

**COMM3333 Communication Criticism (Irregular)** Basic elements and theoretical perspectives on criticism of public communication. Extensive practice in written analysis of events in public address, film, television, and other mass media. Prerequisite: COMM 1233.

**COMM3343 Contemporary Communication Theory (Sp)** Study of the nature of the communication process as it is reflected in the individual, in interpersonal settings, in one-to-many situations, and in the mass media. Prerequisite: COMM 1023 and COMM 2333 or permission of instructor.

**COMM3353 Argumentation: Reason in Communication (Fa)** Concepts characterizing rational discourse, with a concern for examining validity and fallacy. Consider traditional and contemporary models for analyzing argument, including an examination of the philosophy of argument and a practical inquiry into the uses of argument in contemporary rhetorical discourse. Prerequisite: COMM 1313.

**COMM3373 Leadership Communication (Irregular)** An analysis of leadership as a discursive process, focusing on how leadership emerges and is enacted on a daily basis through communication-related behaviors. Prerequisite: COMM 1023 or permission of instructor.

**COMM3383 Persuasion (Fa)** Introduction to theories of persuasion with emphasis on application and effect. Prerequisite: COMM 1313.

**COMM3423 Science Fiction Film (Irregular)** This class concentrates on how science fiction in various communication media influences and is, in turn, influenced by broad features of cultural life. The class considers the impact of science fiction on science fact, the military, space travel, religion, race, gender, social class, education, politics, technology, and fashion styles. Prerequisite: COMM 1003 and COMM 1233.

**COMM3433 Family Communication (Irregular)** Study of the nature, functions, and management of communication patterns in the family. Focus is on understanding routine interpersonal interactions, conflict patterns, authority structures, and decision-making processes within the context of the contemporary family. Prerequisite: COMM 2323.

**COMM3443 Introduction to Rhetorical Theory (Fa)** Interpretive-critical study of rhetoric in public contexts. Prerequisite: COMM 1313.

**COMM3503 Popular Communication and Culture (Su)** This course is an introduction to basic theories and topics of Popular Communication and Culture studies. The course will emphasize understanding popular media communication forms. Prerequisite: COMM 1023 and COMM 1233.

**COMM3673 Mediated Communication (Sp, Fa)** Focuses on media messages and their social/cultural effects. Includes a critical examination of media institutions and the ways they vie for audiences. Other topics include the ways people construct meaning from messages, media's influence on attitudes, media's role in cultural life, and audiences as critical consumers of media. Prerequisite: COMM 1233 and COMM 2813.

**COMM3703 Organizational Communication (Fa)** An introduction to the theory, processes, and management of communication in organizations, with opportunities for simulated application. Prerequisite: COMM 1023 and COMM 1313.

**COMM3763 Health Communication (Fa)** Examines communication within health care organizations and teams. Issues may include patient-provider communication, communication among health care professionals, negative consequences of poor communication in health care delivery, and the use of technology in health-related information dissemination and campaigns. Prerequisite: COMM 1023.

**COMM3883 Rhetoric of Social Movements (Irregular)** Study of the functions of rhetoric as it appears in the context of social movements such as American independence, women's equality, civil rights, populism, and new conservatism. Prerequisite: COMM 1313.

**COMM3923H Honors Colloquium (Irregular)** Treats a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in communication). May be repeated for credit.

**COMM3983 Special Topics (Sp, Su, Fa)** Communication topics which are not usually presented in depth in regular courses. May be repeated for credit. Prerequisite: At least 3 hours of COMM coursework.

**COMM399VH Honors Course (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**COMM4113 Legal Communication (Fa)** Examines communication processes in the legal environment and focuses on communication skills and behaviors among judges, attorneys, litigants, and jurors. Particular attention will be given to verbal strategies and nonverbal messages related to interviews, negotiation, mediation, and litigation and to the rhetorical functions of legal pleadings and judicial opinions. Prerequisite: COMM 1313 or permission of instructor.

**COMM4143 American Film Survey (Fa)** A survey of major American film genres, major directors and films that have influenced the development of motion pictures. Prerequisite: COMM 1003 or permission of instructor. (Same as ENGL 4143)

**COMM4283 Communication in Contemporary Society (Irregular)** An examination of research and theory on the process and effects of communication in modern society. Prerequisite: COMM 1023 and COMM 1233 or permission of instructor.

**COMM4313 Language and Society of Japan (Fa)** The primary objective of this course is to investigate the way the Japanese language reflects the beliefs and customs of the Japanese people as a social group. For comparison purposes, this course makes reference to studies in American language and culture. Proficiency in Japanese not required. Prerequisite: Junior standing.

**COMM4323 Communication and Conflict (Fa)** Study of the processes, effects, and managements of communicative conflict, including a consideration of conflict styles, power, goals, tactics, assessment, self-intervention and third-party intervention. Prerequisite: COMM 1023 or COMM 1313 or permission of instructor.

**COMM4333 Communication and Gender (Fa)** Study of the nature, construction, functions, and effects of gender and gender-role stereotypes related to verbal and nonverbal communication, small-group and organizational interaction, and mass mediated images in contemporary culture. Prerequisite: COMM 2323 or permission of instructor.

**COMM4343 Intercultural Communication (Fa)** Study of intercultural communication skills, intercultural issues and their impact at home and abroad, and cross-cultural comparisons of communication phenomena from a variety of theoretical perspectives. Prerequisite: COMM 1023 or COMM 1233.

**COMM4353 American Public Address (Irregular)** Historical and critical study of the leading American speakers, their speeches, the issues with which they were identified. Lectures, discussion, reports, and critical papers. Prerequisite: Junior standing.

**COMM4373 Political Communication (Even years, Sp)** Study of the nature and function of the communication process as it operates in the political environment. (Same as PLSC 4373)

**COMM4383 Rhetoric of the Modern American Presidency (Irregular)** A study of the increasing reliance of contemporary presidents on public persuasion through rhetorical discourse.

**COMM4393 Freedom of Speech: Cases & Issues (Fa)** Study of philosophy, cases, and issues relevant to the first amendment right to the free expression, with focus on issues relevant to internal security, obscenity, pornography, slander, and the regulation of communication. Prerequisite: COMM 1313 and COMM 2333.

**COMM4413 Communication, Negotiation, Mediation and Conflict (Irregular)** Examines Alternative Dispute Resolution (ADR) research and techniques focusing primarily on negotiation and mediation. Supplements and extends material presented in COMM 4323 (Communication and Conflict). Explores the verbal and nonverbal messages occurring during negotiation and mediation situations in business, legal, and counseling environments. Prepares students for roles involving negotiation and mediation.

**COMM4623 Relational Communication (Sp)** Review of the major theories and concepts in a relational approach to interpersonal communication. Provides exposure to a sampling of the research findings in relational communication. Prerequisite: COMM 2323 or permission of instructor.

**COMM4633 History and Development of International Film I (Irregular)** A critical survey of international film as a distinctive art form and as a medium of expression and communication with attention given to films and cinema from its origins to 1975. Prerequisite: COMM 1003.

**COMM4643 Environmental Communication (Irregular)** Explores how communication is used by individuals, corporations, and governments to shape public debates about environmental issues. Topics include rhetorical strategies, the public's right to information and input, dispute resolution techniques, advocacy campaigns, and green marketing. Prerequisite: COMM 1233 and COMM 1313 and COMM 2333 or permission of instructor.

**COMM4653 International Film II (Irregular)** A critical survey of international film as a distinctive art form as a medium of expression and communication with attention given to films and cinema from 1976 to the present. Prerequisite: COMM 1003.

**COMM4683 Documentary Film (Fa)** A study and analysis of the documentary film as a discrete film form and as an important contribution to the international cinematic scene. Prerequisite: Advanced standing. Prerequisite: COMM 1003.

**COMM4813 Computer Mediated Communication in Personal Relationships (Sp)** Study of the theory and research describing the processes, effects, and management of online communication in personal relationships. Pre- or Corequisite: Three credit hours of COMM coursework.

**COMM4823 Children and Media (Sp)** An in-depth examination of children's use of media and the effects of media content on child and adolescent development. Topics may include violence and sex in media, commercialism, and new media. Prerequisite: COMM 3673 or permission of instructor.

**COMM4843 Computer-Mediated Communication (Fa)** Provides an in depth consideration of the nature of computer-mediated communication by examining its use and effects in interpersonal, work, educational, and societal contexts. Prerequisite: COMM 1233 and 2333.

**COMM4853 Telecommunication Policy (Irregular)** Research and discussion of social, ethical, education, cultural, and technological aspects of telecommunications with attention given to changing programming patterns, world systems of broadcasting, data transmission, emerging technology, international politics, and regulatory policies. Prerequisite: COMM 2813 or permission of instructor.

**COMM4863 Seminar in Media (Irregular)** Research/discussion of contemporary issues in media. Emphasis on the economic and social impact of advertising, news, censorship, programs directed toward children, portrayals of women and minorities, future trends in media technologies, and analysis of the changing media landscape. Prerequisite: COMM 1233 or permission of instructor.

**COMM4883 Television and American Culture (Fa)** Historical and critical study of how television shapes American culture and is shaped by it. Attention will be given to the study of television history, programs and audiences; particularly how race and gender shape content and reception of programming. Prerequisite: COMM 1233 and COMM 2813.

**COMM490V Special Problems (Sp, Fa) (1-6)** Credit arranged. Prerequisite: COMM 2333 and at least 9 hours of COMM coursework. May be repeated for up to 6 hours of degree credit.

**COMM4913 Internship in Communication (Sp, Su, Fa)** Internship in applied communication within public and private organizations. Prerequisite: Junior standing and completion of 18 hours in communication courses. May be repeated for up to 6 hours of degree credit.

**COMM5111 Colloquium in Communication Research (Sp, Fa)** Presentation, evaluation, and discussion of research proposals or on-going research projects. Graduate students are required to register for this course each semester of residence. May be repeated for credit.

**COMM5113 Historical and Legal Methods in Communication (Fa)** Emphasizes the assumptions and procedures of his-

torical and legal research methods in communication. May be repeated for up to 3 hours of degree credit.

**COMM5123 Quantitative Research Methods in Communication (Fa)** Emphasizes the assumptions and procedures of social scientific research methods in communication.

**COMM5133 Media Processes & Effects (Fa)** Introduction to scholarly research and theory in media processes and effects. Particular attention will be devoted to the impact of media messages on individuals and societies. Emphasis will be placed on the construction and development of theory.

**COMM5143 Ethnographic Methods in Communication (Fa)** This class focuses upon the fieldwork procedures and narrative writing strategies that comprise the methods of ethnographic research in communication. Students conduct fieldwork requiring in-depth interpersonal contact with members of a group or culture, and practice narrative writing skills.

**COMM5193 Seminar in Communication (Sp, Su, Fa)** Research, discussion, and papers focus on one of a variety of communication topics including symbolic processes in communication, philosophy of rhetoric, communication education, criticism of contemporary communication, interpersonal communication, organizational communication, and contemporary applications of rhetoric. Maximum credit is 9 semester hours. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**COMM5303 Seminar in Rhetorical Theory (Even years, Fa)** Humanistic theories of communication and rhetoric with emphasis upon the development of rhetorical theory in the classical world and upon contributions of contemporary theorists. Prerequisite: Graduate standing.

**COMM5323 Seminar in Persuasion (Fa)** Focus is on comparing theoretical accounts of persuasion and research evidence concerning the effects of various factors on persuasion.

**COMM5333 Communication Theory (Fa)** Survey of the theoretical orientations in communication theory with primary focus on conceptual, theoretical, and philosophical issues.

**COMM5343 Interpersonal Communication (Fa)** Theory and research concerning the exchange of information and the mutual influencing of behavior among people. Prerequisite: Graduate standing.

**COMM5353 Rhetorical Criticism (Irregular)** A seminar in rhetorical criticism. A study of the development of standards of rhetorical appraisal from the foundations of the art of speaking to the modern period; examination of contemporary approaches to rhetorical appraisal and practice in critical analysis of contemporary address.

**COMM5363 Seminar in Small Group Communication (Su)** A consideration of recent developments in small group research which relate to problem solving tasks, leadership and other kinds of human interaction through speech communication. Emphasis given to the interpersonal speech transaction and to the emergence of participant roles. Prerequisite: COMM 2343 or SOCI 4193.

**COMM5373 Content Analysis (Irregular)** Techniques for observing and analyzing the overt communication behavior of selected communicators. Prerequisite: Graduate standing.

**COMM5383 Seminar in Political Communication (Irregular)** Research seminar focusing on selected topics such as candidate imagery, diffusion of political information, or political symbolism. Prerequisite: Graduate standing. (Same as PLSC 5383)

**COMM5403 Organizational Communication Theory (Irregular)** A seminar on the historical development of theory and research into communication processes occurring within an organizational setting. Lecture, discussion, oral and written reports. Prerequisite: Graduate standing.

**COMM5413 Organizational Communication Research (Su)** A seminar on conducting applied research within an organizational setting. Prerequisite: COMM 5403 and graduate standing.

**COMM5423 Seminar in Mass Media Cognition (Even years, Sp)** Seminar exploring how people learn from written, aural and visual mass media messages. Topics to include attention, memory, comprehension, emotional response, arousal, unconscious processing, picture perception and person perception. Seminar will be concerned with most popular media (e.g., television radio, newspaper, and film), and with several content genres (e.g., entertainment, news, advertising).

**COMM5433 Marital Communication (Irregular)** An exploration of the major theories and lines of research that examine marital communication in contemporary American life.

**COMM5443 Issues of Race and Gender in Interpersonal Communication (Odd years, Sp)** An exploration of the major theories and lines of research that examine how race and gender influence interpersonal communication in everyday life in America.

**COMM5453 Myth and Communication Criticism (Irregular)** Seminar in major theories of mythology, including archetypal and ideological perspectives, and their applications to the criticism of public communicative events. Practice in written critical analysis. Prerequisite: Graduate standing.

**COMM5463 Descriptive Linguistics (Fa)** A scientific study of language with primary emphasis on modern linguistic theory and analysis. Topics include phonology, morphology, syntax, semantics, language acquisition, and historical development of world languages. (Same as ANTH 5473, ENGL 5463, WLLC 5463)

**COMM5503 Communication and Cultural Studies (Fa)** Examinations of the role of communication in modern culture. Emphasis is upon the production and circulation of meanings with society, and special attention is given to the role of popular and mass media in this process. Prerequisite: Graduate standing.

**COMM5533 Family Communication (Even years, Fa)** An exploration of the major theories and lines of research that examine family communication in contemporary American life.

**COMM569V Seminar in Film Studies (Irregular) (1-3)** Research, discussion; papers on a variety of film genres and areas including the new American film, the science-fiction film, directors, film comedy, the experimental film, criticism, and the film musical. (Same as ENGL 569V) May be repeated for up to 6 hours of degree credit.

**COMM590V Special Problems (Sp, Su, Fa) (1-6)** Credit by arrangement. Prerequisite: Graduate standing. May be repeated for credit.

**COMM5913 Internship in Communication (Sp, Su, Fa)** Internship in applied communication within public and private organizations. Prerequisite: 15 hours graduate level communication in residence.

**COMM5993 Readings In Cultural Studies (Irregular)** Classic and current theoretical approaches to cultural studies. Subject matter changes depending on student interest and faculty expertise.

**COMM600V Master's Thesis (Sp, Fa) (1-6)** Prerequisite: Graduate standing.

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Computer Science/Computer Engineering (CSCE)

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**CSCE1953 Explorations in Computing (Fa)** An introduction to computers and computing through interactive programming. This course will provide students with the opportunity to explore programming through interactive applications such as robotics, Web applications, and multimedia. Students will learn the basics of programming, i.e., loops, conditionals, and functions, and learn about how computers work by developing their own multimedia programs, controlling their own robots, and/or creating their own interactive Web pages. Prerequisite: MATH 1203.

**CSCE2004 Programming Foundations I (Sp, Fa)** Introductory programming course for students majoring in computer science or computer engineering. Software development process: problem specification, program design, implementation, testing and documentation. Programming topics: data representation, conditional and iterative statements, functions, arrays and records. Using C++ in a UNIX environment. Corequisite: Lab component. Prerequisite: MATH 2554 or CSCE 1013.

**CSCE2004H Honors Programming Foundations I (Irregular)** Introductory programming course for students majoring in computer science or computer engineering. Software development process: problem specification, program design, implementation, testing and documentation. Programming topics: data representation, conditional and iterative statements, functions, arrays and records. Using C++ in a UNIX environment. Corequisite: Lab component. Prerequisite: MATH 2554 or CSCE 1013.

**CSCE2014 Programming Foundations II (Sp, Fa)** This course continues developing problem solving techniques by focusing on fundamental data structures and associated algorithms. Topics include: abstract data types, introduction to object-oriented programming, linked lists, stacks, queues, hash tables, binary trees, graphs, recursion, and searching and sorting algorithms. Using C++ in a UNIX environment. Prerequisite: CSCE 2004. Corequisite: Lab component

**CSCE2014H Honors Programming Foundations II (Irregular)** This course continues developing problem solving techniques by focusing on fundamental data structures and associated algorithms. Topics include: abstract data types, introduction to object-oriented programming, linked lists, stacks, queues, hash tables, binary trees, graphs, recursion, and searching and sorting algorithms. Using C++ in a UNIX environment. Corequisite: Lab component. Prerequisite: CSCE 2004.

**CSCE2114 Digital Design (Fa)** Introduction to the hardware aspects of digital computers, logic gates, flip-flops, reduction, finite state machines, sequential logic design, digital systems, software design tools, hardware description language (VHDL), and implementation technologies. Corequisite: Lab component. Prerequisite: MATH 2554. (Same as ELEG 2904)

**CSCE2214 Computer Organization (Sp)** Presents the relationship between computing hardware and software with a focus on the concepts for current computers. CPU design topics are covered including various techniques for microprocessor design and performance evaluation. Corequisite: Lab component. Prerequisite: CSCE 2114.

**CSCE3193 Programming Paradigms (Fa)** Programming in different paradigms with emphasis on object oriented programming, network programming and functional programming. Survey of programming languages, event driven programming, concurrency, software validation. Prerequisite: CSCE 2014.

**CSCE3313 Algorithms (Fa)** Provides an introduction to formal techniques for analyzing the complexity of algorithms. The course surveys important classes of algorithms used in computer science and engineering. Prerequisite: CSCE 2014 and (MATH 2603 or MATH 2803).

**CSCE3513 Software Engineering (Sp)** A modern approach to the current techniques used in software design and development. This course emphasizes the use of modern software development tools, multi-module programming, and team design and engineering. Prerequisite: CSCE 3193.

**CSCE3613 Operating Systems (Sp)** An introduction to operating systems including topics in system structures, process management, storage management, files, distributed systems, and case studies. Prerequisite: CSCE 2014 and CSCE 2214.

**CSCE3953 System Synthesis and Modeling (Fa)** This course instructs the students in the use of modern synthesis and modeling languages and approaches for design automation. This course will teach students the use of HDLs and modeling languages for representing and implementing digital computer systems. Prerequisite: CSCE 2214.

**CSCE4013 Special Topics (Irregular)** Consideration of computer science topics not covered in other courses. May be repeated for up to 3 hours of degree credit.

**CSCE4023H Honors Special Topics (Irregular)** Consideration of current computer engineering honors topics not covered in other courses. Prerequisite: Honors standing.

**CSCE4043 RFID Information Systems Security (INFOSEC) (Irregular)** Radio frequency identification (RFID) information systems provide information to users about objects with RFID tags. They require the application of information systems security (INFOSEC) to protect the information from tampering, unauthorized information disclosure, and denial of service to authorized users. This course addresses security and privacy in an RFID system. Prerequisite: INEG 2313 or STAT 3013.

**CSCE4114 Embedded Systems (Fa)** The architecture, software, and hardware of embedded systems. Involves a mixture of hardware and software for the control of a system (including electrical, electro-mechanical, and electro-chemical systems). They are found in a variety of products including cars, VCRs, HDTVs, cell phones, pacemakers, spacecraft, missile systems, and robots for factory automation. Corequisite: Lab component. Prerequisite: CSCE 2214.

**CSCE4114H Honors Embedded Systems (Fa)** The architecture, software, and hardware of embedded systems. Involves a mixture of hardware and software for the control of a system (including electrical, electro-mechanical, and electro-chemical systems). They are found in a variety of products including cars, VCRs, HDTVs, cell phones, pacemakers, spacecraft, missile systems, and robots for factory automation. Corequisite: Lab component. Prerequisite: CSCE 2214.

**CSCE4123 Programming Challenges (Irregular)** This course studies the principle methods used in the solution of programming contest problems, e.g., data structures strings, sorting, machine arithmetic and algebra, combinatorics, number theory, backtracking, graph traversal, graph algorithms, dynamic programming, grids, and computational geometry. Prerequisite: CSCE 2014.

**CSCE4213 Computer Architecture (Sp)** The architecture of modern scalar and parallel computing systems. Techniques for dynamic instruction scheduling, branch prediction, instruction level parallelism, shared and distributed memory multiprocessor systems, array processors, and memory hierarchies. Prerequisite: CSCE 2214. (Same as ELEG 4983)

**CSCE4213H Honors Computer Architecture (Sp)** The architecture of modern scalar and parallel computing systems. Techniques for dynamic instruction scheduling, branch prediction, instruction level parallelism, shared and distributed memory multiprocessor systems, array processors, and memory hierarchies. Prerequisite: CSCE 2214.

**CSCE4233 Low Power Digital Systems (Irregular)** The reduction of power consumption is rapidly becoming one of the key issues in digital system design. Traditionally, digital system design has mainly focused on performance and area trade-offs. This course will provide a thorough introduction to digital design for lower consumption at the circuit, logic, and architectural level. Prerequisite: CSCE 2214.

**CSCE4253 Concurrent Computing (Irregular)** Programming concurrent processes; computer interconnection network topologies; loosely coupled and tightly coupled parallel computer architectures; designing algorithms for concurrency; distributed computer architectures. Prerequisite: senior standing in computer science or engineering.

**CSCE4323 Formal Languages and Computability (Sp)** Finite Automata and regular languages, regular expressions, context-free languages and pushdown automata, nondeterminism, grammars, and Turing machines. Church's thesis, halting problem, and undecidability. Prerequisite: CSCE 3313.

**CSCE4333 Introduction to Integrated Circuit Design (Fa)** Design and layout of large scale digital integrated circuits using CMOS technology. Topics include MOS devices and basic circuits, integrated circuit layout and fabrication, dynamic logic, circuit design and layout strategies for large scale CMOS circuits. Students may not receive credit for both CSCE 4333 and CSCE 5223. Prerequisite: ELEG 3213 or ELEG 3933 and MATH 2584 (Same as ELEG 4233, ELEG 5923)

**CSCE4353 CPLD/FPGA-Based System Design (Irregular)** Field Programmable Logic devices (FPGAs/CPLDs) have become extremely popular as basic building blocks for digital systems. They offer a general architecture that users can customize by inducing permanent or reversible physical changes. This course will deal with the implementation of logic options using these devices. Prerequisite: CSCE 2214. (Same as ELEG 4963)

**CSCE4353H Honors CPLD/FPGA-Based System Design (Irregular)** Field Programmable Logic devices (FPGAs/CPLDs) have become extremely popular as basic building blocks for digital systems. They offer a general architecture that users can customize by inducing permanent or reversible physical changes. This course will deal with the implementation of logic options using these devices. Prerequisite: CSCE 2214 and Honors standing.

**CSCE4423 Computer Systems Modeling (Irregular)** Basic concepts of problem analysis, model design, and simulation experiments. A simulation will be introduced and used in this course. Prerequisite: CSCE 2014 and (INEG 2313 or STAT 3013).

**CSCE4433 Cryptography (Irregular)** This course provides a general introduction to modern cryptography. Topics include: stream ciphers, block ciphers, message authentication codes, public key encryption, key exchange, and signature schemes. Prerequisite: MATH 2603 or MATH 2803.

**CSCE4523 Database Management Systems (Fa)** Introduction to database management systems, architecture, storage structures, indexing, relational data model, E-R diagrams, query languages, SQL, ODBC, transaction management, integrity, and security. Prerequisite: CSCE 2014.

**CSCE4543 Software Architecture (Irregular)** A study of software architecture through the use of case studies drawn from real systems designed to solve real problems from technical as well as managerial perspectives. Techniques for designing, building, and evaluating software architectures. Students cannot receive credit for both CSCE 4543 and CSCE 5543. Prerequisite: CSCE 3313 and CSCE 3513.

**CSCE4561 Capstone I (Sp, Fa)** CSCE students complete a comprehensive software capstone project during their final year of undergraduate studies. The project is done over 2 semesters in phases: concept, formal proposal, implementation, and presentation. The projects include and may require the integration of software and human factors and hardware elements and are developed to software engineering methodologies. Pre- or Corequisite: CSCE 3513.

**CSCE4613 Artificial Intelligence (Irregular)** Introduction to intelligent agents, AI languages, search, first order logic, knowledge representation, ontologies, problem solving, natural language processing, machine vision, machine learning, and robotics. Prerequisite: CSCE 2014.

**CSCE4753 Computer Networks (Irregular)** This course is an introductory course on computer networks. Using the Internet as a vehicle, this course introduces underlying concepts and principles of modern computer networks, with emphasis on protocols, architectures, and implementation issues. Prerequisite: INEG 2313 or STAT 3013.

**CSCE4813 Computer Graphics (Irregular)** Introduction to the theory and algorithms used in computer graphics systems and applications. Topics include: 2D and 3D geometric mod-

els (points, lines, polygons, surfaces), affine transformations (rotation, translation, scaling), viewpoint calculation (clipping, projection), lighting models (light-material interactions, illumination and shadow calculation). Students will implement their own graphics pipeline to demonstrate many of these techniques. Higher level computer graphics applications will be created using OpenGL. Prerequisite: CSCE 2014.

**CSCE490V Individual Study (Irregular) (1-3)** Individual study directed by faculty in current research topics, state of the art, or advanced methodology in one of the major computer science or computer engineering areas. May be repeated for up to 3 hours of degree credit.

**CSCE4912H Honors Thesis (Sp, Fa)** To provide honors students with experience in presenting their research accomplishments to their peers and faculty. Prerequisite: Honors standing. May be repeated for up to 4 hours of degree credit.

**CSCE4914 Advanced Digital Design (Irregular)** To master advanced logic design concepts, including the design and testing of synchronous and asynchronous combinational and sequential circuits using state of the art CAD tools. Corequisite: Lab component. Prerequisite: CSCE 2114 or ELEG 2904. (Same as ELEG 4914)

**CSCE4963 Capstone II (Sp, Fa)** CSCE students complete a comprehensive capstone project during their final year of undergraduate studies. The project is done over two consecutive semesters in phases: concepts, formal proposal, implementation, and presentation. The projects include and may require the integration of software, human factors, and hardware elements and are developed using software engineering methodologies. Prerequisite: CSCE 4561.

**CSCE5003 Advanced Programming Languages (Irregular)** Abstraction, proof of correctness, functional languages, concurrent programming, exception handling, dataflow and object oriented programming, denotational semantics. Prerequisite: Graduate standing.

**CSCE5013 Advanced Special Topics in Computer Science or Computer Engineering (Irregular)** Consideration of current computer engineering or computer science topics not covered in other courses. May be repeated for up to 3 hours of degree credit.

**CSCE5033 Advanced Algorithms (Irregular)** Design of computer algorithms, with primary emphasis on the development of efficient implementation.

**CSCE5043 Advanced Artificial Intelligence (Irregular)** In-depth introduction to AI. Topics include: philosophical foundations, cognition, intelligent agents, AI languages, search, genetic algorithms, first order and modal logic, inference, resolution, knowledge representation, ontologies, problem solving, planning, expert systems, uncertainty, probabilistic reasoning, fuzzy logic, machine learning, natural language processing, machine vision, and robotics. Prerequisite: Graduate standing and CSCE 4613.

**CSCE5053 Advanced Virtual Worlds (Irregular)** In depth study of 3D multi-user virtual worlds covering application domains like retail and healthcare logistics, simulations, training, and gaming as well as platform architectures. Students will apply their knowledge of programming and data structures while using synthetic worlds to explore, model and script future smart worlds where computing is pervasive. Students cannot receive credit for both CSCE 4053 and CSCE 5053.

**CSCE5203 Advanced Database Systems (Irregular)** Topics include: object databases, distributed databases, XML query, data warehouses, network as database systems, peer-peer data sharing architectures, data grids, data mining, logic foundations, semantic databases, spatial and temporal databases, and knowledge bases. Prerequisite: CSCE 4523 and graduate standing.

**CSCE5213 Bioinformatics (Irregular)** Application of algorithmic techniques to the analysis and solution of biological problems. Topics include an introduction to molecular biology and recombinant DNA technology, biological sequence comparison, and phylogenetics, as well as topics of current interest. Prerequisite: Instructor consent. (Same as BENG 5213)

**CSCE5223 Introduction to Integrated Circuit Design (Fa)** Design and layout of large scale digital integrated circuits using CMOS technology. Topics include MOS devices and basic circuits, integrated circuit layout and fabrication, dynamic logic, circuit design, and layout strategies for large scale CMOS circuits. Students may not receive credit for both CSCE 4333 and CSCE 5223. Prerequisite: ELEG 3213 or ELEG 3933 and MATH 2584.

**CSCE5243 Advanced Formal Languages (Irregular)** An advanced continuation of CSCE 4323. Prerequisite: CSCE 4323.

**CSCE5253L Integrated Circuit Design Laboratory I (Irregular)** Design and layout of large scale digital integrated circuits. Students design, check and simulate digital integrated circuits

which will be fabricated, and tested in I.C. Design Laboratory II. Topics include computer aided design, circuit timing, and wire delay. Prerequisite: CSCE 4333.

**CSCE5263 Computational Complexity (Irregular)** Turing machines, recursion theory and computability, complexity measures, NP-completeness, analysis on NP-complete problems, pseudo-polynomial and approximation.

**CSCE5283 Graph and Combinatorial Algorithms (Irregular)** A study of algorithms for graphs and combinatorics with special attention to computer implementation and runtime efficiency.

**CSCE5313 Advanced Operating Systems (Irregular)** Concurrent processes and process communication; mutual exclusion and synchronization principles; kernel philosophy; resource allocation and deadlock; and case studies of specific operating systems. Prerequisite: CSCE 4413.

**CSCE5323 Computer Security (Irregular)** Study of a broad selection of contemporary issues in computer security. Topics include access control, security policies, authentication methods, secure system design, and information assurance. Prerequisite: CSCE 4413.

**CSCE5333 Computer Forensics (Irregular)** Various methods for identification, preservation, and extraction of electronic evidence at a computer crime scene. Specific topics include auditing and investigation of network and host intrusions, computer forensics tools, resources for system administrators and information security officers, legal issues related to computer and network forensics. Prerequisite: CSCE 5323.

**CSCE5363L Integrated Circuit Design Laboratory II (Irregular)** Students test the I.C. chips they designed in I.C. Design Laboratory I, and propose design corrections where needed. Topics include bipolar chip design, gate arrays, BICMOS, memory design, design for testability, and dynamic & domino logic. Prerequisite: CSCE 5253.

**CSCE5433 Advanced Cryptography (Irregular)** This course provides an in-depth look into some facet of either cryptographic theory or the implementation of cryptography. Topics may include: the discrete logarithm problem, integer factorization, information theory, elliptic curves, lattices, pseudorandom number generators, zero-knowledge proofs, and quantum cryptography. Prerequisite: CSCE 4433 or instructor consent.

**CSCE5533 Advanced Information Retrieval (Irregular)** Study of the architecture, implementation, and evaluation of current information retrieval systems. Students will apply their knowledge of programming and data structures to implement a large system with an emphasis on efficiency and scalability. They will study current research in the field and implement individual or group projects on advanced topics. Students cannot receive credit for both CSCE 4553 and CSCE 5533.

**CSCE5613 Telecommunications (Irregular)** Overview of public and private telecommunication systems, traffic engineering, communications systems basics, information technology, electromagnetics, and data transmission. (Same as ELEG 5613)

**CSCE5633 Network Performance Evaluation (Irregular)** A study of performance modeling tools for telecommunication networks, computer networks, and wireless networks. Prerequisite: STAT 3013.

**CSCE5643 Computer Communications Networks (Irregular)** A study of computer communication networks, including the data link layer, routing, flow-control, local area networks, TCP/IP, ATM, B-ISDN, queuing analysis, and recent developments in computer communications.

**CSCE5653 Network Security (Irregular)** This course introduces security and secrecy in a networked environment. It is intended to familiarize students with the elements of secure communication, and how they inter-relate to provide secure networks in public and private settings.

**CSCE5683 Digital Image Processing (Irregular)** Introduction to digital image processing with an emphasis on practical implementation techniques. Applications include: image acquisition and sampling, image enhancement, noise removal, image restoration, image compression, and object detection. Fundamental methods include: point operations, geometric transformations, linear image processing in the spatial and frequency domains, and non-linear image processing techniques. Basic techniques of linear system theory such as convolution and Fourier transforms will be introduced as necessary to support these topics.

**CSCE5723 Client-Server Computing (Irregular)** Advanced Object Oriented methods for designing software systems for network applications. Topics include implementations of distributed object models, remote database connectivity. Server side programming, and reusable components.

**CSCE581V Master's Project (Sp, Su, Fa) (1-6)** Required course for report option.

#### CSCE5823 Multiprocessor Systems on Chip (Irregular)

This course covers the latest trends in advanced computer architecture for multiprocessor systems on chip for embedded and real time systems. Topics covered include multicore architectures, modeling abstractions, run time systems, and MIMD/SIMD heterogeneous architectures, Hw/Sw co-design techniques. Prerequisite: CSCE 3613 and CSCE 4213.

**CSCE5843 Reconfigurable Computing (Irregular)** This course will cover emerging and proposed techniques and issues in Reconfigurable Computing. Topics will include FPGA technologies, CAD/CAE tools, Hw/Sw co-design, system level synthesis, programming models and abstractions. Prerequisite: CSCE 4213 and CSCE 3613.

**CSCE590V Advanced Individual Study (Irregular) (1-3)** Advanced graduate level individual study directed by faculty in current research topics, state of the art, or advanced methodology in one of the major computer science or computer engineering areas.

**CSCE5943 Computer Arithmetic Circuits (Irregular)** Examination of fundamental principles of algorithms for performing arithmetic operations in computers. This course provides sufficient theoretical and practical information to prepare the digital design engineer with an awareness of basic techniques for the realization of arithmetic circuits.

**CSCE5983 Application Specific Integrated Circuit Design (Irregular)** ASIC design is taught with emphasis on industrial preparation. Topics include ASIC technologies, design entry, simulation, and synthesis. Advanced design methods and techniques are studied for cell based and gate array ASICs. Prerequisite: CSCE 4213 or ELEG 4943.

**CSCE610V Master's Thesis (Sp, Fa) (1-6)**

**CSCE620V Post-Master's Research (Sp, Fa) (1-18)**

**CSCE700V Doctoral Dissertation (Sp, Su, Fa) (1-18)**

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#### Crop, Soil & Environmental Sci (CSES)

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**CSES1011 Introduction to Crop, Soil, and Environmental Science (Fa)** An introduction to the CSES department and majors in Environmental Soil and Water Sciences and Crop Management. Emphasis will be placed on issues and opportunities within these disciplines and orienting students to the department and University of Arkansas. Required of all department majors with less than 24 semester credit hours. Recitation 1 hour 20 minutes per week for the first eight weeks of the semester. Prerequisite: Freshman and sophomore standing only.

**CSES1203 Introduction to Plant Sciences (Sp, Fa)** An introduction to basics of agricultural crop plant structure, growth, and production.

**CSES2003 Introduction to Weed Science (Fa)** Fundamental, practical concepts of weed control and weed biology; equipment and techniques used in modern weed control practices; and basic recommendations and systems for specific agronomic and horticultural crops. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CSES 1203 or CSES 2103 or HORT 2003.

**CSES2012 Introduction to Organic Crop Production (Odd years, Sp)** An introduction to the principles of organic agriculture and ecology and the regulations defining organic production and certification. Additional topics include crop rotations for pest management and for increasing soil organic matter, feeding the soil and plant nutrition, soil health, and green manuring, corporate agriculture and genetically modified organisms.

**CSES2013 Pest Management (Sp)** Introduction to basic principles of pest management as they relate to vertebrate animals, insects, plant disease and weeds. Selected pests are studied with emphasis on current management approaches and alternative pest control.

**CSES2101L Crop Science Laboratory (Sp)** A series of laboratory experiments designed to reinforce principles of plant growth and development, reproduction, classification, and the utilization of plant products. Emphasis is placed on major crop plant species. Experiments are conducted by individuals or by teams. Laboratory consists of a single, 2-hour period each week. Required for Crop Management majors. Corequisite: CSES 2103.

**CSES2103 Crop Science (Sp)** Principles of crop growth, development, and utilization and how these principles relate to production. Emphasis on major agronomic crop species. Lecture 3 hours per week.

**CSES2201L Soil Science Laboratory (Fa)** Field and laboratory exercises related to the study of the physical, chemical, and biological properties of soils. Laboratory mandatory for all crop management and environmental, soil, and water science majors and optional for others. Laboratory 2 hours per week.

Pre- or Corequisite: CSES 2203.

**CSES2203 Soil Science (Fa)** Origin, classification, and physical, chemical, and biological properties of soils. Lecture 3 hours, discussion 1 hour per week. Corequisite: Drill component. Prerequisite: CHEM 1103 or CHEM 1073.

**CSES3023 Crop, Soil, and Environmental Sciences Colloquium (Fa)** A communication-intensive course covering topics in agronomy and environmental, soil, and water science with particular emphasis on spoken communication but also including written communication, group activities, professionalism, ethics, problem solving, and information retrieval. A student-oriented class with collaborative participation. Colloquium workshop: 3 hours per week. Prerequisite: COMM 1313 and Junior or Senior standing only.

**CSES3113 Forage Management (Even years, Sp)** Forage crops for pasture, hay, and silage with reference to growth and development, production, nutritional quality, and grazing systems. Lecture 3 hours per week. Prerequisite: CSES 1203 or CSES 2103.

**CSES3214 Soil Resources and Nutrient Cycles (Odd years, Sp)** Integration of the fundamental concepts of the biological, chemical, and physical properties of soil systems and their roles in managing soil resources. Lecture 3 hours, laboratory 3 hours per week. Pre- or Corequisite: BIOL 2013/2011L. Corequisite: Lab component. Prerequisite: CSES 2203.

**CSES3312 Cotton Production (Even years, Fa)** Principles and techniques associated with production of cotton. Recitation 2 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203.

**CSES3322 Soybean Production (Odd years, Sp)** An overview of the history and utilization of soybean as well as the physiological and environmental basis for the development of economical soybean production practices. Recitation 2 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203.

**CSES3332 Rice Production (Odd years, Fa)** A study of the principles and practices involved in rice culture worldwide with major emphasis on the United States. Recitation 2 hours per week. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203.

**CSES3342 Cereal Grain Production (Even years, Sp)** An overview of the botany, production, cultural practices, soil & climatic adaptation and utilization of the major cereal grain crops. Prerequisite: CSES 1203 or CSES 2103 or HORT 1203.

**CSES355V Soil Profile Description (Fa) (1-2)** Training for soil profile description writing and membership of judging teams. May be repeated for up to 8 hours of degree credit.

**CSES400V Special Problems (Sp, Su, Fa) (1-6)** Work on special problems in crop, soil and environmental sciences or related field. May be repeated for up to 8 hours of degree credit.

**CSES4013 Advanced Crop Science (Sp)** Fundamental concepts of crop physiology, crop improvement, seed science, and crop production systems. Recitation 3 hours per week. Prerequisite: CSES 2103.

**CSES402V Special Topics (Irregular) (1-3)** Studies of selected topics in crop, soil and environmental sciences not available in other courses. May be repeated for up to 12 hours of degree credit.

**CSES4103 Plant Breeding (Even years, Fa)** Basic principles involved in plant breeding programs to improve crop plants and seed programs. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: ANSC 3123 or BIOL 2323.

**CSES4133 Weed Identification, Morphology, and Ecology (Fa)** Study of weeds as economic pests occurring in both agricultural and nonagricultural situations and including poisonous plants and other specific weed problems. Gross morphological plant family characteristics which aid identification, habitat of growth and distribution, ecology, competition, and allelopathy are discussed. Lecture 2 hours, laboratory 2 hours a week. Corequisite: Lab component. Prerequisite: CSES 2103 (or HORT 2003).

**CSES4143 Principles of Weed Control (Sp)** Advanced concepts and technology used in modern weed control practices and study of the chemistry and specific activity of herbicides in current usage. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CHEM 2613 and CHEM 2611L and CSES 2003.

**CSES4224 Soil Fertility (Fa)** Study of the soil's chemical, biological and physical properties, and human modification of these properties, as they influence the uptake and utilization of the essential nutrients by plants. Lecture 3 hours, laboratory 2 hours per week. Pre- or Corequisite: CHEM 1123/1121L. Corequisite: Lab component. Prerequisite: CSES 2201L and CSES 2203.

**CSES4234 Plant Anatomy (Irregular)** Advanced training in plant anatomy. Studying the structure, terminology, techniques

and function associated with vascular plant anatomy. Corequisite: Lab component. Prerequisite: BIOL 1613/1611 or BIOL 1543/1541L.

**CSES4253 Soil Classification and Genesis (Even years, Sp)** Lecture and field evaluation of soil properties and their relation to soil genesis and soil classification with emphasis on soils of Arkansas. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CSES 2203.

**CSES4303 Bioenergy Feedstock Production (Sp)** Overview of production and characteristics of cultivated crops, perennial grasses, and woody species as feedstocks for bioenergy. Fundamentals of plant growth factors, culture, harvest and storage, quality and improvement, and introduction to environmental impact, modeling, and resource utilization. Prerequisite: MATH 1203 and BIOL 1543 or CSES 1203. Courses in introductory chemistry or soil science are preferred.

**CSES462V Internship (Sp, Su, Fa) (1-6)** Supervised practical work experience in agronomy and environmental science to develop and demonstrate professional competence. Faculty approval of project proposal prior to enrollment and written and oral reports after the project is complete are required. Prerequisite: junior standing. May be repeated for up to 6 hours of degree credit.

**CSES5001 Weed Science Practicum (Su)** Training for membership on weed team, through participation. Prerequisite: Graduate standing.

**CSES5013 Crop Physiology (Odd years, Fa)** Understanding and quantitative measurement of physiological processes, plant responses, and environmental parameters in relation to the production of crops. Prerequisite: BIOL 4303.

**CSES5023 Weed Physiology and Herbicide Resistance in Plants (Even years, Fa)** The reproduction, growth, and development of weeds and the ecological factors affecting these processes; development and mechanisms of herbicide resistance, flow of herbicide-resistance genes; and development of herbicide-resistant crops. Corequisite: Lab component. Prerequisite: CSES 4143 and (BIOL 4303 or CHEM 5813).

**CSES502V Special Problems Research (Sp, Su, Fa) (1-6)** Original investigations on assigned problems in agronomy. Prerequisite: Graduate standing.

**CSES5033 Advanced Soil Fertility and Plant Nutrition (Even years, Fa)** Study of water uptake, ion absorption, translocation and metabolism in higher plants. Lecture 3 hours per week. Prerequisite: BIOL 4303 and CHEM 2613 and CHEM 2611L.

**CSES504V Special Topics (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of specific topics in agronomy. Prerequisite: Graduate standing. May be repeated for credit.

**CSES5053 Scientific Writing (Fa)** Open to graduate students, especially those in agricultural and life sciences. The course will cover searching the scientific literature, writing theses, proposals, journal articles, and other scientific documents. Emphasis on style and techniques used in scientific publication. Lecture and workshop 3 hours per week. Prerequisite: Graduate standing.

**CSES5103 Scientific Presentations (Fa)** Experience in procedures required for professional presentations of scientific papers, seminars, posters; and research findings at meetings in conferences, and with discussion groups. Instruction in organization of materials, visual aids, and good speaking habits. Lecture 3 hours per week. Prerequisite: Graduate standing.

**CSES5124 Crop Molecular and Physiological Genetics (Even years, Sp)** Study of genome organization and expression in agronomic and horticultural plants, with emphasis on genes regulating physiological processes. Lecture 3 hours, discussion 1 hour per week. CSES 5013 and CHEM 5813 and CHEM 5843 are recommended but not required. Corequisite: Drill component. Prerequisite: BIOL 4303 and BIOL 2323 and BIOL 2321L (or ANSC 3123).

**CSES5214 Analytical Research Techniques in Agronomy (Even years, Fa)** Preparation and analysis of plant and soil samples utilizing spectrophotometry, isotopes, and chromatographic separation methods. Additionally, measurements are made of photosyntheses, respiration, water relationships, light, and temperatures in whole plants. Lecture 2 hours, laboratory 4 hours per week. Corequisite: Lab component. Prerequisite: BIOL 4303 and CHEM 2613 and CHEM 2611L.

**CSES5224 Soil Physics (Sp)** Physical properties of soils and their relation to other soil properties, growth of plants and transport of water, oxygen, heat, and solutes such as pesticides and plant nutrients. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CSES 2203 and MATH 1203.

**CSES5233 Plant Genetic Engineering (Odd years, Sp)** Topics will be covered in the field of in vitro plant biology, transgene genetics and crop genetic engineering. Concepts and

applications of transgenic plant technology will be discussed, with the emphasis on the strategies for crop improvement and gene discovery. Lecture 3 hours.

**CSES5264 Microbial Ecology (Odd years, Fa)** A study of the microorganisms in soil and the biochemical processes for which they are responsible. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Additional suggested prerequisite(s): BIOL 2013, CSES 2203, and ENSC 3003. Prerequisite: BIOL 1543 and BIOL 3863 or ENSC 3223.

**CSES5313 Crop Simulation Models in Research, Management and Policy (Even years, Fa)** The basics of theory and practice of crop simulation models and their applications in crop research and management, and cropping systems planning and policy. Prerequisite: MATH 1203 and BIOL 1543 or CSES 1203 or consent of instructor. Courses in introductory chemistry and plant physiology are preferred.

**CSES5323 Soil/Water Quality in Bioenergy Feedstock Production Systems (Odd years, Fa)** Examine concepts of soil and water quality in relation to bioenergy feedstock production, explore research related to biomass removal and by-product addition to soils, and examine the potential effects of proposed feedstock production systems on soil and water quality. Prerequisite: MATH 1203 and CSES 2203 or equivalent or consent of instructor. CSES 4303 (Bioenergy Feedstock Production) preferred.

**CSES5453 Soil Chemistry (Even years, Sp)** Application of the principles of chemistry to processes of agronomic and environmental importance in soils. Soil clay mineralogy, soil solution thermodynamics, structure and reactivity of humus, surface complexation and ion exchange, electro-chemical phenomena, and colloidal stability. Prerequisite: CSES 2203 and CHEM 1123 and CHEM 1121L.

**CSES5543 Plant Genomics (Odd years, Fa)** Plant genetics based on the study of whole genome sequence, transcriptome and proteome. Provides an overview of the principles and techniques of experimental and in silico genomics. Covers all areas of genome research including structural, comparative and functional genomics as well as proteomics. Prerequisite: CHEM 5843 or any graduate level genetics course.

**CSES600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**CSES6253 Forage-Ruminant Relations (Odd years, Sp)** Advanced chemical, physical, and botanical characteristics of forage plants, the dynamics of grazing, intake and digestion, and techniques of measuring forage utilization and systems analysis at the plant-animal interface. Lecture 3 hours per week. Prerequisite: ANSC 3143 and CSES 3113. (Same as ANSC 6253)

**CSES700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing.

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#### Civil Engineering (CVEG)

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**CVEG2002 Introduction to Civil Engineering Plans and CADD (Sp, Fa)** Development and preparation of design and construction plans; plan terminology and features; introduction to computer-aided drafting and design (CADD) software. Prerequisite: Civil Engineering major or departmental consent.

**CVEG2011L Fundamentals of Mechanics for Civil Engineers - Lab (Sp, Fa)** Laboratory exercises demonstrating basic principles of material behavior and problem solving sessions to reinforce principles of statics and mechanics of materials. Corequisite: CVEG 2014. Prerequisite: C or better in MATH 2564 and PHYS 2054.

**CVEG2014 Fundamentals of Mechanics for Civil Engineers (Sp, Fa)** Provides the students with a foundation in the theory and principles of Statics and Mechanics of Materials for use in subsequent civil engineering courses. The course applies mathematics and physics to solve practical problems of mechanics. A general analysis approach is emphasized for problem solving and as an introduction to the Engineering Design Process. Corequisite: CVEG 2011L. Prerequisite: MATH 2564 and PHYS 2054, each with a grade of C or better.

**CVEG2051L Surveying Systems Laboratory (Sp, Fa)** Laboratory exercises demonstrating the principles and practices of surveying systems. Corequisite: CVEG 2053.

**CVEG2053 Surveying Systems (Sp, Fa)** Coordinate geometry, measurements, and total integrated surveying systems; total stations, electronic data collection, and reduction; error analysis; applications to civil engineering and surveying practice. Pre- or Corequisite: MATH 2554. Corequisite: CVEG 2051L.

**CVEG2113 Structural Materials (Sp, Fa)** Production, properties, behavior, and structural applications of concrete, steel, timber, masonry, and plastic. Statistical analysis methods for quality control are also covered. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CVEG 2014 with a grade of C or better.

**CVEG3022 Public Works Economics (Sp, Fa)** Continues the concepts of engineering design and the engineering approach to the solution of problems. The principles and applications of engineering economy are introduced. Creative thinking is emphasized. Recitation 2 hours per week. Prerequisite: Junior standing.

**CVEG3131L Soil Mechanics Laboratory (Sp, Fa)** Index, strength, and consolidation properties of soils; test methods and specifications for soil sampling and testing. Corequisite: CVEG 3133.

**CVEG3133 Soil Mechanics (Sp, Fa)** Introduction to geotechnical engineering. Properties of soils related to foundations, retaining walls, earth structures, and highways. Lecture 2 hours, laboratory 3 hours per week. Corequisite: CVEG 3131L. Pre- or Corequisite: CVEG 3213 and MATH 2584. Prerequisite: (MEEG 3013 or CVEG 2014) and (GEOL 1113 or GEOL 3002) with grades of C or better. (Same as MATH 2584, MATH 2584C)

**CVEG3213 Hydraulics (Sp, Fa)** Study of incompressible fluids. Topics include fluid properties, fluid statics, continuity, energy and hydraulic gradients, fundamentals of flow in pipes and open channels. Hardy Cross analyses, measurement of flow of incompressible fluids, hydraulic similitude and dimensional analysis. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CVEG 2014 or MEEG 2003, either with a grade of C or better.

**CVEG3223 Hydrology (Sp, Fa)** Use of ground water and surface water. Flood routing procedures in storage reservoirs and channels. Hydrologic planning including storage reservoir design, frequency duration analysis, and related techniques. Prerequisite: CVEG 2053 or BENG 2612; and CVEG 3213 or MEEG 3503 with grades of C or better.

**CVEG3243 Environmental Engineering (Sp, Fa)** Introduction to theories and fundamentals of physical, chemical, and biological processes with emphasis on water supply and wastewater collection, transportation, and treatment. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: MATH 2584 with a grade of C or better, and CHEM 1113 or CHEM 1103 with a grade of C or better.

**CVEG3304 Structural Analysis (Sp, Fa)** Truss analysis, influence lines for beams and frames, and effects of moving loads. Deformation of beams, frames, and trusses. Analysis of indeterminate structures by moment area, slope deflection, and moment distribution methods; approximate methods of analysis. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: MEEG 3013 or CVEG 2014, each with a grade of C or better.

**CVEG3413 Transportation Engineering (Fa)** Introduction to highway and transportation engineering, planning, finance, economics, traffic, and geometric design of transportation facilities; theory and application of driver, vehicle and roadway characteristics as they relate to roadway and intersection design; safety, capacity, traffic operations, and environmental effects for highway engineering. Prerequisite: CVEG 2053 with a grade of C or better.

**CVEG4053 Land Surveying (Irregular)** Historical background of property surveys. Detailed consideration of original surveys and the United States Public Land Surveys. Writing adequate land descriptions. Interpretation of old descriptions. Excess and deficiency. Riparian rights. Field practice in relocation of old corners. Prerequisite: Senior standing and CVEG 2053 with a grade of C or better.

**CVEG4083 Control Surveys (Irregular)** Sun and Polaris observations for astronomic azimuth, solar access studies; control traversing, leveling, triangulation; state plane coordinate systems. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CVEG 2053 and CVEG 2051L with grades of C or better.

**CVEG4143 Foundation Engineering (Sp, Fa)** Analysis and design of retaining walls, footings, sheet piles, and piles. Determination of foundation settlements in sand and clay. Prerequisite: CVEG 3133 with a grade of C or better.

**CVEG4153 Earth Structures (Irregular)** The use of soil as a construction material including compaction, cement, lime, and fly ash stabilization. Special topics include seepage, slope stability, swelling, and collapsible soils. Prerequisite: CVEG 3133 with a grade of C or better.

**CVEG4203 Environmental Regulations and Permits (Fa)** Topics include federal and state environmental regulations, the permitting process, permit requirements and related issues. Prerequisite: CVEG 3243 with a grade of C or better and senior standing.

**CVEG4243 Environmental Engineering Design (Sp, Fa)** Application of physical, biological, and chemical operations and processes to the design of water supply and wastewater treatment systems. Prerequisite:

CVEG 3243 with a grade of C or better.

**CVEG4303 Reinforced Concrete Design I (Sp, Fa)** Design of reinforced concrete elements with emphasis on ultimate strength design supplemented by working stress design for deflection and crack analysis. Prerequisite: CVEG 2113 and CVEG 3304 with grades of C or better.

**CVEG4313 Structural Steel Design I (Sp, Fa)** Design of structural steel elements by elastic design the Load and Resistance Factor Design method. Intensive treatment of tension members, beams, columns, and connections. Pre- or Corequisite: CVEG 2113. Prerequisite: CVEG 3304 with a grade of C or better.

**CVEG4323 Design of Structural Systems (Sp)** An overview of the structural design of buildings. Investigates structural design from loading identification through structural analysis and detailing including consideration of fabrication, construction and erection issues. Prerequisite: CVEG 4303 and 4313.

**CVEG4343 Reinforced Masonry Design (Irregular)** Properties of masonry materials and assemblages. Masonry workmanship and quality control. Design of reinforced masonry elements against gravity and lateral loads. Design of masonry connections and joints. Application to 1- and 2-story buildings. Prerequisite: CVEG 4303.

**CVEG4353 Timber Design (Irregular)** Selection of timber beams, columns, and beam-columns. Physical properties of wood, analysis and design of timber connections. Truss design, glulam members, timber bridge design, treatment for decay, and fire protection. Pre- or Corequisite: CVEG 2113. Prerequisite: CVEG 3304 with a grade of C or better.

**CVEG4393 Reinforced Concrete Design II (Irregular)** Shear strength, minimum thickness requirements, and deflection calculations for reinforced concrete structural slabs. Design of one-way and two-way structural slabs by the direct design and equivalent frame methods. Prerequisite: CVEG 4303 with a grade of C or better.

**CVEG4413 Pavement Evaluation and Rehabilitation (Irregular)** Introduction of concepts and procedures for pavement condition surveys; evaluation by nondestructive and destructive testing; maintenance strategies; rehabilitation of pavement systems for highway and airfields; pavement management systems. Prerequisite: CVEG 4433 with a grade of C or better.

**CVEG4423 Geometric Design (Fa)** The geometric design of streets and highways, based on theory and application of driver and vehicle characteristics. Corequisite: Lab component. Prerequisite: CVEG 3413 with grade of C or better.

**CVEG4433 Transportation Pavements and Materials (Sp, Fa)** Study of the engineering properties and behavior of materials commonly used in transportation facilities as they relate to the design and performance of flexible and rigid pavement systems. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CVEG 3133, CVEG 3413, and INEG 2313 with grades of C or better.

**CVEG4513 Construction Management (Sp, Fa)** Introduction to methods and procedures for management of civil engineering construction projects including organization, plans and specs, cost estimating and bidding, project planning and finance, quality control/ assurance, construction safety, cost management, labor issues, change orders, and subcontractor issues. Prerequisite: Senior standing.

**CVEG4803 Structural Loadings (Irregular)** Theoretical background to and practical code requirements for various structural loadings. These include dead loads, occupancy loads, roof loads and ponding, snow loads, granular loads, vehicular loads, wind loading, and seismic loads. Prerequisite: CVEG 3304 and CVEG 4303 (or CVEG 4313) with grades of C or better.

**CVEG4812 Environmental Design Project (Sp)** Comprehensive engineering design project primarily related to environmental issues. Corequisite: CVEG 4243

**CVEG4821 Geotechnical Design Project (Fa)** Comprehensive engineering design project primarily related to geotechnical issues. Prerequisite: CVEG 4303 with a grade of C or better.

**CVEG4832 Structural Design Project (Sp)** Comprehensive engineering design project primarily related to structural issues. Corequisite: CVEG 4323

**CVEG4842 Transportation Design Project (Sp)** Comprehensive engineering design project primarily related to transportation issues. Corequisite: CVEG 4423.

**CVEG4852 Engineering Professional Practice Issues (Sp, Fa)** Study of various issues related to the professional practice of engineering including ethics, professionalism, project procurement, social and political issues, project management, globalism, contract documents and other legal issues. Corequisite: CVEG 4811 or CVEG 4821 or CVEG 4831 or CVEG 4841.

**CVEG488V Special Problems (Irregular) (1-6)** Prerequisite: Senior standing. May be repeated for up to 6 hours of degree credit.

**CVEG488VH Honors Special Problems (Irregular) (1-6)** Service Learning in Belize. Prerequisite: senior standing.

**CVEG491VH Honors Studies in Geotechnical Engineering (Irregular) (1-6)** The study of advanced topics in the geotechnical engineering field. May include participation in geotechnical engineering courses normally available only to graduate students. Prerequisite: CVEG 3133 with a grade of C or better. May be repeated for up to 6 hours of degree credit.

**CVEG492VH Honors Studies in Environmental Engineering (Irregular) (1-6)** The study of advanced topics in the environmental engineering field. May include participation in environmental engineering courses normally available only to graduate students. Prerequisite: CVEG 3243 with a grade of C or better. May be repeated for up to 6 hours of degree credit.

**CVEG493VH Honors Studies in Structural Engineering (Irregular) (1-6)** The study of advanced topics in the structural engineering field. May include participation in structural engineering courses normally available only to graduate students. Prerequisite: CVEG 3304 with a grade of C or better. May be repeated for up to 6 hours of degree credit.

**CVEG494VH Honors Studies in Transportation Engineering (Irregular) (1-6)** The study of advanced topics in the transportation engineering field. May include participation in transportation engineering courses normally available only to graduate students. Prerequisite: CVEG 3413 with a grade of C or better. May be repeated for up to 6 hours of degree credit.

**CVEG4983H Honors Undergraduate Thesis (Irregular)** Thesis research for civil engineering students enrolled in the honors college. Prerequisite: Honors College.

**CVEG5100 Graduate Seminar in Civil Engineering (Sp, Fa)** A weekly seminar devoted to civil engineering research topics. Appropriate grade to be "S".

**CVEG5113 Soil Dynamics (Irregular)** This course covers propagation of stress waves in elastic and inelastic materials, dynamic loading of soils, and stiffness and damping properties of soils. Use of field and laboratory techniques to determine shear wave velocity of soils. Also includes applications of dynamic soil properties in site stiffness characterization, geotechnical earthquake engineering, evaluation of ground improvement, and design of machine foundations. Prerequisite: CVEG 4143 with a grade of C or better.

**CVEG5123 Measurement of Soil Properties (Irregular)** Consideration of basic principles involved in measuring properties of soils. Detailed analysis of standard and specialized soil testing procedures and equipment. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CVEG 4143 with a grade of C or better.

**CVEG5143 Transportation Soils Engineering (Irregular)** Advanced study of the properties of surficial soils; soil classification systems; pedology; soil occurrence and variability; subgrade evaluation procedures; repeated load behavior of soils; soil compaction and field control; soil stabilization; soil trafficability and subgrade stability for transportation facilities. Prerequisite: CVEG 3133 with a grade of C or better.

**CVEG5163 Seepage and Consolidation (Irregular)** Investigation of the flow of water through soils and the time rate of compression of soils. Characterization of the hydraulic conductivity of soils in the field, seepage through earth dams, excavation cut-off walls, and other seepage control systems. Analytical and experimental investigations of soil volume change under hydraulic and mechanical loading. Design of earth and rock dams, well pumping, and vertical and radial consolidation in embankments. Prerequisite: CVEG 4143 with a grade of C or better.

**CVEG5173 Advanced Foundations (Irregular)** Study of soil-supported structures. Topics include drilled piers, slope stability, pile groups, negative skin friction, foundation design from the standard penetration test and Dutch cone, and other specialized foundation design topics. Prerequisite: CVEG 4143 with a grade of C or better.

**CVEG5183 Geo-Environmental Engineering (Irregular)** Study of the geotechnical aspects of waste containment systems and contaminant remediation applications. Analysis and measurement of flow of water and contaminants through saturated and unsaturated soils, clay mineralogy and soil-chemical compatibility, and mechanical and hydraulic behavior of geomembranes, geotextiles, and geosynthetic clay liners. Design and construction aspects of compacted clay and composite landfill liners, drainage systems, and landfill covers. Prerequisite: CVEG 3133 with a grade of C or better.

**CVEG5193 Geotechnical Earthquake Engineering (Irregular)** This course covers stress wave propagation in soil and rock; influence of soil conditions on seismic ground motion

characteristics; evaluation of site response using wave propagation techniques; liquefaction of soils; seismic response of earth structures and slopes. Prerequisite: CVEG 4143 with a grade of C or better.

**CVEG5213 Water Treatment & Distribution System Design (Sp)** Design of industrial and municipal water treatment plants. Discussion of raw and treated water requirements for the several uses. Distribution system analysis and design including distribution storage and pumping. Prerequisite: CVEG 3243 with a grade of C or better.

**CVEG5214 Advanced Wastewater Process Design and Analysis (Fa)** Application of advanced techniques for the analysis of wastewater treatment facilities. Physical, chemical and biological processes for removing suspended solids, organics, nitrogen, and phosphorus. Laboratory treatability studies will be used to develop design relationships. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CVEG 5234 and CVEG 4243 with grades of C or better.

**CVEG5233 Microbiology for Environmental Engineers (Irregular)** Fundamental and applied aspects of microbiology and biochemistry relating to water quality control, wastewater treatment, and stream pollution. Prerequisite: CVEG 3243 with a grade of C or better.

**CVEG5243 Groundwater Hydrology (Irregular)** Detailed analysis of groundwater movement, well hydraulics, groundwater pollution and artificial recharge. Surface and subsurface investigations of groundwater and groundwater management, saline intrusion and groundwater modeling will be addressed. Prerequisite: CVEG 3223.

**CVEG5273 Open Channel Flow (Irregular)** Open Channel Flow includes advanced open channel hydraulics, flow measurement techniques, a hydrology review, culvert and storm drainage facility design, natural channel classification (fluvial geomorphology) and rehabilitation, computer methods and environmental issues. Prerequisite: CVEG 3213 and CVEG 3223.

**CVEG5313 Matrix Analysis of Structures (Irregular)** Energy and digital computer techniques of structural analysis as applied to conventional forms, space trusses, and frames. Prerequisite: CVEG 3304 with a grade of C or better.

**CVEG5323 Structural Dynamics (Irregular)** Dynamics response of single and multidegree of freedom systems. Modal analysis. Response spectra. Computer programs for dynamic analysis. Design considerations for structures subjected to time-varying forces including earthquake, wind, and blast loads. Prerequisite: CVEG 3304 with a grade of C or better.

**CVEG5333 Concrete Materials (Irregular)** Topics include portland cement production, supplementary cementing materials, fresh and hardened concrete properties, mixture proportioning, chemical admixtures, curing, and specialty concretes. Corequisite: Lab component. Prerequisite: CVEG 4303 with a grade of C or better.

**CVEG5343 Highway Bridges (Irregular)** Economics of spans, current design and construction specifications, comparative designs. Possible refinements in design techniques and improved utilization of materials. Prerequisite: CVEG 4313 and CVEG 4303 with grades of C or better.

**CVEG5353 Prestressed Concrete Design (Irregular)** Analysis and design of prestressed concrete beams. Topics include flexural analysis, prestress bond, draping and debonding, allowable stresses, shear analysis and design, camber prediction, and prestress losses. Prerequisite: CVEG 4303 with a grade of C or better.

**CVEG5363 Advanced Topics in Reinforced Concrete (Irregular)** Analysis and design of reinforced concrete members. Topics include slender columns, one-way and two-way slab design, strut and tie design, and torsion. Prerequisite: CVEG 4303 with a grade of C or better.

**CVEG5373 Advanced Structural Steel Design (Irregular)** Design of structural steel components using the Load and Resistance Factor Design method. Intensive treatment of simple and eccentric connections, composite construction, plate girders, and plastic analysis and design. Prerequisite: CVEG 4313 with a grade of C or better.

**CVEG5383 Finite Element Methods in Civil Engineering (Irregular)** An understanding of the fundamentals of the finite element method and its application to structural configurations too complicated to be analyzed without computer applications. Application to other areas of civil engineering analysis and design such as soil mechanics, foundations, fluid flow, and flow through porous media. Prerequisite: Graduate standing.

**CVEG5393 Advanced Strength of Materials (Irregular)** The course will continue from the basic material addressed in the undergraduate course and investigate in more detail stress analysis as it pertains to civil engineering type problems.

Topics addressed in the course will include stress analysis (two-dimensional), constitutive relationships, solutions for two-dimensional problems, flexure, torsion, beams on elastic foundations, and energy methods. Prerequisite: CVEG 2014 or MEEG 3013 with a grade of C or better.

**CVEG5403 Advanced Reinforced Concrete II (Irregular)** Design of circular and rectangular reinforced concrete tanks for fluid and granular loads. Prerequisite: CVEG 4303 with a grade of C or better.

**CVEG5413 Transportation and Land Development (Irregular)** Study of interaction between land development and the transportation network. Application of planning, design, and operational techniques to manage land development impacts upon the transportation system, and to integrate land layout with transportation network layout. Prerequisite: Graduate standing.

**CVEG5423 Structural Design of Pavement Systems (Irregular)** An introduction to the structural design of pavement systems including: survey of current design procedures; study of rigid pavement jointing and reinforcement practices; examination of the behavioral characteristics of pavement materials and of rigid and flexible pavement systems; introduction to structural analysis theories and to pavement management concepts. Prerequisite: CVEG 4433 with a grade of C or better.

**CVEG5433 Traffic Engineering (Irregular)** A study of both the underlying theory and the use of traffic control devices (signs, traffic signals, pavement markings), and relationships to improved traffic flow and safety, driver and vehicle characteristics, geometric design, and societal concerns. Also includes methods to collect, analyze, and use traffic data. Prerequisite: CVEG 3413 with a grade of C or better or graduate standing.

**CVEG5463 Transportation Modeling (Irregular)** The use of mathematical techniques and/or computer software to model significant transportation system attributes. May compare model results with actual measured traffic attributes, using existing data sources and/or collecting and analyzing field data. Pre- or Corequisite: Lab component. Prerequisite: Graduate standing.

**CVEG5473 Transportation System Characteristics (Irregular)** Introduction to traffic flow theory, including traffic stream interactions and capacity. Applications for planning, design, operations. Prerequisite: CVEG 3413 with a grade of C or better and graduate standing.

**CVEG5483 Transportation Management Systems (Irregular)** Six transportation management systems are explored: pavement, bridge, intermodal, public transportation, safety, and congestion. System approaches are presented. Techniques are introduced on how to optimally allocate resources. Pavement and bridge structure basics are discussed and their performance parameters are presented. Case studies are used to illustrate the interfaces among various modes of transportation. Safety and congestion problems in transportation are addressed.

**CVEG562V Research (Sp, Su, Fa) (1-6)** Fundamental and applied research. Prerequisite: Graduate standing.

**CVEG563V Special Problems (Irregular) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**CVEG600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**CVEG700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Dance (DANC)

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**DANC1003 Basic Course in the Arts: Movement and Dance (Sp, Su, Fa)** Introduction to the nature and scope of ballet, modern dance, and ethnic-ritual-world dance forms, their potential for contributing towards multicultural literacy, and to the shaping of an American audience. Comprised of lectures, videos, and movement experiences in the form of Studio Labs.

**DANC1003H Honors Basic Course in the Arts: Movement and Dance (Sp, Su, Fa)** Introduction to the nature and scope of ballet, ethnic, and modern dance forms, their potential for contributing towards multicultural literacy, and to the shaping of an American audience. Comprised of lectures, videos, and movement experiences in the form of studio labs. Prerequisite: honors standing.

**DANC1912 Beginning Modern Dance (Sp, Fa)** Introduction to basic techniques with an emphasis on acquiring flexibility, strength, and coordination.

**DANC1922 Beginning Modern Dance II (Sp)** A continuation of basic modern dance techniques from DANC 1912, with emphasis on weight, time, and shape in movement. Prerequisite: DANC 1912.

**DANC1932 Beginning Ballet (Sp, Fa)** Introduction to the basic techniques of ballet in the recognized classic form including barre exercises, port de bras, and center practice.

**DANC1942 Beginning Ballet II (Sp)** A continuation of the basic techniques of classical ballet from DANC 1932. Prerequisite: DANC 1932.

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Dance Education Activity (DEAC)

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**DEAC1961 Ballroom Dance (Sp)** The fundamentals of ballroom dance.

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Drama (DRAM)

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**DRAM1003 Basic Course in the Arts: Theatre Appreciation (Sp, Su, Fa)** Introduction to theatre arts; playwriting, directing, acting, and design. For the general student. May not be presented toward satisfaction of the B.A. in fine arts requirement by drama majors.

**DRAM1003H Honors Basic Course in the Arts: Theatre Appreciation (Sp, Fa)**

**DRAM1223 Introduction to Dramatic Art (Sp, Fa)** Introduction to an examination of the various elements that make up dramatic art. Study of the history, literature, theory, and practice of the theatre, from ancient to modern times, from the playwright to the producer.

**DRAM1311L Stage Technology I Laboratory (Sp, Fa)** Practical application of costume technology and makeup skills. Students will participate in projects involving the construction and preparation of costumes and makeup designs associated with departmental productions. Production running crew positions will also be assigned. Corequisite: DRAM 1313.

**DRAM1313 Stage Technology I: Costumes and Makeup (Sp, Fa)** Fundamentals of basic costume construction with an emphasis on techniques, materials, planning and process. Training in the basic principles of theatrical makeup application. Corequisite: DRAM 1311L.

**DRAM1321L Stage Technology II Laboratory: Scenery and Lighting (Sp, Fa)** Practical application of principles of scenery and lighting technology. Students will participate in projects involving the construction and preparation of scenery, stage properties, and lighting associated with departmental productions. Production running crew positions will also be assigned. Corequisite: DRAM 1323.

**DRAM1323 Stage Technology II: Scenery and Lighting (Sp, Fa)** Fundamentals of scenery and lighting technology with emphasis on theatre tools, equipment, and basic drafting. Training in basic principles and skills of stage carpentry, lighting technology and rigging. Corequisite: DRAM 1321L.

**DRAM1683 Acting I (Sp, Su, Fa)** An analytical approach to the actor's art with emphasis on the techniques of characterization.

**DRAM2313 Introduction to Theatrical Design (Fa)** Fundamentals of design for the theatre including costume, lighting, and scenery. Study of the designer's role in the production process, design requirements, and aesthetics. Emphasis on the basic principles of two-dimensional art and graphic forms through various media, and a study of color and color theory as they apply to the major areas of theatrical design. Prerequisite: DRAM 1323 and DRAM 1321L.

**DRAM2683 Acting II (Sp)** (Formerly DRAM 4603) Advanced theories and techniques of acting. Prerequisite: DRAM 1223 or 1003 or DRAM 1003H and DRAM 1683.

**DRAM3001 Production Practicum (Sp, Su, Fa)** Credit for participation in technical assignments related to mainstage or faculty-directed productions: one (1) credit hour per production. Assignments shall be determined by the faculty. Credit will be awarded only after completion of assignments and only with faculty approval. May be repeated for up to 2 hours of degree credit.

**DRAM3011 Performance Practicum (Sp, Su, Fa)** Credit for performance in faculty directed productions; one credit hour per production. Assignments shall be determined by the faculty. Credit will be awarded only after satisfactory completion of assignment and with faculty approval. May be repeated for up to 2 hours of degree credit.

**DRAM3021 Advanced Production Practicum (Irregular)** Credit for participation in advanced technical assignments related to mainstage or faculty-directed productions: one (1) credit hour per production. Assignments shall be determined by the faculty. Credit will be awarded only after completion of assignments and only with faculty approval. Prerequisite: Two credit hours of DRAM 3001. May be repeated for up to 2 hours of degree credit.

**DRAM3041 Advanced Performance Practicum (Irregular)** Credit for advanced performance in faculty directed productions; one credit hour per production. Assignments shall be



determined by the faculty. Credit will be awarded only after satisfactory completion of assignment and with faculty approval. Prerequisite: 2 credits of DRAM 3011.

**DRAM3213 Costume Design I (Irregular)** Study of the art and practice of stage costume design. Emphasis on the expression of character through costume. Development of rendering and research skills. Prerequisite: DRAM 1313, DRAM 1311L, and DRAM 2313.

**DRAM3243 Costume Technology I (Irregular)** Advanced methods of costume construction techniques and the exploration of theatrical pattern drafting will be practiced through projects. Prerequisite: DRAM 1313.

**DRAM3433 Stage Speech (Irregular)** An introduction to the basic skills of speech, voice production and communication for performance and broadcasting. Special focus on General American speech and the characteristics of speech regionalisms. The course will explore breath control, resonance, articulation, pitch, volume, voice quality and stress management. Prerequisite: DRAM 1683.

**DRAM3653 Directing I (Sp)** Basic principles and techniques of play directing with an emphasis on the modern realistic mode of production. Corequisite: Drama majors with at least junior standing. Prerequisite: DRAM 1223 or DRAM 1003 or DRAM 1003H, and DRAM 1313, DRAM 1323 and DRAM 2683.

**DRAM3683 Stage Management (Irregular)** Principles of stage management in the context of academic and professional theatre production. Issues of theatre management and producing are addressed as they relate to play production activities. Prerequisite: DRAM 1223 or DRAM 1003 or DRAM 1003H and DRAM 1313 and DRAM 1323.

**DRAM3733 Stage Lighting I (Irregular)** Study of the art and practice of stage lighting; color theory; electricity and dimming systems; problems in design. Lecture-demonstration 3 hours, laboratory, by arrangement, coinciding with departmental productions, 3 hours per week. Prerequisite: DRAM 1323, DRAM 1321L, and DRAM 2313.

**DRAM3803 Development of the Drama (Sp)** An introductory survey of theoretical approaches to theatre and drama. Readings include a cross-section of literary and performance theories ranging from the classical to the post-modern. Prerequisite: DRAM 1223 or DRAM 1003 or DRAM 1003H.

**DRAM3803H Honors Development of the Drama (Sp)** An introductory survey of theoretical approaches to theatre and drama. Readings include a cross-section of literary and performance theories ranging from the classical to the post-modern. Prerequisite: DRAM 1223 or DRAM 1003 or DRAM 1003H.

**DRAM3823 Script Interpretation (Irregular)** Techniques for making sense of playwrights and finding their theatrical demands, including beat/objective/motive/ action structuring, use of the fictional and functional models of the text, imagery analysis, linguistic individuation, and indirect modes of meaning. Each student focuses on one script for the full term. Prerequisite: DRAM 1223 and DRAM 3803.

**DRAM3903 Theatrical Makeup (Irregular)** The techniques and skills of theatrical makeup and design involved in the creation and execution of character makeup for the stage. Prerequisite: DRAM 1313. May be repeated for up to 6 hours of degree credit.

**DRAM3923H Honors Colloquium: African American Dramatic Literature (Irregular)** In depth study of African American Dramatic Literature, historic and modern. Prerequisite: Honors candidacy (not restricted to candidacy in drama).

**DRAM399VH Honors Course (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**DRAM406V Playwriting (Fa) (1-3)** A workshop course for students who wish to attempt original work in the dramatic form. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**DRAM4153 Musical Theatre Performance (Irregular)** Principles and techniques of performing a singing role for the theatre. Examines the relationship between score and text. May be repeated for up to 6 hours of degree credit.

**DRAM4233 History of the Theatre I (Fa)** A survey of dramatic literature, theatre practices and cultural contexts for dramatic presentation from classical Greece through the Restoration. Prerequisite: DRAM 1223 or DRAM 1003 or DRAM 1003H.

**DRAM4333 History of the Theatre II (Sp)** A survey of dramatic literature, theatre practices and cultural contexts for dramatic presentation from the 18th century to the mid-20th century. Emphasis is given to Western theatre practices. Prerequisite: DRAM 1223 or DRAM 1003 or DRAM 1003H.

**DRAM4453 History of the Theatre III (Sp)** An examination of history and theory of modern theatrical styles.

**DRAM4463 African American Theatre History -- 1950 to**

**Present (Sp)** A chronological examination of African-American theatre history from 1950 to the present through the study of African-American plays and political/social conditions. Upon completion of this course the student should be familiar with the major works of African-American theatre and have a deeper understanding of American History. (Same as AAST 499V)

**DRAM4653 Scene Design I (Irregular)** Theory and practice in the art of scenic design, including historical and contemporary styles and procedures. Practical experience gained through work on departmental productions. Prerequisite: DRAM 1323, DRAM 1321L and DRAM 2313.

**DRAM4733 Dramatic Criticism (Irregular)** Analysis of critical theories from Aristotle to the present; interrelationships of theatre disciplines as well as the influence of the church, state, and press on dramatic criticism. Prerequisite: DRAM 3803.

**DRAM4773 Acting Shakespeare (Irregular)** Work on the special techniques required for performance of the plays of Shakespeare and his contemporaries. The cultural and theatrical context required for understanding the scripts. Special attention to the speaking of blank verse.

**DRAM4833 Scene Painting I (Irregular)** A studio class in painting techniques for the theatre. Exercises in color, textures, styles, and execution. Prerequisite: DRAM 1323/1321L or enrolled in Drama MFA program. May be repeated for up to 6 hours of degree credit.

**DRAM490V Independent Study (Sp, Su, Fa) (1-3)** Individually designed and conducted programs of reading and reporting under the guidance of a faculty member. May be repeated for up to 3 hours of degree credit.

**DRAM491V Special Topics (Sp, Su, Fa) (1-3)** Classes not listed in the regular curriculum, offered on demand on the basis of student needs and changes within the profession. May be repeated for credit.

**DRAM492V Internship (Irregular) (1-12)** Supervised practice in the various arts and crafts of the theatre (e.g., full design responsibility for a box office management; actor apprenticeship in a professional company). Available only to those who have exhausted the regular curricular possibilities in the area of specialization. May be repeated for up to 12 hours of degree credit.

**DRAM4953 Theatre Study in Britain (Sp, Su, Fa)** Study of the components of stage production through attending and critiquing a wide variety of classical, modern, and avant garde theatre productions in England; includes tours of London and historical British sites and seminars with British theatre artists.

**DRAM5123 Theatrical Design Rendering Techniques (Irregular)** Investigation of drawing and painting methods and materials useful to theatrical designers. Integration of graphic communication with overall production conceptualization will be explored through examination of various theatre styles and periods. May be repeated for up to 6 hours of degree credit.

**DRAM5143 History of Decor for the Stage (Irregular)** An overview of architectural decoration and its application to the theatrical design from the Predynastic Period (4400-3200 B.C.) through the Art Deco period with references to contemporary decor. Prerequisite: Graduate standing.

**DRAM5183 Scene Design Studio (Fa)** Individual and advanced projects in designing scenery for various theatrical genres as well as non-theatrical applications with emphasis on the design process involving playwright analysis, text analysis, and research. Collaboration skills and advanced rendering techniques will be explored. Contributes to on-going portfolio development. Prerequisite: DRAM 3653 or instructor consent. May be repeated for up to 6 hours of degree credit.

**DRAM5193 Scene Technology Studio (Sp)** Individual and advanced projects in scenic techniques with emphasis on scene painting, drafting, rendering, properties design, or scenic crafts as determined by student need. Contributes to on-going portfolio development. Prerequisite: Graduate standing or instructor consent. May be repeated for up to 9 hours of degree credit.

**DRAM5213 Costume Design (Irregular)** Advanced study of the art and practice of stage costume design. Emphasis on the expression of character through costume. Development of rendering and research skills. Portfolio development.

**DRAM5243 Costume Technology I (Irregular)** Advanced methods of costume construction techniques and the practice of the theatrical pattern drafting will be explored through project work.

**DRAM5283 Costume Design Studio (Fa)** Individual and advanced projects in designing costumes for various theatrical genres with emphasis on the design process involving text interpretation, character analysis, and research. Collaboration skills and advanced rendering techniques will be explored. Contributes to on-going portfolio development. Prerequisite:

DRAM 3213 or DRAM 5213 or instructor consent.

**DRAM5293 Costume Technology Studio (Sp)** Individual and advanced projects in costume construction and techniques with emphasis on flat pattern, draping, corsetry, tailoring or costume crafts as determined by student need. Contributes to on-going portfolio development. Prerequisite: Graduate standing or instructor consent. May be repeated for up to 9 hours of degree credit.

**DRAM5353 Stage Lighting Technology (Irregular)** The thorough examination of the technology of equipment that supports the art of stage lighting design: theory, operating principles and specification of lamps, fixtures, control systems and special effect hardware will be explored. Prerequisite: graduate standing.

**DRAM5363 Theatre Planning (Irregular)** A study of significant theatre buildings, modern and historical, and their relationship to contemporary theatre planning. Practical application of theory through design problems and evaluation. Graduate level research project/paper required.

**DRAM5383 Lighting Technology Studio (Sp)** Individual and advanced projects in lighting technology with emphasis on light sources, lighting control, equipment design and specification and the mechanics of lighting. Contributes to on-going portfolio development. Prerequisite: Graduate standing or instructor consent. May be repeated for up to 9 hours of degree credit.

**DRAM5393 Lighting Design Studio (Fa)** Individual projects in lighting design with emphasis on the design process involving script interpretation, design aesthetics and research. Lighting design applications to a variety of venues will be studied. Contributes to on-going portfolio development. Prerequisite: Graduate standing or instructor consent. May be repeated for up to 6 hours of degree credit.

**DRAM542V Graduate Acting Studio (Irregular) (1-3)** Provides actors with intensive opportunities to explore specific aspects of their craft. Sample topics include characterization, Chekhov, Pinter, Brecht, improvisation and mask work. Topics vary each semester. Pre- or Corequisite: DRAM 5413. Prerequisite: Graduate standing in Drama. May be repeated for up to 18 hours of degree credit.

**DRAM5432 Graduate Voice and Speech I (Fa)** Teaches how to build clear vocal production using proper breath support, grounded in the Alexander technique. Emphasis on the connection between breath and thought, learning to undo inadequate vocal habits, and vocal hygiene. Prerequisite: Graduate standing in Drama. May be repeated for up to 4 hours of degree credit.

**DRAM5443 Graduate Acting: Period Styles (Sp)** Styles of acting in relation to French and English Dramatic Literature (16th-19th Centuries). This course also examines the historical and cultural influences that shaped each genre. A period dance component is included. Prerequisite: Graduate standing in Drama.

**DRAM545V Musical Theatre Performance (Irregular) (1-3)** Theory and techniques of performing a singing role for the theatre. Integrates acting and vocal techniques and examines the relationship between score and text. Prerequisite: Graduate standing in Drama.

**DRAM5463 Audition Techniques (Sp, Su, Fa)** A thorough study and practical application of audition skills and techniques. This course will equip the student with prepared audition pieces and experience in cold reading, on-camera work, and improvisation. The course also explores the practical needs of the actor; from how to get an audition to how to prepare a resume. Prerequisite: Graduate standing in Drama.

**DRAM5473 Graduate Acting: Shakespeare (Irregular)** Analysis of Shakespeare for performance. Work will include the plays of Shakespeare and his contemporaries, including cultural and theatrical contexts required for understanding the scripts. Prerequisite: Graduate standing in Drama.

**DRAM548V Meisner Technique I (Irregular) (1-3)** Acting theory and exercises of Sanford Meisner, including repetition work, connecting with partner, three moment game, activities, and emotional preparation.

**DRAM549V Meisner Technique II (Irregular) (1-3)** Continuation of Meisner Technique I. Incorporation of theory and advanced exercises of the Meisner Technique into the playing of text. Prerequisite: DRAM 548V.

**DRAM5501 Research Techniques in Drama (Odd years, Fa)** Basic techniques of research and study in the fields of Drama and Theatre with consideration of the necessary interplay of intellectual and intuitive skills in mature artistry. Practice in the logical, semantic, and evidential work of scholarship and in the various research methodologies.

**DRAM5533 Graduate Playwriting: Special Projects (Irregular)** Advanced study and practice in the area of playwriting.

The area of concentration will be determined by the student's specific writing project(s). Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**DRAM5543 Creating a One-Person Show (Irregular)** Actors learn to use compelling personal experiences and interests in the creation of a unique one-person show. Includes exploration in characterization, staging and playwrighting. Culminates in the public presentation of a short one-person show. Prerequisite: Graduate standing in Drama.

**DRAM5552 Graduate Voice and Speech II (Sp)** A continuation of Graduate Voice and Speech I, exploring more closely the connection between breath support and volume, pitch, range, resonance and articulation. Prerequisite: DRAM 5432.

**DRAM5562 Graduate Voice and Speech III (Irregular)** Continuation of Graduate Voice and Speech II, focusing on the classification of vowels and consonants according to the International Phonetic Alphabet (IPA). Prerequisite: DRAM 5552.

**DRAM5572 Graduate Voice and Speech IV (Irregular)** Continuation of Graduate Voice and Speech III. Extension of the application of the IPA to the analysis of different accents of individuals for whom English is a second language. Approximately eight dialects of English will be examined. Prerequisite: DRAM 5562.

**DRAM5593 Acting and Directing Absurdist Theatre (Irregular)** This course focuses on a particular dramatic style that developed following World War II: Absurdism. In scene presentation projects, students will grapple with the unusual challenges acting and directing these plays, as well as explore the cultural contexts, philosophies and theatrical traditions that led to their invention. Prerequisite: Graduate standing in Drama.

**DRAM5613 Graduate Directing Principles (Irregular)** Theory and technique of directing realistic drama: script analysis; spatial considerations of composition and picturization; development in production of the Aristotelian concepts of plot, character, thought, diction, music (sound), and spectacle. Prerequisite: Graduate standing.

**DRAM562V Seminar in Dramatic Art (Irregular) (1-9)** Research, discussion and projects focusing on a variety of topics including theatre management, advanced acting methods, and specialized periods in dramatic literature. Prerequisite: Senior or graduate standing. May be repeated for up to 9 hours of degree credit.

**DRAM5663 Directing Modern Drama (Irregular)** Studio course exploring the challenges of directing post-19th Century dramatic literature. Individual projects in collaboration with actors. Sample dramatic literature includes styles such as Realism, Expressionism, Absurdism, post-Modernism and Epic Theatre. Topics vary each semester. Prerequisite: Graduate standing in Drama. May be repeated for up to 12 hours of degree credit.

**DRAM5673 Adapting and Directing Non-Theatrical Texts (Irregular)** Offers directors practice in the adaptation and staging of non-theatrical prose, poetry and current events. Individual projects in collaboration with actors. Prerequisite: Graduate standing in Drama.

**DRAM5683 Directing Studio (Sp, Fa)** Hands-on exploration into the direction of historical and contemporary texts and styles, including Greek, Roman, Shakespeare, Realism, American and international scripts and the adaptation of non-theatrical material. Topics vary each semester. Includes discussion and investigation of the theatrical arts and collaborative and production processes. Prerequisite: MFA Directing student or instructor consent. May be repeated for up to 6 hours of degree credit.

**DRAM5691 Scene Study for Directing Studio (Sp, Fa)** Participation as an actor in scenes presented for the graduate Directing Studio course. Varying historical and contemporary texts and styles each semester. Class meets one hour each week, plus outside rehearsals, depending on casting. Prerequisite: Instructor consent. May be repeated for up to 4 hours of degree credit.

**DRAM5713 Directing Classics (Irregular)** Explores the challenges of directing classic texts. Individual projects in collaboration with actors on a wide variety of pre-20th Century dramatic literature. Topics vary each semester. Prerequisite: Graduate standing in Drama. May be repeated for up to 12 hours of degree credit.

**DRAM5723 History of the Theatre I (Fa)** A comprehensive study of the theatre in different cultures and ages, as an institution, as an art, and as a vision of life.

**DRAM5733 History of the Theatre II (Sp)** A continuation of DRAM 5723.

**DRAM5763 Dramatic Criticism (Irregular)** Analysis of critical theories from Aristotle to the present; interrelationships of theatre disciplines as well as the influence of the church, state,

and press on dramatic criticism. Prerequisite: Senior or graduate standing.

**DRAM5783 Viewpoints (Irregular)** Exploration and application of the Viewpoints movement technique. Prerequisite: Graduate standing in Drama.

**DRAM581V Theatre Production III (Sp, Su, Fa) (1-3)** Participation in the process of production for the University Theatre mainstage at a supervisory level. Areas of involvement may include scenery, lighting, sound, makeup, marketing, etc. May be repeated for up to 6 hours of degree credit.

**DRAM590V Independent Study (Sp, Su, Fa) (1-18)** Individually designed and conducted programs of reading and reporting under guidance of a faculty member. May be repeated for up to 18 hours of degree credit.

**DRAM591V Special Topics (Sp, Su, Fa) (1-3)** Classes not listed in the regular curriculum, offered on demand on the basis of student needs and changes within the profession. Prerequisite: Graduate standing in Drama or Instructor consent required.

**DRAM592V Internship (Irregular) (1-6)** Supervised practice in the various arts and crafts of the theatre (e.g. full design responsibility for a production; box office management; actor apprenticeship in a professional company).

**DRAM600V Master's Thesis (Sp, Fa) (1-6)** Prerequisite: Graduate standing.

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#### English as Second Language (EASL)

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**EASL0021 Advanced English Grammar (Sp, Su, Fa)** Presentation of a general overview of the verb, modal, and article in English. Review and practice on compound and complex sentences. Practice of grammatical structure orally and in writing. Not for degree credit. Prerequisite: ESL placement test.

**EASL0023 Reading and Writing I (Sp, Su, Fa)** Work on improving skills necessary to write a well-organized, thought-provoking essay incorporating paraphrased, summarized, and quoted ideas from various sources. Introduction to several rhetorical patterns. Critical reading skills practice, understanding inferences, and improving reading skills comprehension. Not for degree credit. Corequisite: Lab component. Prerequisite: ESL placement test.

**EASL0033 Reading and Writing II (Sp, Su, Fa)** Advanced writing of formal documented, organized, and thought-provoking essays. Students will learn to read passages/articles in English proficiently and maintain discussion with near-native abilities and confidence. Not for degree credit. Corequisite: Lab component. Prerequisite: ESL placement test.

**EASL0041 Pronunciation (Sp, Su, Fa)** Students learn to generate native-sounding speech and increase their intelligibility by working specifically on accent reduction, pronunciation, intonation patterns, and fluency. Credit earned in this course may not be applied to the total required for a degree. Prerequisite: ESL placement test.

**EASL0053 ESL Listening and Speaking (Sp, Su, Fa)** For improvement of aural/oral skills by international students. Includes the basic practice in fluency, clarity, intonation, stress, and pronunciation. Students give presentations and participate in academic discussions. Credit earned in this course may not be applied to the total required for a degree. Prerequisite: ESL placement test.

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#### Economics (ECON)

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**ECON2013 Principles of Macroeconomics (Sp, Su, Fa)** Macroeconomic analysis, including aggregate employment, income, fiscal and monetary policy, growth and business cycles. Credit will be allowed for only one of ECON 2013 and AGEC 2103. Prerequisite: MATH 1203 or higher, or a score of 26 on the math component of the ACT exam, or 600 on the math component of the SAT. (Same as AGEC 2103)

**ECON2013H Honors Principles of Macroeconomics (Fa)** Macroeconomic analysis, including aggregate employment, income, fiscal and monetary policy, growth and business cycles. Credit will be allowed for only one of ECON 2013H and AGEC 2103. Prerequisite: MATH 1203 or higher or a score of 26 on the math component of the ACT exam, or 600 on the math component of the SAT.

**ECON2023 Principles of Microeconomics (Sp, Su, Fa)** Microeconomic analysis, including market structures, supply and demand, production costs, price and output, and international economics. Credit will be allowed for only one of ECON 2023 and AGEC 1103. Prerequisite: MATH 1203 or higher, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT. (Same as AGEC 1103)

**ECON2023H Honors Principles of Microeconomics (Sp)** Microeconomic analysis, including market structures, supply

and demand, production costs, price and output, and international economics. Credit will be allowed for only one of ECON 2023H and AGEC 1103. Prerequisite: MATH 1203 or higher, or a score of 26 on the math component of the ACT exam, or 600 on the math component of the SAT.

**ECON2143 Basic Economics-Theory and Practice (Sp, Su, Fa)** Surveys basic micro, macro principles and analytical tools needed to study contemporary economic problems such as inflation, unemployment, poverty, and pollution. Not open to students majoring in Economics or Business Administration.

**ECON3033 Microeconomic Theory (Sp, Su, Fa)** Nature, scope, and purpose of economic analysis; theories of demand, production, cost, firm behavior, allocation of resources, etc., in a market-oriented system. Prerequisite: (ECON 2013 and ECON 2023) or (ECON 2143) and (MATH 2043 or MATH 2554).

**ECON3053 Economics for Elementary Teachers (Fa)** For students who plan to become teachers in elementary schools. Acquaints students with basic concepts and functioning of the American economic system. Not open to students majoring in Economics or Business Administration. Prerequisite: Students must have completed at least 60 hours of coursework.

**ECON3133 Macroeconomic Theory (Sp, Fa)** Theoretical determinations of national aggregate employment, income, consumption, investment, price level, etc. Prerequisite: (ECON 2013 and ECON 2023) or (ECON 2143) and ((MATH 2043 or MATH 2554)).

**ECON3333 Public Economics (Irregular)** Governmental functions, revenues; tax shifting, incidence; public expenditures, their effects; and fiscal policy. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**ECON3433 Money and Banking (Sp, Fa)** Financial history; theory and practice of financial institutions; monetary policy in theory and practice. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**ECON3533 Labor Economics (Fa)** Economic analysis of labor markets. Topics include analysis of labor demand and supply; human capital investment; wage differentials; discrimination; economic effects of labor unions and collective bargaining; public sector labor markets; unemployment; and labor market effects on inflation. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143

**ECON3633 Economics of Advertising (Irregular)** An examination of how economists define and categorize types of products and advertising campaigns. Alternative views of advertising -- persuasive vs. informative -- are discussed. Models of the relationship between advertising and sales, profits, market structure, product quality, and price are examined. Prerequisite: ECON 2023 or ECON 2143.

**ECON3843 Economic Development, Poverty, & the Role of the World Bank and IMF in Low-Income Countries (Fa)** Examine theories and patterns of economic development in emerging economies. The role of the World Bank and IMF as multilateral lenders and examination of their success and failures in fostering development. Measures of poverty and inequality and their implications for economic development. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**ECON3853 Emerging Markets (Fa)** An analysis of the business and economic environment in emerging countries; focusing in Latin America, South East Asia and Transition Economies. The topics and issues covered include market structure and market failures, financial and legal background, current institutions and political economy issues, and current business opportunities. Prerequisite: ECON 2143; or ECON 2013 and ECON 2023.

**ECON3933 The Japanese Economic System (Sp)** This class presents essential facts about the Japanese economy and then subjects them to modern economic analyses. Japanese institutions and policies are contrasted with their American counterparts, and these economies are compared in terms of performance. Current issues including contemporary economic conditions and US - Japanese trade relations are also examined. Pre- or Corequisite: ECON 2023. Prerequisite: ECON 2013 or ECON 2143.

**ECON399VH Honors Course (Irregular) (1-3)** Primarily for students participating in Honors program. May be repeated for up to 6 hours of degree credit.

**ECON4003H Honors Economics Colloquium (Fa)** Explores events, concepts and/or new developments in the field of Economics. Prerequisite: Senior standing.

**ECON4033 History of Economic Thought (Sp)** Historical, critical analysis of economic theories relative to their instructional background. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143 or ECON 3053.

**ECON410V Special Topics in Economics (Irregular) (1-6)** Covers special topics in economics not available in other

courses. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143. May be repeated for up to 6 hours of degree credit.

**ECON410VH Honors Special Topics in Economics (Irregular) (1-6)** Covers special topics in economics not available in other courses. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143. May be repeated for up to 6 hours of degree credit.

**ECON4333 Economics of Organizations (Fa)** An economic perspective on the design of organizations. Applies developments in game theory and contract theory to analyze the role of information and incentives within and between firms. Covers the boundaries of firms, integration and outsourcing, authority and incentives, and alternative organizational structures in an evolving business environment. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**ECON4423 Behavioral Economics (Fa)** Both economics and psychology systematically study human judgment, behavior, and well-being. This course surveys attempts to incorporate psychology into economics to better understand how people make decisions in economic situations. The course will cover models of choice under uncertainty, choice over time, as well as procedural theories of decision making. Prerequisite: ECON 2023 or ECON 2143.

**ECON4433 Experimental Economics (Irregular)** The course offers an introduction to the field of experimental economics. Included are the methodological issues associated with developing, conducting, and analyzing controlled laboratory experiments. Standard behavioral results are examined and the implications of such behavior for business and economic theory are explored. Prerequisite: ECON 2023 or ECON 2143.

**ECON450V Independent Study (Irregular) (1-6)** Permits students on individual basis to explore selected topics in economics. May be repeated for up to 6 hours of degree credit.

**ECON4633 International Trade (Sp, Fa)** Problems of the international economy from a microeconomic perspective. Topics include analysis of the pattern and content of trade; trade in factors of production; and the applications of trade theory to the study of trade barriers such as tariffs and quotas. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**ECON4643 International Macroeconomics and Finance (Sp, Fa)** Problems of the international economy from a macroeconomic perspective. Topics include national income accounting and the balance of payments; exchange rates and the foreign exchange markets; exchange rate policy; macroeconomic policy coordination; developing countries and the problem of 3rd world debt; and the global capital market. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**ECON468V International Economics and Business Seminar (Irregular) (1-6)** Offered primarily in conjunction with international study abroad programs with an emphasis on international economics and business. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143. May be repeated for up to 6 hours of degree credit.

**ECON4743 Introduction to Econometrics (Sp)** Introduction to the application of statistical methods to problems in economics. Prerequisite: ((ECON 2013 and ECON 2023) or ECON 2143) and ((MATH 2043 or MATH 2554 or higher)) and (WCOB 1033 or STAT 2303).

**ECON4753 Forecasting (Fa)** The application of forecasting methods to economics, management, engineering, and other natural and social sciences. The student will learn how to recognize important features of time series and will be able to estimate and evaluate econometric models that fit the data reasonably well and allow the construction of forecasts. Prerequisite: (ECON 2013 and ECON 2023 or ECON 2143) and (MATH 2043 or MATH 2554) and (MATH 2053 or MATH 2053C) and (WCOB 1033 or STAT 2303).

**ECON5233 Mathematics for Economic Analysis (Su)** This course will develop mathematical and statistical skills for learning economics and related fields. Topics include calculus, static optimization, real analysis, linear algebra, convex analysis, and dynamic optimization. Prerequisite: Graduate standing and MATH 2554 or equivalent.

**ECON5243 Economics of Supply Chain & Retail (Sp)** This course will provide students with a strong foundation in core economics principles, with emphasis on industrial organization issues and applications geared toward the supply-chain and retail focus of the redesigned MBA program.

**ECON5433 Macroeconomic Theory I (Fa)** Theoretical development of macroeconomic models that include and explain the natural rate of unemployment hypothesis and rational expectations, consumer behavior, demand for money, market clearing models, investment, and fiscal policy.

**ECON5533 Microeconomic Theory I (Fa)** Introductory microeconomic theory at the graduate level. Mathematical formula-

tion of the consumer choice, producer behavior, and market equilibrium problems at the level of introductory calculus. Discussion of monopoly, oligopoly, public goods, and externalities.

**ECON5613 Econometrics I (Fa)** Use of economic theory and statistical methods to estimate economic models. The single equation model is examined emphasizing multicollinearity, autocorrelation, heteroskedasticity, binary variables and distributed lags. Prerequisite: MATH 2043 and knowledge of matrix methods, which may be acquired as a corequisite and (AGEC 1103 or ECON 2023) and an introductory statistics course. (Same as AGEC 5613)

**ECON5853 International Economics Policy (Irregular)** An intensive analysis of the operation of the international economy with emphasis on issues of current policy interest. Prerequisite: ECON 5163.

**ECON600V Master's Thesis (Sp, Su, Fa) (1-6)**

**ECON6233 Microeconomic Theory II (Sp)** Advanced treatment of the central microeconomic issues using basic real analysis. Formal discussion of duality, general equilibrium, welfare economics, choice under uncertainty, and game theory.

**ECON6243 Macroeconomic Theory II (Sp)** Further development of macroeconomic models to include uncertainty and asset pricing theory. Application of macroeconomic models to explain real world situations.

**ECON636V Special Problems in Economics (Sp, Su, Fa) (1-6)** Independent reading and investigation in economics. May be repeated for up to 9 hours of degree credit.

**ECON643V Seminar in Economic Theory and Research I (Fa) (1-3)** May be repeated for up to 6 hours of degree credit.

**ECON644V Seminar in Economic Theory and Research II (Sp) (1-3)** Independent research and group discussion.

**ECON6533 Seminar in Advanced Economics I (Irregular)** This seminar will cover advanced fields of current research importance in economics. This will facilitate the development of research directions for doctoral study and research. Prerequisite: Graduate standing.

**ECON6543 Seminar in Advanced Economics II (Irregular)** This seminar will cover advanced fields of current research importance in economics. This will facilitate the development of research directions for doctoral study and research. Prerequisite: Graduate standing.

**ECON6623 Econometrics II (Sp)** Use of economic theory and statistical methods to estimate economic models. The treatment of measurement error and limited dependent variables and the estimation of multiple equation models and basic panel data models will be covered. Additional frontier techniques may be introduced. Prerequisite: ECON 5613 or AGEC 5613.

**ECON6633 Econometrics III (Sp)** Use of economic theory and statistical methods to estimate economic models. Non-linear and semiparametric/nonparametric methods, dynamic panel data methods, and time series analysis (both stationary and nonstationary processes) will be covered. Additional frontier techniques may be covered. Prerequisite: ECON 5613 or AGEC 5613.

**ECON6713 Industrial Organization I (Fa)** This course will develop the theory of modern industrial organization. The latest advances in microeconomic theory, including game theory, information economics and auction theory will be applied to understand the behavior and organization of firms and industries. Theory will be combined with empirical evidence on firms, industries and markets. Prerequisite: ECON 5533 and ECON 6233.

**ECON6723 Industrial Organization II (Sp)** This course surveys firm decisions, including setting prices, choosing product lines and product quality, employing price discrimination, and taking advantage of market structure. It will also cover behavioral IO, which reconsiders the assumption that firms and consumers are perfectly rational and examines the role of regulation. Prerequisite: ECON 5233 and ECON 6253.

**ECON6813 International Macroeconomics (Fa)** This course covers open economy macroeconomics. It will cover static and dynamic models using continuous and discrete time techniques and computer simulations to cover the mainstream topics of international macroeconomics, including exchange rates, balance of payments, monetary models in open economies, and capital accumulation in an open economy. Prerequisite: ECON 5433 and ECON 6243.

**ECON6823 International Development Economics (Sp)** The course provides an introduction to graduate level Development Economics. It will introduce and analyze many of the prominent theories and empirical evidence of International Development. The class will be interactive with students reading, reviewing, and presenting seminal and frontier articles in the field. Prerequisite: ECON 5433 and ECON 5533 and ECON 6233.

**ECON6913 Experimental Economics (Fa)** The course develops advanced concepts in the use of controlled experiments to test economic theory and explore behavioral regularities relating to economics. The class focuses on the methodology of experimental economics while reviewing a variety of established results. Prerequisite: ECON 5533.

**ECON700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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#### Educational Foundations (EDFD)

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**EDFD2403 Statistics in Nursing (Sp)** Introduction to descriptive and inferential statistics used in nursing research.

**EDFD5303 Historical Foundations of Modern Education (Sp, Su)** Critical analysis and interpretation of the historical antecedents of contemporary education, focusing upon the American experience from the colonial period to the present.

**EDFD5353 Philosophy of Education (Irregular)** Introduction to the method and attitude essential to effective analysis and interpretation of issues and values within a society reflecting cultural, ethnic, gender, and global diversity. Prerequisite: Graduate standing.

**EDFD5373 Psychological Foundations of Teaching and Learning (Irregular)** Psychological principles and research applied to classroom learning and instruction. Social, emotional, and intellectual factors relevant to topics such as readiness, motivation, discipline, and evaluation in the classroom.

**EDFD5573 Life-Span Human Development (Sp, Su, Fa)** Basic principles of development throughout the human life-cycle. Physical, cognitive, social, emotional, and personality development.

**EDFD5673 Principles of Motivation (Sp)** This course focuses on theories and concepts of human motivation. Students explore what motivates students to learn and examine strategies, techniques, and interventions that promote and sustain learner motivation.

**EDFD5683 Issues in Educational Policy (Sp, Su, Fa)** This course examines how K-12 education policy is designed and implemented in the United States. Students will develop a working knowledge of policymaking frameworks to examine major education policies of current interest and debate key policy issues that arise at each level of government.

**EDFD5773 Advanced Topics in Educational Psychology (Even years, Fa)** This course provides an opportunity for advanced study of socio-cognitive variables that play a crucial role in working in administration, teaching, and the evaluation of the success of students and academic programs. Prerequisite: ESRM 6403 and EDFD 5373.

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#### Educational Leadership (EDLE)

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**EDLE5003 Schools and Society (Even years, Su)** Schools and Society is an introduction to the social, structural, political and historical forces that have created the American school system.

**EDLE5013 School Organization and Administration (Odd years, Su) (Fa)** Analysis of structure and organization of American public education; fundamental principles of school management and administration.

**EDLE5023 The School Principalship (Sp, Su)** Duties and responsibilities of the public school building administrator; examination and analysis of problems, issues, and current trends in the theory and practice of the principalship.

**EDLE5033 Psychology of Learning (Sp) (Odd years, Su)** This course prepares educational leaders to create and sustain a learning centered environment in school settings. Students will study learning theory across the lifespan and apply it to the practice of instructional leadership, curriculum design, and staff development.

**EDLE5043 Leadership Ethics (Odd years, Su) (Fa)** Leadership Ethics is an experiential based course grounded in ethical decision making theory that uses case study and practice to study school based ethical dilemmas.

**EDLE5053 School Law (Odd years, Su) (Fa)** Legal aspects of public and private schooling: federal and state legislative statutes and judicial decisions, with emphasis upon Arkansas public education.

**EDLE5063 Instructional Leadership, Planning, and Supervision (Odd years, Su) (Fa)** Instructional Leadership, Planning, and Supervision is designed to prepare practitioners to seize the role of educational leader at the school site level through the development of a vision that will be used to drive a data driven instructional school plan.

**EDLE5073 Research for Leaders (Sp) (Odd years, Su)** This course introduces research methodology that will support school leaders as consumers of educational research and supervisors of action research within their schools. Practical

application of research for school leaders is emphasized.

**EDLE5083 Analytical Decision-Making (Sp) (Even years, Su)** Analytical Decision Making is a performance based examination of the principles and practices related to the building administrator's role in the development, administration, and evaluation of curricular programs in public schools. This includes creating a school culture, fostering communication, aligning curriculum with state mandated standards, and staff development.

**EDLE5093 Effective Leadership for School Improvement (Sp, Su)** A performance based examination of strategic planning, group facilitation and decision-making, organizational behavior and development, professional ethics and standards, student services administration, and principles of effective leadership.

**EDLE574V Internship (Sp, Su, Fa) (1-6)** Supervised in-school/district experiences individually designed to afford opportunities to apply previously-acquired knowledge and skills in administrative workplace settings. May be repeated for up to 3 hours of degree credit.

**EDLE600V Master's Thesis (Sp, Su, Fa) (1-6)**

**EDLE6023 School Facilities Planning and Management (Odd years, Fa)** School facilities planning, management, cost analysis, operations, and maintenance of the school plant.

**EDLE6053 School-Community Relations (Even years, Sp)** Community analysis, politics and education; power groups and influences; school issues and public responses; local policy development and implementation; effective communication and public relations strategies.

**EDLE605V Independent Study (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**EDLE6093 School District Governance: The Superintendency (Even years, Fa)** Analysis of the organizational and governance structures of American public education at national, state, and local levels.

**EDLE6103 School Finance (Odd years, Sp)** Principles, issues and problems of school funding formulae and fiscal allocations to school districts.

**EDLE6173 School Business Management (Odd years, Su)** Fiscal and resource management in public schools: budgeting, insurance, purchasing, and accounting.

**EDLE6333 Advanced Fiscal and Legal Issues in Education (Odd years, Sp)** The examination and discussion of advanced legal and fiscal issues affecting public school education. Prerequisite: Advanced graduate standing.

**EDLE6503 Topics in Educational Research for School Administration (Odd years, Fa)** Application of educational research in the school setting by educational administrators. Emphasis placed on the use of state and local school or district data, data analysis, interpretation and reporting, hands-on experience with SPSS, and the formal process of writing a research report. Prerequisite: Advanced graduate standing.

**EDLE6513 Program Evaluation in Education (Sp)** Program Evaluation in Education is designed to introduce students to concepts and methods of policy and program evaluation. Emphasis will be placed on preparing educational leadership students to conduct a program evaluation specialist project of dissertation. Prerequisite: EDLE 6503 and ESRM 6403 or equivalent.

**EDLE6523 Advanced Application of Educational Leadership (Odd years, Su)** A review of seminal and current works on leadership as applied to the educational setting. Provides knowledge of classic and contemporary strategies for leadership.

**EDLE6533 Educational Policy (Odd years, Sp)** Examination of the research and theory related to the evolution of local, state, and federal governance and educational policy. Emphasis given to the consideration of procedures involving policy formulation, implementation, and analysis.

**EDLE6553 Advanced Qualitative Methods in Educational Research (Sp)** This course has been designed to provide graduate students with a more in-depth understanding of qualitative research methods. Emphasis will be placed on preparing educational leadership students to design a qualitative or mixed-method dissertation study. Prerequisite: ESRM 6543 or WDED 572V.

**EDLE6563 Advanced Data Collection for Program Evaluation (Odd years, Fa)** This course is designed to provide graduate students with an in-depth understanding of how to effectively collect data for a program evaluation. Emphasis will be placed on guiding educational leadership students through the data collection procedures they will use for their dissertation. Prerequisite: ESRM 6543 or EDLE 6553

**EDLE6573 Advanced Empirical Analysis for Program Evaluation (Sp)** This course is designed to provide graduate students with an in-depth understanding of how to effectively

analyze data for a program evaluation. Emphasis will be placed on guiding educational leadership students through the data analysis procedures they will use for their dissertation. Prerequisite: EDLE 6563.

**EDLE674V Internship (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**EDLE680V Educational Specialist Project (Sp, Su, Fa) (1-6)** An original project, research project, or report required of all Ed.S. Degree candidates. Prerequisite: Admission to the Ed.S. program.

**EDLE699V Seminar (Sp, Su, Fa) (1-6)** Prerequisite: Advanced graduate standing. May be repeated for up to 6 hours of degree credit.

**EDLE700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Education Reform (EDRE)

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**EDRE4913H Honors Social Studies through Fiction (Fa)** As common references to utopian schemes and Orwellian newspaper show, some of the most important works of politics are fictional. This course explores classic and contemporary works of political fiction, to better understand recent political history and such concepts as power, freedom, totalitarianism, discrimination, and social class.

**EDRE498VH Honors Seminar (Irregular) (1-3)** Topics vary by instructor.

**EDRE499V Special Topics in Education Policy (Irregular) (1-3)** Topics vary by instructor. May be repeated for up to 6 hours of degree credit.

**EDRE559V Field Research (Irregular) (1-6)** Directed graduate-level field research in education policy settings. Prerequisite: Approval of EDRE Graduate Director. May be repeated for up to 6 hours of degree credit.

**EDRE6023 Economics of Education (Odd years, Sp)** This course applies the principles of economic analysis to education and education reform. Topics include: Human capital and signaling theories; education labor markets; educational production functions; public policy and market forces. The course also features empirical evidence evaluating economic theories of education.

**EDRE6033 Politics of Education (Sp)** This course explores historical and institutional forces that help shape education policymaking. Particular attention will be paid to the experience of past education reform movements as well as the influence of interest groups, federalism, bureaucracy, governance structures, public opinion, and judicial review on education policy.

**EDRE6043 Finance and Education Policy (Even years, Sp)** This course examines K-12 education finance from the standpoint of education reform policy. The tools of analysis include economics, public finance, law and political science. Topics include: revenue sources and fiscal federalism, standards-based reform and school finance, school funding formulas, adequacy lawsuits, the politics of school funding, school funding and markets. The course also features empirical evidence on the educational impact of education finance.

**EDRE6053 Measurement of Educational Outcomes (Fa)** This course will train students to consider the various types of outcome and assessment measures used for education at the K-12 level throughout the United States; further, the students will engage in analyses of research that relies on these various outcome measures.

**EDRE6213 Program Evaluation and Research Design (Fa)** This course provides students with training in the methods used to generate evidence-based answers to questions regarding the efficacy and impacts of education programs. The central questions that motivate most educational program evaluations are: (1) What is the problem? (2) What policies or programs are in place to address the problem? (3) What is their effect? (4) What works better? (5) What are the relative benefits and costs of alternatives? (Same as ESRM 6613)

**EDRE6223 Research Seminar in Education Policy (Fa)** This course provides students with the opportunity to learn about education policy research by interacting directly with the leading scholars and practitioners in the field. Students will also gain a foundation in the field of education policy research by reading and discussing some of the founding works of the field.

**EDRE636V Special Problems (Irregular) (1-6)** Independent reading and investigation in education policy under faculty supervision. Prerequisite: Approval of EDRE Graduate Director. May be repeated for up to 6 hours of degree credit.

**EDRE6413 Issues in Education Policy (Fa)** This course examines how K-12 education policy is designed and implemented in the United States. Students will develop a working knowledge of the policymaking frameworks to examine major edu-

cation policies of current interest and debate key policy issues that arise at each level of government. In great measure, the goals of the course will be accomplished through the consideration of opposing stances on key educational policy debates and issues that are of current import.

**EDRE6423 Seminar in School Choice Policy (Even years, Fa)** This course examines parental school choice - perhaps the most controversial education reform of our age. Students will be introduced to the full set of school choice policies, including charter schools and vouchers, and evaluate their benefits and drawbacks as educational interventions.

**EDRE6433 Seminar in Education Accountability Policy (Odd years, Sp)** This course examines K-12 school and district accountability under state and Federal law (e.g. NCLB), as well as teacher and student accountability (e.g. exit exams). Topics include the theory of incentives and politics of tradeoffs, measurement issues of policy implementation, and statistical evidence on policy effects on performance.

**EDRE6443 Seminar in Education Leadership Policy (Odd years, Fa)** This course will examine the individual and systemic prerequisites of effective leadership of schools and school systems, and effective leadership techniques. It will consider the differences between public and private sector leadership. It will also explore ways to identify effective and ineffective leaders, and design and evaluate systems to recruit and train the former and reassign the latter.

**EDRE6453 Seminar in Teacher Quality and Public Policy (Even years, Sp)** Examines how our public system of education shapes the preparation and continued professional development of K-12 teachers, and how that system has been influenced by standards-based education reform as well as efforts to enhance the quality of teaching and learning in public schools. Uses education reform legislation in several states as case studies to illustrate the successes and pitfalls of attempts to reform teacher education and licensure through public policy.

**EDRE674V Internship in Education Policy (Irregular) (1-6)** Internship at a public or private entity involved in the making or implementation of education policy. Paper required on a significant aspect of the internship experience. Prerequisite: Approval of EDRE Graduate Director.

**EDRE699V Special Topics (Irregular) (1-3)** Topics vary depending on instructor. Prerequisite: Approval of EDRE Graduate Director. May be repeated for up to 9 hours of degree credit.

**EDRE700V Doctoral Dissertation (Irregular) (1-18)** Doctoral Dissertation. Prerequisite: Candidacy. May be repeated for up to 18 hours of degree credit.

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Education (EDUC)

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**EDUC1001 Freshman Seminar (Fa)** The course is designed to support and assist freshmen in becoming successful, self-directed learners. Focus will be upon campus resources to help learners accomplish this goal and upon strategies for successful learning. The course will meet twice a week for the first eight weeks. Students will receive one hour of ungraded credit or a grade of F.

**EDUC1012 College Learning I (Sp, Fa)** EDUC 1012 supports students as they make the transition into a university environment. The focus is on developing and applying college-level thinking and learning skills to specific University courses and on developing a student support base through a class learning community. The course is required for students admitted provisionally to the University.

**EDUC1021 College Learning II (Sp, Su, Fa)** EDUC 1021 complements EDUC 1012 by focusing on additional topics leading to student success, such as setting goals and implementing action plans, assessing interests and skills, investigating career possibilities, and developing financial literacy.

**EDUC1031 Math Study Skills (Sp, Su, Fa)** Eight-week course designed for students experiencing difficulty in studying and learning the cognitive and behavioral dimensions of learning mathematics and includes topics such as memory and mathematics, translating mathematics, and math anxiety. Also recommended for math education majors.

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Electrical Engineering (ELEG)

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**ELEG2104 Electric Circuits I (Fa)** Introduction to circuit variables, elements, and simple resistive circuits. Analysis techniques applied to resistive circuits. The concept of inductance, capacitance and mutual inductance. The natural and step responses of RL, RC, and RLC circuits. Corequisite: Lab component. Pre- or Corequisite: MATH 2564.

**ELEG2114 Electric Circuits II (Sp)** Introduction to complex numbers. Sinusoidal steady-state analysis of electric circuits,

active, reactive, apparent and complex power; balanced and unbalanced three-phase circuits; mutual inductance; the use of the Laplace transform for electric circuit analysis and two-port networks. Corequisite: Lab component. Pre- or Corequisite: MATH 2584. Prerequisite: ELEG 2104.

**ELEG287V Special Topics in Electrical Engineering (Irregular) (1-4)** Consideration of current electrical engineering topics not covered in other courses. May be repeated for up to 4 hours of degree credit.

**ELEG2904 Digital Design (Fa)** To introduce students to modern logic concepts, problem solving and design principles, and vocabulary and philosophy of the digital world. Corequisite: Lab component. Prerequisite: Engineering major. (Same as CSCI 2114)

**ELEG3124 System & Signal Analysis (Fa)** Definition and description of signals and systems; analog, digital, continuous- and discrete-time and frequency analysis of systems, Z- and Fourier Transforms, sampling and signal reconstruction, filter design and engineering applications. Corequisite: Lab and drill components. Prerequisite: ELEG 2114 or ELEG 3933.

**ELEG3124H Honors System & Signal Analysis (Fa)** Definition and description of signals and systems; analog, digital, continuous- and discrete-time and frequency analysis of systems, Z- and Fourier Transforms, sampling and signal reconstruction, filter design and engineering applications. Corequisite: Lab component and drill component. Prerequisite: ELEG 2114.

**ELEG3143 Probability & Stochastic Processes (Sp)** Review of system analysis, probability, random variables, stochastic processes, auto correlation, power spectral density, systems with random inputs in the time and frequency domain, and applications. Pre- or Corequisite: ELEG 3124.

**ELEG3143H Honors Probability & Stochastic Processes (Sp)** Review of system analysis, probability, random variables, stochastic processes, auto correlation, power spectral density, systems with random inputs in the time and frequency domain, and applications. Corequisite: Lab component. Pre- or Corequisite: ELEG 3124.

**ELEG3214 Electronics I (Fa)** Introduction to electronic systems and signal processing, operational amplifiers, diodes, non-linear circuit applications, MOSFETS, and BJTs. Course has a lab component. Corequisite: Lab component. Prerequisite: ELEG 2114 and PHYS 2074 and MATH 2574.

**ELEG3214H Honors Electronics I (Fa)** Introduction to electronic systems and signal processing, operational amplifiers, diodes, non-linear circuit applications, MOSFETS, and BJTs. Corequisite: Lab component. Prerequisite: ELEG 2114 and PHYS 2074 and MATH 2574.

**ELEG3224 Electronics II (Sp)** Differential pair amplifier, current mirrors, active loads, multistage amplifiers, amplifier frequency response, bode plots, Millers theorem, short circuit and open circuit time constant methods, feedback amplifiers, and stability of feedback amplifiers. Corequisite: Lab component. Prerequisite: ELEG 3214 and MATH 2584.

**ELEG3224H Honors Electronics II (Sp)** Differential pair amplifier, current mirrors, active loads, multistage amplifiers, amplifier frequency response, bode plots, Millers theorem, short circuit and open circuit time constant methods, feedback amplifiers, and stability of feedback amplifiers. Corequisite: Lab component. Prerequisite: ELEG 3214 and MATH 2584.

**ELEG3304 Energy Systems (Sp)** Steady state analysis of DC machines, transformers, induction machines and synchronous machines. Introduction to speed control of electric machines using power electronics. Corequisite: Lab component. Prerequisite: ELEG 2114 or (PHYS 2074 and ELEG 3903).

**ELEG3304H Honors Energy Systems (Sp)** Steady state analysis of DC machines, transformers, induction machines and synchronous machines. Introduction to speed control of electric machines using power electronics. Corequisite: Lab component. Prerequisite: ELEG 2114 or (PHYS 2074 and ELEG 3903).

**ELEG3704 Applied Electromagnetics (Fa)** Analysis of transmission lines with sinusoidal and transient excitation. Development and use of the Smith Chart and methods of impedance matching. Vector analysis, static form of Maxwell's equations, electrostatics, and magnetostatics. Corequisite: Lab component. Pre- or Corequisite: PHYS 2074 and MATH 2574. Prerequisite: ELEG 2114.

**ELEG3704H Honors Applied Electromagnetics (Fa)** Analysis of transmission lines with sinusoidal and transient excitation. Development and use of the Smith Chart and methods of impedance matching. Vector analysis, static form of Maxwell's equations, electrostatics, and magnetostatics. Corequisite: Lab component. Pre- or Corequisite: PHYS 2074 and MATH 2574. Prerequisite: ELEG 2114.

**ELEG387V Special Topics in Electrical Engineering (Irregular) (1-4)** Consideration of current electrical engineering topics not covered in other courses.

**ELEG3903 Electric Circuits and Machines (Sp, Fa)** Basic electrical principles and circuits, some application to electromechanical systems. For engineering students other than those in electrical engineering. Prerequisite: MATH 2564 and PHYS 2074.

**ELEG3924 Microprocessor Systems Design (Fa)** Introduction to 8-bit microprocessors and their application. Microprocessor architecture and assembly language; interface devices; system design using microprocessors. Corequisite: Lab component. Prerequisite: ELEG 2903 or ELEG 3913.

**ELEG3924H Honors Microprocessor Systems Design (Fa)** Introduction to 8-bit microprocessors and their application. Microprocessor architecture and assembly language; interface devices; system design using microprocessors. Corequisite: Lab component. Prerequisite: ELEG 2904.

**ELEG3933 Circuits & Electronics (Sp)** Basic principles of electric and electronic circuits and devices. Prerequisite: ELEG 3903 or (MATH 2584 and PHYS 2074).

**ELEG400VH Honors Senior Thesis (Sp, Su, Fa) (1-3)** Prerequisite: senior standing.

**ELEG4061 Electrical Engineering Design I (Sp, Fa)** Capstone design and application in electrical engineering. Prerequisite: ELEG 3224 and ELEG 3924.

**ELEG4061H Honors Electrical Engineering Design I (Sp, Fa)** Design and application in electrical engineering. Prerequisite: ELEG 3224 and ELEG 3924.

**ELEG4073 Electrical Engineering Design II (Sp, Fa)** Design and application in electrical engineering. Prerequisite: ELEG 4061.

**ELEG4073H Honors Electrical Engineering Design II (Sp, Fa)** Design and application in electrical engineering. Prerequisite: ELEG 4061.

**ELEG4203 Semiconductor Devices (Irregular)** Crystal properties and growth of semiconductors, energy bands and charge carriers in semiconductors, excess carriers in semiconductors, analysis and design of p/n junctions, analysis and design of bipolar junction transistors, and analysis and design of field-effect transistors. Students may not receive credit for both ELEG 4203 and ELEG 5203. Prerequisite: MATH 2584 and ELEG 3213, or graduate standing.

**ELEG4203H Honors Semiconductor Devices (Irregular)** Crystal properties and growth of semiconductors, energy bands and charge carriers in semiconductors, excess carriers in semiconductors, analysis and design of p/n junctions, analysis and design of bipolar junction transistors, and analysis and design of field-effect transistors. Prerequisite: MATH 2584.

**ELEG4213 MEMS and Microsensors (Fa)** The aim of this course is to teach the theory and developments in MEMS, microsensors, NEMS and smart devices and to train the students for the fabrication using microfabrication tools in the clean room. The students will design, fabricate and characterize a MEMS/Microsensor device during the lab hours at the HiDEC clean room.

**ELEG4223 Design and Fabrication of Solar Cells (Irregular)** Solar insolation and its spectral distribution; p-n junction solar cells in dark and under illumination; solar cell parameters efficiency limits and losses; standard cell technology; energy accounting; design of silicon solar cells using simulation; fabrication of designed devices in the lab and their measurements. Students may not receive credit for both ELEG 4223 and ELEG 5393. Prerequisite: ELEG 4203 (Same as ELEG 5223)

**ELEG4233 Introduction to Integrated Circuit Design (Fa)** Design and layout of large scale digital integrated circuits using CMOS technology. Topics include MOS devices and basic circuits, integrated circuit layout and fabrication, dynamic logic, circuit design, and layout strategies for large scale CMOS circuits. Students may not receive credit for both ELEG 4233 and ELEG 5923. Prerequisite: ELEG 3214 or (ELEG 3933 and MATH 2584). (Same as CSCE 4333, ELEG 5923)

**ELEG4233H Honors Introduction to Integrated Circuit Design (Irregular)** Design and layout of large scale digital integrated circuits using NMOS and CMOS technology. Topics include MOS devices and basic circuits, integrated circuit layout and fabrication, dynamic logic, circuit design, and layout strategies for large scale NMOS and CMOS circuits. Prerequisite: ELEG 3213 or ELEG 3933 and MATH 2584.

**ELEG4243 Analog Integrated Circuits (Irregular)** Theory and design techniques for linear and analog integrated circuits. Current mirrors, voltage to base emitter matching, active loads, compensation, level shifting, amplifier design techniques, circuit simulation using computer-assisted design programs. Prerequisite: ELEG 3223.

**ELEG4253 Nanotechnology (Irregular)** The objective of this course is to present a concise and concurrent introduc-

tion to Nanotechnology and its applications in engineering and medicine, particularly for nanoelectronics, nanosensors and nanocomputing. This course presents basic aspects of the nanotechnology, its fabrication and imaging technologies and integration of biomolecules with electronic systems for the design of devices in nanoelectronics, nanobioelectronics and Nanomedicine. Prerequisite: Senior standing or instructor permission. May be repeated for up to 6 hours of degree credit.

**ELEG4283 Mixed Signal Test Engineering I (Irregular)** Overview of mixed signal testing, the test specification process, DC and parametric measurements, measurement accuracy, tester hardware, sampling theory, DSP-based testing, analog channel testing, digital channel testing. Prerequisite: Senior or graduate standing.

**ELEG4293 Mixed-Signal Modeling & Simulation (Irregular)** Study of basic analog, digital & mixed signal simulation solution methods. Modeling with hardware description languages. Use of state-of-the-art simulators and HDLs. Students may not receive credit for both ELEG 4293 and ELEG 5993. Prerequisite: ELEG 3223

**ELEG4303 Introduction to Nanomaterials and Devices (Irregular)** This course provides the students with an introduction to nanomaterials and devices. The students will be introduced to the quantization of energy levels in nanomaterials, growth of nanomaterials, electrical and optical properties, and devices based on these nanomaterials, such as tunneling resonant diodes, transistors, detector, and emitters. Graduate students will be given additional or different assignments. Graduate students will be expected to explore and demonstrate an understanding of the material with a greater level of depth and breadth than the undergraduates. Each group of students will have different expectations and grading systems. The instructor will prepare and distribute two distinct syllabi. Corequisite: ELEG 4203. Prerequisite: ELEG 3213 and PHYS 2074. May be repeated for up to 6 hours of degree credit.

**ELEG4323 Switch Mode Power Conversion (Irregular)** Basic switching converter topologies: buck, boost, buck-boost, Cuk, flyback, resonant; pulse-width modulation; integrated circuit controllers; switching converter design case studies; SPICE analyses of switching converters; state-space averaging and linearization; and switching converter transfer functions. Prerequisite: ELEG 3223 and ELEG 3123.

**ELEG4343 Organic Electronics Technology (Irregular)** Students become familiar with recent developments in and process technology for organic material based devices and sensors in the classroom, but also gain hands on experience with fabrication processes using micro-fabrication tools in the lab. Credit cannot be earned for both ELEG 4343 and ELEG 5343.

**ELEG4403 Control Systems (Irregular)** Mathematical modeling of dynamic systems, stability analysis, control system architectures and sensor technologies. Time-domain and frequency-domain design of feedback control systems: lead, lag, PID compensators. Special topics in microprocessor implementation. Credit not given for both ELEG4403 and ELEG5403. Prerequisite: ELEG 3123. (Same as MEEG 4213)

**ELEG4403H Honors Control Systems (Irregular)** Mathematical modeling of dynamic systems, stability analysis, control system architectures and sensor technologies. Time-domain and frequency-domain design of feedback control systems: lead, lag, PID compensators. Special topics in microprocessor implementation. Prerequisite: ELEG 3123.

**ELEG4413 Advanced Control Systems (Irregular)** A second course in linear control systems. Emphasis on multiple-input and multiple-output systems: State-space analysis, similarity transformations, eigenvalue and eigenvector decomposition, stability in the sense of Lyapunov, controllability and observability, pole placement, quadratic optimization. Credit not given for both ELEG 4413 and ELEG 5413. Prerequisite: ELEG 4403 or equivalent course.

**ELEG4463L Control Systems Laboratory (Irregular)** Experimental study of various control systems and components. The use of programmable logic controllers in the measurement of systems parameters, ladder-logic applications, process-control applications, and electromechanical systems. Prerequisite: ELEG 3924 and ELEG 3124.

**ELEG4503 Design of Advanced Electric Power Distribution Systems (Irregular)** Design considerations of electric power distribution systems, including distribution transformer usage, distribution system protection implementation, primary and secondary networks design, applications of advanced equipment based on power electronics, and use of capacitors and voltage regulation. Students cannot receive credit for both 4503 and 5503. Prerequisite: ELEG 3304.

**ELEG4503H Honors Design of Advanced Electric Power Distribution Systems (Irregular)** Design considerations of electric power distribution systems, including distribution

transformer usage, distribution system protection implementation, primary and secondary networks design, applications of advanced equipment based on power electronics, and use of capacitors and voltage regulation. Prerequisite: ELEG 3303.

**ELEG4513 Power and Energy Systems Analysis (Irregular)** Modeling and analysis of electric power systems: Energy sources and conversion; load flow analysis; reference frame transformations; symmetrical and unsymmetrical fault conditions; load forecasting and economic dispatch. Credit not given for both ELEG 4513 and ELEG 5513. Prerequisite: ELEG 2113.

**ELEG4623 Communication Systems (Irregular)** Various modulation systems used in communications. AM and FM fundamentals, pulse modulation, signal to noise ratio, threshold in FM, the phase locked loop, matched filter detection, probability of error in PSK, FKS, and DPSK. The effects of quantization and thermal noise in digital systems. Information theory and coding. Pre- or Corequisite: ELEG 4143.

**ELEG4703 Introduction to RF and Microwave Design (Irregular)** An introduction to microwave design principles. Transmission lines, passive devices, networks, impedance matching, filters, dividers, and hybrids will be discussed in detail. Active microwave devices will also be introduced. In addition, the applications of this technology as it relates to radar and communications systems will be reviewed. Prerequisite: ELEG 3704.

**ELEG4703H Honors Introduction to RF and Microwave Design (Irregular)** An introduction to microwave design principles. Transmission lines, passive devices, networks, impedance matching, filters, dividers, and hybrids will be discussed in detail. Active microwave devices will also be introduced. In addition, the applications of this technology as it relates to radar and communications systems will be reviewed. Prerequisite: ELEG 3704.

**ELEG4733H Honors Introduction to Antennas (Irregular)** Basic antenna types: small dipoles, half wave dipoles, image theory, monopoles, small loop antennas. Antenna arrays: array factor, uniformly excited equally spaced arrays, pattern multiplication principles, nonuniformly excited arrays, phased arrays. Use of MATLAB programming and mathematical techniques for antenna analysis and design. Emphasis will be on using simulation to visualize variety of antenna radiation patterns. Prerequisite: ELEG 3703.

**ELEG4773 Electronic Response of Biological Tissues (Irregular)** Understand the electric and magnetic response of biological tissues with particular reference to neural and cardiovascular systems. Passive and active forms of electric signals in cell communication. We will develop the central electrical mechanisms from the membrane channel to the organ, building on those excitation, dielectric models for tissue behavior, Debye, Cole-Cole models. Role of bound and free water on tissue properties. Magnetic response of tissues. Experimental methods to measure tissue response. Applications to Electrocardiography & Electroencephalography, Microwave Medical Imaging, RF Ablation will be discussed that are common to many electrically active cells in the body. Analysis of Nernst equation, Goldman equation, linear cable theory, and Hodgkin-Huxley Model of action potential generation and propagation. High frequency response of tissues to microwave. Prerequisite: ELEG 3703 or equivalent; MATH 2584 or equivalent; basic Biology. (Same as BENG 4283)

**ELEG4783 Introduction to Antennas (Irregular)** Basic antenna types: small dipoles, half wave dipoles, image theory, monopoles, small loop antennas. Antenna arrays: array factor, uniformly excited equally spaced arrays, pattern multiplication principles, nonuniformly excited arrays, phased arrays. Use of MATLAB programming and mathematical techniques for antenna analysis and design. Emphasis will be on using simulation to visualize variety of antenna radiation patterns. Prerequisite: ELEG 3703.

**ELEG487V Special Topics in Electrical Engineering (Irregular) (1-3)** Consideration of current electrical engineering topics not covered in other courses. Prerequisite: Senior standing. May be repeated for up to 6 hours of degree credit.

**ELEG487VH Honors Special Topics in Electrical Engineering (Irregular) (1-3)** Consideration of current electrical engineering topics not covered in other courses. Prerequisite: Senior standing. May be repeated for up to 6 hours of degree credit.

**ELEG488V Special Problems (Sp, Su, Fa) (1-3)** Individual study and research on a topic mutually agreeable to the student and a faculty member. Prerequisite: Senior standing. May be repeated for up to 3 hours of degree credit.

**ELEG488VH Honors Special Problems (Irregular) (1-3)** Individual study and research on a topic mutually agreeable to

the student and a faculty member. Prerequisite: Senior standing.

**ELEG4914 Advanced Digital Design (Irregular)** To master advanced logic design concepts, including the design and testing of synchronous and asynchronous combinational and sequential circuits using state of the art CAD tools. Students may not get credit for both ELEG/CSCE 4914 and ELEG 5914. Corequisite: Lab component. Prerequisite: ELEG 2904 or CSCE 2114. (Same as CSCE 4914)

**ELEG4914H Honors Advanced Digital Design (Irregular)** To master advanced logic design concepts, including the design and testing of synchronous and asynchronous combinational and sequential circuits using state of the art CAD tools. Students may not receive credit for both ELEG 4914H and ELEG 5914. Corequisite: Lab component. Prerequisite: ELEG 2904 or CSCE 2114.

**ELEG4963 CPLD/FPGA Based System Design (Irregular)** Field Programmable logic devices (FPGAs/CPLDs) have become extremely popular as basic building blocks for digital systems. They offer a general architecture that users can customize by inducing permanent or reversible physical changes. This course will deal with the implementation of logic options using these devices. Corequisite: Lab component. Prerequisite: ELEG 2913. (Same as CSCE 4353)

**ELEG4963H Honors CPLD/FPGA Based System Design (Irregular)** Field Programmable logic devices (FPGAs/CPLDs) have become extremely popular as basic building blocks for digital systems. They offer a general architecture that users can customize by inducing permanent or reversible physical changes. This course will deal with the implementation of logic options using these devices. Corequisite: Lab component. Prerequisite: ELEG 2913.

**ELEG4983 Computer Architecture (Irregular)** Design of a single board computer including basic computer organization, memory subsystem design, peripheral interfacing, DMA control, interrupt control, and bus organization. Prerequisite: ELEG 3923. (Same as CSCE 4213)

**ELEG5173L Digital Signal Processing Laboratory (Irregular)** Use of DSP integrated circuits. Lectures, demonstrations, and projects. DSP IC architectures and instruction sets. Assembly language programming. Development tools. Implementation of elementary DSP operations, difference equations, transforms and filters. Prerequisite: ELEG 3124.

**ELEG5193L Advanced DSP Processors Laboratory (Irregular)** Familiarization with, and use of, advanced DSP processors. Parallel processor configurations, timing consideration, specialized programming techniques, and complex pipelines. Prerequisite: ELEG 5173L.

**ELEG5203 Semiconductor Devices (Irregular)** Crystal properties and growth of semiconductors, energy bands and charge carriers in semiconductors, excess carriers in semiconductors, analysis and design of p/n junctions, analysis and design of bipolar junction transistors, and analysis and design of field-effect transistors. Students may not receive credit for both ELEG 4203 and ELEG 5203. Prerequisite: Graduate standing.

**ELEG5213 Integrated Circuit Fabrication Technology (Irregular)** Theory and techniques of integrated circuit fabrication technology; crystal growth, chemical vapor deposition, impurity diffusion, oxidation, ion implantation, photolithography and metallization. Design and analysis of device fabrication using SUPREM and SEDAN. In-process analysis techniques. Student review papers and presentations on state of the art fabrication and device technology. Prerequisite: ELEG 4203.

**ELEG5223 Design and Fabrication of Solar Cells (Irregular)** Solar insolation and its spectral distribution; p-n junction solar cells in dark and under illumination; solar cell parameters efficiency limits and losses; standard cell technology; energy accounting; design of silicon solar cells using simulation; fabrication of designed devices in the lab and their measurements. Students cannot receive credit for both ELEG 4223 and ELEG 5393. Prerequisite: ELEG 4203 or ELEG 5203. (Same as ELEG 4223)

**ELEG5243L Microelectronic Fabrication Techniques and Procedures (Irregular)** The Thin-Film Fabrication course is designed to prepare students to use the thin-film equipment and processes available at the Engineering Research Center's thin-film cleanroom. The process modules to be trained on include lithography, metal deposition and etching, oxide deposition, growth and etching, reactive dry etching, tantalum anodization, photodefinable spin-on dielectric and electroplating. The related metrology modules include microscope inspection, spectrophotometric measurement of oxide, profilometry and four-point probe measurements. Prerequisite: ELEG 5273.

**ELEG5253L Integrated Circuit Design Laboratory I (Irregular)** Design and layout of large scale digital integrated circuits. Students design, check, and simulate digital integrated circuits

which will be fabricated and tested in I.C. Design Laboratory II. Topics include computer-aided design, more in-depth coverage of topics from ELEG 4233, and design of very large scale chips. Prerequisite: ELEG 4233.

**ELEG5263L Integrated Circuit Design Laboratory II (Irregular)** Students test the I.C. chips they designed in I.C. Design Laboratory I and propose design corrections where needed. Topics include gate arrays, bipolar design, I<sup>2</sup>L, memory design, and microprocessor design. Prerequisite: ELEG 5253L.

**ELEG5273 Electronic Packaging (Irregular)** An introductory treatment of electronic packaging, from single chip to multichip, including materials, substrates, electrical design, thermal design, mechanical design, package modeling and simulation, and processing considerations. Credit cannot be earned for both MEEG 5273 and ELEG 5273. Prerequisite: (ELEG 3213 or ELEG 3913) and MATH 2584. (Same as MEEG 5273)

**ELEG5283 Mixed Signal Test Engineering II (Irregular)** Focus calibrations, DAC testing, ADC testing, DIB design, Design for Test, Data Analysis, and Test Economics. Prerequisite: ELEG 4283.

**ELEG5293L Integrated Circuits Fabrication Laboratory (Irregular)** Experimental studies of silicon oxidation, solid-state diffusion, photolithographical materials and techniques, bonding and encapsulation. Fabrication and testing of PN diodes, NPN transistors and MOS transistors. Prerequisite: ELEG 5213.

**ELEG5313 Power Semiconductor Devices (Irregular)** Carrier transport physics; breakdown phenomenon in semiconductor devices; power bipolar transistors, thyristors, power junction field-effect transistors, power field-controlled diodes, power metal-oxide-semiconductor field-effect transistors, and power MOS-bipolar devices. Prerequisite: ELEG 4203.

**ELEG5323 Semiconductor Nanostructures I (Irregular)** This course is focused on the basic theoretical and experimental analyses of low dimensional systems encountered in semiconductor heterojunctions and nanostructures with the emphasis on device applications and innovations. Prerequisite: ELEG 4203 or instructor permission.

**ELEG5333 Semiconductor Nanostructures II (Irregular)** This course is a continuation of ELEG 5323 Semiconductor Nanostructures I. It is focused on the transport properties, growth, electrical and optical properties of semiconductor nanostructures, and optoelectronic devices. Prerequisite: ELEG 5323 or instructor permission.

**ELEG5343 Organic Electronics Technology (Irregular)** Students become familiar with recent developments in and process technology for organic material based devices and sensors in the classroom, but also gain hands on experience with fabrication processes using micro-fabrication tools in the lab.

**ELEG5403 Control Systems (Irregular)** Mathematical modeling of dynamic systems, stability analysis, control systems architectures and sensor technologies. Time-domain and frequency-domain design of feedback control systems: lead, lag, PID compensators. Special topics on microprocessor implementation. Credit not given for both ELEG4403 and ELEG5403. Prerequisite: Graduate standing or ELEG 3123.

**ELEG5413 Modern Control Systems (Irregular)** A second course in linear control systems. Emphasis on multiple-input and multiple-output systems: State-space analysis, similarity transformations, eigenvalue and eigenvector decomposition, stability in the sense of Lyapunov, controllability and observability, pole placement, quadratic optimization. Credit not given for both ELEG 4413 and ELEG 5413. Prerequisite: ELEG 5403 or equivalent.

**ELEG5423 Optimal Control Systems (Irregular)** Basic concepts, conditions for optimality, the minimum principle, the Hamilton Jacobi equation, structure and properties of optimal systems. Prerequisite: ELEG 4403.

**ELEG5433 Digital Control Systems (Irregular)** Signal processing in continuous-discrete systems. System modeling using the z-transform and state-variable techniques. Analysis and design of digital control systems. Digital redesign for continuous control. Prerequisite: ELEG 4403.

**ELEG5443 Nonlinear Systems Analysis and Control (Irregular)** Second-order nonlinear systems. Nonlinear differential equations. Approximate analysis methods. Lyapunov and input-output stability. Design of controllers, observers, and estimators for nonlinear systems. Prerequisite: ELEG 4403 or MATH 5303.

**ELEG5453 Adaptive Filtering and Control (Irregular)** Models for deterministic systems. Parameter estimation. Adaptive control. Stochastic models. Stochastic state and parameter estimation. Adaptive control of stochastic systems. Prerequisite: ELEG 3143 and ELEG 4403.

**ELEG5463 Biomedical Control Systems (Irregular)** Study of control systems analysis and design as applied to human

physiological systems: Modeling and dynamics of biological processes, biomedical sensors, time and frequency domain analysis, identification of physiological systems. Overview of medical device regulations. Prerequisite: ELEG 4403 or equivalent.

**ELEG5473 Power System Dynamics (Irregular)** Modeling, dynamics, and stability analysis of three-phase electric power systems; Design and implementation of control systems that respond to load fluctuations and fault conditions; Integration of distributed energy sources such as wind and solar power; Overview of the related industry and government regulations for power system protection and reliability. Prerequisite: ELEG 3124 and ELEG 3304 or equivalent.

**ELEG5503 Design of Advanced Power Distribution Systems (Irregular)** ELEG 5503 Design of Advanced Power Distribution Systems. 3 credit hours.

Design considerations of electric power distribution systems, including distribution transformer usage, distribution system protection implementation, primary and secondary networks design, applications of advanced equipment based on power electronics, and use of capacitors and voltage regulation. Students cannot receive credit for both 4503 and 5503. Prerequisite: ELEG 3304.

**ELEG5513 Power Systems Analysis (Irregular)** Modeling and analysis of electric power systems: Energy sources and conversion; load flow analysis; reference frame transformations; symmetrical and unsymmetrical fault conditions; load forecasting and economic dispatch. Credit not given for both ELEG 4513 and ELEG 5513. Prerequisite: Graduate standing

**ELEG5523 Electric Power Quality (Irregular)** The theory and analysis of electric power quality for commercial, industrial and residential power systems. Specific topics include harmonics, voltage sags, wiring and grounding, instrumentation, distributed generation and power electronic systems, and site surveys. Case studies complement the theoretical concepts. Prerequisite: ELEG 3303 or graduate standing.

**ELEG5533 Power Electronics and Motor Drives (Irregular)** V-1 characteristics of insulated Gate Bipolar Transistors (IGBTs) and MOS-controlled Thyristors (MCTs), design of driver and snubber circuits, induction-, permanent magnet-, and brushless dc-motor drives; and resonant inverters. Prerequisite: Graduate standing or (ELEG 3223 and ELEG 3303).

**ELEG5613 Introduction to Telecommunications (Irregular)** Overview of public and private telecommunication systems; traffic engineering; communications systems basics, information technology, electromagnetics, and data transmission. Prerequisite: ELEG Graduate Standing or ELEG 3133. (Same as CSCE 5613)

**ELEG5653 Artificial Neural Networks (Irregular)** Fundamentals of artificial neural networks, both theory and practice. Teaches basic concepts of both supervised and unsupervised learning, and how they are implemented using artificial neural networks. Topics include the perceptron, back propagation, the competitive Hamming net, self-organizing feature maps, topological considerations, requirements for effective generalization, subpattern analysis, etc. Prerequisite: MATH 3403.

**ELEG5663 Communication Theory (Irregular)** Principles of communications. Channels and digital modulation. Optimum receivers and algorithms in the AWGN and fading channels. Coherent, non-coherent detectors and matched filters. Bounds on the performance of communications, and comparison of communications systems. Background in stochastic processes and probabilities, communication systems is desirable. Prerequisite: Graduate standing. May be repeated for credit.

**ELEG5693 Wireless Communications (Irregular)** Comprehensive course in fast developing field of wireless mobile/cellular personal telecommunications. Topics include cellular system structures, mobile radio propagation channels, etc. Prerequisite: Graduate standing.

**ELEG5703 RF & Microwave Design (Irregular)** An introduction to microwave design principles. Transmission lines, passive devices, networks, impedance matching, filters, dividers, and hybrids will be discussed in detail. Active microwave devices will also be introduced. In addition, the applications of this technology as it relates to radar and communications systems will be reviewed. Selected topics for device fabrication and measurements will be covered. Cannot get credit if student has taken ELEG 4703. Prerequisite: ELEG 3704.

**ELEG5723 Advanced Microwave Design (Irregular)** This course is an advanced course in microwave design building on the introduction to microwave design course. A detailed discussion of active devices, biasing networks, mixers, detectors, Microwave Monolithic Integrated Circuits (MMIC), and wide-band matching networks will be provided. In addition, a number of advanced circuits will be analyzed. Prerequisite: ELEG 3704 and ELEG 4703 or ELEG 5703.

**ELEG5763 Advanced Electromagnetic Scattering & Transmission (Irregular)** Reflection and transmission of electromagnetic waves from a flat interface, the Poynting theorem, the complex and average power, the rectangular wave guides, TE and TM modes, radiation from antennas in free space and introduction to computational electromagnetics. Prerequisite: ELEG 3704.

**ELEG5773 Electronic Response of Biological Tissues (Irregular)** Understand the electric and magnetic response of biological tissues with particular reference to neural and cardiovascular systems. Passive and active forms of electric signals in cell communication. We will develop the central electrical mechanisms from the membrane channel to the organ, building on those that are common to many electrically active cells in the body. Analysis of Nernst equation, Goldman equation, linear cable theory, and Hodgkin-Huxley Model of action potential generation and propagation. High frequency response of tissues to microwave excitation, dielectric models for tissue behavior, Debye, Cole-Cole models. Role of bound and free water on tissue properties. Magnetic response of tissues. Experimental methods to measure tissue response. Applications to Electrocardiography & Electroencephalography, Microwave Medical Imaging, RF Ablation will be discussed. Students may not receive credit for both ELEG 4773 and ELEG 5773. Prerequisite: MATH 2584, ELEG 3704 or PHYS 3414, BIOL 2533 or equivalent. (Same as BENG 5283)

**ELEG5783 Introduction to Antennas (Irregular)** Basic antenna types: small dipoles, half wave dipoles, image theory, monopoles, small loop antennas. Antenna arrays: array factor, uniformly excited equally spaced arrays, pattern multiplication principles, nonuniformly excited arrays, phased arrays. Use of MATLAB programming and mathematical techniques for antenna analysis and design. Emphasis will be on using simulation to visualize variety of antenna radiation patterns. Students cannot get credit for ELEG 5783 if they have taken ELEG 4783. Prerequisite: ELEG 3704.

**ELEG5801 Written and Oral Communication (Sp, Su, Fa)** This course is designed to improve the oral presentations and technical writing of graduate students. Emphasis is placed on writing journal articles, theses and dissertations, and on giving oral presentations at conferences and job interviews. Each student delivers a 20 minute PowerPoint presentation to other students in the class. Prerequisite: Readiness to begin writing thesis

**ELEG587V Special Topics in Electrical Engineering (Irregular) (1-3)** Consideration of current electrical engineering topics not covered in other courses. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**ELEG588V Special Problems (Sp, Su, Fa) (1-6)** Opportunity for individual study of advanced subjects related to a graduate electrical engineering program to suit individual requirements. May be repeated for up to 6 hours of degree credit.

**ELEG5914 Advanced Digital Design (Irregular)** To master advanced logic design concepts, including the design and testing of synchronous and asynchronous combinational and sequential circuits using state of the art CAD tools. Students may not receive credit for both ELEG 5914 and ELEG/CSCE 4914. Corequisite: Lab component. Prerequisite: ELEG 2904 or CSCE 2114.

**ELEG5923 Introduction to Integrated Circuit Design (Fa)** Design and layout of large scale digital integrated circuits using CMOS technology. Topics include MOS devices and basic circuits, integrated circuit layout and fabrication, dynamic logic, circuit design, and layout strategies for large scale CMOS circuits. Students may not receive credit for both ELEG 4233 and ELEG 5923. Prerequisite: ELEG 3213 or ELEG 3933 and MATH 2584. (Same as CSCE 4333, ELEG 4233)

**ELEG5993 Mixed-signal Modeling and Simulation (Irregular)** Study of basic analog, digital & mixed signal simulation solution methods. Modeling with hardware description languages. Use of state-of-the-art simulators and HDLs. Students may not receive credit for both ELEG 4293 and ELEG 5993. Prerequisite: ELEG 3223.

**ELEG600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**ELEG6801 Graduate Seminar (Sp, Su, Fa)** Papers presented by candidates for the Doctor of Philosophy degree in electrical engineering on current research or design problems in the field of electrical engineering.

**ELEG700V Doctoral Dissertation (Sp, Su, Fa) (1-18)**

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Environmental Dynamics (ENDY)

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**ENDY5043 GIS Analysis and Modeling (Odd years, Sp)** Advanced raster topics are examined with a theoretical and methodological review of Tomlin's cartographic modeling principles.

Topics vary and include fourier methods, image processing, kriging, spatial statistics, principal components, fuzzy and regression modeling, and multi-criteria decision models. Several raster GIS programs are examined with links to statistical analysis software. Prerequisite: (ANTH 4553 or GEOG 4553) or instructor permission. (Same as ANTH 4653, GEOS 4653)

**ENDY5053 Quaternary Environments (Fa)** An interdisciplinary study of the Quaternary Period including dating methods, deposits soils, climates, tectonics and human adaptations. (Same as ANTH 5053, GEOS 5053)

**ENDY5063 Climate Through Time (Irregular)** The earth's climate history over the last 2 million years and the influence various factors have had on it; compilation and paleoclimatic histories and methods of dating climatic effects. Prerequisite: GEOG 4363 or equivalent. (Same as BIOL 5063, GEOS 5063)

**ENDY5113 Global Change (Sp)** Examines central issues of global change including natural and human induced climate change, air pollution, deforestation, desertification, wetland loss urbanization, and the biodiversity crisis. The U.S. Global Change Research Program is also examined. Prerequisite: Graduate standing. (Same as GEOG 5113)

**ENDY5153 Environmental Site Assessment (Irregular)** Principles, problems, and methods related to conducting an environmental site assessment. An applied course covering field site assessment, regulatory documentation, and report preparation. Prerequisite: GEOL 4033. (Same as GEOL 5153)

**ENDY5853 Environmental Isotope Geochemistry (Sp)** Introduction to principles of isotope fractionation and distribution in geological environments isotopic analytical methods, and extraction of isotope samples; application of isotopes in characterization of geologic processes and interaction with hydrologic, surficial, and biologic attenuation, paleothermometry soil and biochemical processes. Prerequisite: GEOL 5063 or GEOL 5263. (Same as GEOS 5853)

**ENDY6013 Environmental Dynamics (Fa)** Required course for ENDY doctoral candidates. Overview of Earth Systems: Lithosphere; Hydrosphere, Atmosphere, Biosphere, Cryosphere, and human interaction across Earth systems. Emphasis on understanding of processes within Earth systems and interactions across Earth Systems as they pertain to global self-regulation, secular variation, climate stability, development and sustainability of human societies. Prerequisite: Graduate standing.

**ENDY6023 Seminar in Environmental Dynamics (Irregular)** Seminar examining specific contemporary topic of topics in Environmental Dynamics. Topics will change with each offering. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ENDY602V Current Topics Seminar (Irregular) (1-2)** Various aspects of the environment will be explored through topic specific seminars. Subject matter will change each semester addressing current environmental issues and research. Seminars will be one or two hours credit. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ENDY6033 Society and Environment (Sp)** This course examines the complex interrelationships between human societies and the natural environment. Drawing on diverse and interdisciplinary perspectives in archaeology, ethnography, history, geography, and palaeo-environmental studies, readings and discussion will explore the co-production of social and environmental systems over time. (Same as ANTH 6033)

**ENDY689V Special Problems in Environmental Dynamics (Sp, Su, Fa) (1-6)** Independent study of a topic related to environmental dynamics under the guidance of an ENDY faculty member. May be repeated for up to 6 hours of degree credit.

**ENDY6991 Environmental Dynamics Colloquium (Sp, Fa)** Weekly meetings for discussion of current research in environmental dynamics. Graduate students must register for colloquium each semester. Colloquium credit does not count towards minimum hours required for the doctorate. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ENDY700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing. May be repeated for up to 18 hours of degree credit.

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English (ENGL)

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**ENGL0002 Basic Writing (Sp, Su, Fa)** A required course for entering freshmen with ACT English scores lower than 19 or SAT verbal scores lower than 470. These students must also enroll in ENGL 1013, Composition I, as a corequisite and successfully complete both courses to fulfill the remediation requirement. Credit earned in this course may not be applied to the total required for a degree. Corequisite: ENGL 1013.

**ENGL0013 Reading Strategies for College Students (Sp,**

**Su, Fa)** The course focuses on developing reading and learning skills and strategies essential for college success with frequent application to college textbooks in a variety of disciplines. University credit is earned, but the course does not count toward a degree. Required of students not meeting U of A reading placement standards.

**ENGL1013 Composition I (Sp, Su, Fa)** Required of all freshmen unless exempted by the Department of English. Prerequisite is an acceptable score on the English section of the ACT or on another approved test or ENGL 0003. Prerequisite: ENGL 0003 or an acceptable score on the English section of the ACT or another approved test.

**ENGL1013H Honors Composition I (Fa)** A course for freshmen with high placement scores.

**ENGL1023 Composition II (Sp, Su, Fa)** Continuation of ENGL 1013.

**ENGL1023 Technical Composition II (Sp, Su, Fa)** Technical Composition is a continuation of ENGL 1013, intended for Engineering students. Prerequisite: ENGR or WCOB major.

**ENGL1023H Honors Composition II (Sp)** Continuation of ENGL 1013H.

**ENGL1213 Introduction to Literature (Fa)** Approaches to reading and writing about fiction, drama, and poetry at the college level.

**ENGL2003 Advanced Composition (Sp, Su, Fa)** Review course in English composition. Exemption for this course may be granted for certain majors that require it by a grade of at least a "B" in ENGL 1013 and ENGL 1023 (or equivalent courses from an accredited institution), by achieving a score of 4 or 5 on the AP Language and Composition Examination and the AP Literature and Composition Examination, or by achieving a 6 HL or 7 HL on the IB Examination in English. Cannot be counted toward a major in English. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2013 Essay Writing (Sp, Su)** Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2023 Creative Writing I (Sp, Fa)** Beginning level workshop course in which students write original poems and stories. Reading and detailed discussion of poems and stories in anthologies is required. Designed to teach the student the fundamental techniques of fiction and poetry. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2173 Literacy in America (Odd years, Fa)** A course that examines the myriad definitions of literacy (and illiteracy) and their connections to issues of social class, occupational status, economic and political structures, educational institutions, cultural organizations, and the media.

**ENGL2303 Survey of English Literature from the Beginning through the 17th Century (Sp, Fa)** A critical and historical survey of the development of literature in the British Isles from its beginnings to the end of the seventeenth century. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2303C Survey of English Literature from the Beginning through the 17th Century (Fa)** A critical and historical survey of the development of literature in the British Isles from its beginnings to the end of the seventeenth century. Lecture and drill. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2313 Survey of English Literature from 1700 to 1900 (Sp, Fa)** A critical and historical survey of the development of literature in the British Isles from 1700 to 1900. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2323 Survey of Modern British, Irish, and Postcolonial Literature (Sp, Fa)** A survey of modern literature in English written in Great Britain, Ireland, Africa, Asia and the Caribbean. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2343 Survey of American Literature from the Colonial Period through Naturalism (Sp, Fa)** A survey of major American writers from the colonial period to 1900. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2353 Survey of Modern American Literature (Sp, Fa)** A survey of American writers after 1900. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL2413 Introductory Topics in English (Irregular)** Students will understand concepts and issues of theme, form, and motif in literary works about the designated topic. Students will improve in their abilities to read literary works carefully and critically and to write about literature correctly and cogently. Topics and content will vary from semester to semester.

**ENGL3013 Creative Writing II (Sp, Fa)** Laboratory course for students who wish to attempt original work in the various literary forms. Prerequisite: ENGL 2023 or equivalent.

**ENGL3053 Technical and Report Writing (Sp, Fa)** Intensive practice in such types of writing as processes, descriptions of mechanism, abstracts, and laboratory and research reports. The criteria for effective written exposition in the scientific areas, including agriculture and engineering. Prerequisite: ENGL

1013 and ENGL 1023 or equivalent.

**ENGL3113 Folklore (Irregular)** Popular literature (ballads, folktales, etc.). Prerequisite: Junior standing.

**ENGL3123 Folk and Popular Music Traditions (Irregular)** Introduction to folk and popular music studies. Emphasis on American traditions.

**ENGL3143 Language and Expressive Culture (Irregular)** This course explores the complex interrelationship of language, culture, and social identity. Verbal art and expressive culture are examined from a variety of anthropological perspectives. Topics include ethnographies of speaking, discourse analysis, cultural performances, and the performative aspects of oral expression. (Same as ANTH 3143, COMM 3143)

**ENGL3173 Introduction to Linguistics (Irregular)** Introduction to language study with stress upon modern linguistic theory and analysis. Data drawn from various languages reveal linguistic universals as well as phonological, syntactic, and semantic systems of individual languages. Related topics: language history, dialectology, language and its relation to culture and society, the history of linguistic scholarship. Prerequisite: Junior standing. (Same as ANTH 3173, COMM 3173, WLLC 3173)

**ENGL3203 Poetry (Sp, Fa)** A critical introduction to the genre.

**ENGL3213 Fiction (Sp, Fa)** A critical introduction to the genre.

**ENGL3223 Drama (Irregular)** A critical introduction to the genre.

**ENGL3263 African Americans in Film (Irregular)** A survey of the history of images of African Americans in film, especially as these images are examined in the context of stereotypical renditions and/or realistic representations of African American experiences. Issues of African American history, culture, and socio-political context will be addressed in the analyses of these films. Prerequisite: ENGL 1023 and advanced standing. (Same as AAST 3263, COMM 3263, JOUR 3263)

**ENGL3283 Topics in Popular Culture and Popular Genres (Irregular)** Survey of a broad topical area in popular culture and popular genres, such as science fiction or detective fiction. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3433 Introduction to Chaucer (Irregular)** Course designed primarily for undergraduates. Extensive reading in Chaucer's major works.

**ENGL3623 The Bible as Literature (Irregular)** The several translations of the Bible; its qualities as great literature; its influence upon literature in English; types of literary forms. (Same as WLIT 3623)

**ENGL3713 Topics in Medieval Literature and Culture (Irregular)** Study of the languages, literature and civilization of the British Isles from approximately 500-1500 CE (including Old English, Middle English, Celtic, Anglo-Norman and Scandinavian). Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3723 Topics in Renaissance Literature and Culture (Irregular)** The study of literary works of the English Renaissance, with attention to particular themes, genres, authors, literary movements, historical moments, or other organizing principles. Course content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3733 Topics in Restoration and Eighteenth-Century Literature (Irregular)** The study of Restoration and eighteenth-century literature, with attention to particular themes, genres, authors, literary movements, historical moments, or other organizing principles. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3743 Topics in 19th-Century British Literature and Culture (Irregular)** The study of literature of the 19th century, with attention to particular themes, genres, authors, literary movements, historical moments, or other organizing principles. Course content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3753 Topics in Modern British Literature (Irregular)** This course focuses on the literature and culture of a specific period of time within the twentieth century, or on more broadly conceived topics that might organize the century as a whole. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3763 Topics in Postcolonial Literature and Culture (Irregular)** Survey of a broad topical area related to postcolonial literature and culture. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3833 Topics in American Literature and Culture to 1900 (Irregular)** The study of American literature and culture to 1900, with attention to particular themes, genres, authors, or other organizing principles. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3843 Topics in Modern American Literature and Culture (Irregular)** The study of a special topic in the field of modern American literature and culture. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3853 Topics in African-American Literature and Culture (Irregular)** The study of works of African-American literature, with attention to particular themes, genres, authors, literary movements, historical moments, or other organizing principles. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3863 Topics in Literature and Culture of the American South (Irregular)** The study of works of literature of the American South, with attention to particular themes, genres, authors, literary movements, historical moments, or other organizing principles. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3903 Special Topics (Irregular)** Survey of a broad topical area related to literature and culture but not otherwise encompassed by the curriculum. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL3923H Honors Colloquium (Irregular)** Covers a special topic or issue. Offered as part of the honors program. Prerequisite: honor candidacy (not restricted to candidacy in English). May be repeated for credit.

**ENGL399VH Honors Course (Irregular) (1-6)** Prerequisite: junior standing. May be repeated for up to 12 hours of degree credit.

**ENGL4003 English Language and Composition for Teachers (Fa)** Subject matter and methods of approach for the teaching of composition in high school.

**ENGL4013 Undergraduate Poetry Workshop (Irregular)** Gives close attention to individual manuscripts in a workshop environment. Prerequisite: ENGL 3013 or equivalent.

**ENGL4023 Undergraduate Fiction Workshop (Irregular)** Gives close attention to individual manuscripts in a workshop environment. Prerequisite: ENGL 3013 or equivalent.

**ENGL4073 Film Writing Workshop (Irregular)** A workshop in writing the screenplay with close attention given to student manuscripts and adaptations. Prerequisite: Advanced standing.

**ENGL4113 Undergraduate Independent Study (Irregular)** Undergraduate original research and writing. Prerequisite: 'B' average and two-thirds (21 hours or regular requirements for English major completed). May be repeated for up to 3 hours of degree credit.

**ENGL4133 Writing Nature (Sp)** Study of writings about nature, both scientific and literary. Examination of the basis of each author's relationship with (and definition of) the natural world while examining the literary/aesthetic aspects of that experience. Prerequisite: ENGL 1023. May be repeated for up to 9 hours of degree credit.

**ENGL4133H Honors Writing Nature (Sp)** Study of writings about nature, both scientific and literary. Examination of the basis of each author's relationship with (and definition of) the natural world while examining the literary/aesthetic aspects of that experience. Prerequisite: ENGL 1023. May be repeated for up to 9 hours of degree credit.

**ENGL4143 American Film Survey (Irregular)** A survey of major American genres, major directors, and films that have influenced the development of motion pictures. (Same as COMM 4143)

**ENGL4213 Senior Research Seminar (Irregular)** Seminar on a topic in literature in English with a substantial research paper required. May be repeated for up to 3 hours of degree credit.

**ENGL4303 Introduction to Shakespeare (Sp, Su, Fa)** Extensive reading in Shakespeare's comedies, histories, tragedies, and nondramatic poetry.

**ENGL4503 Introduction to Literary Theory (Irregular)** A historical survey of literary theory from Plato onwards.

**ENGL4513 Studies in Literary Criticism and Theory (Irregular)** A survey of contemporary trends in literary criticism. Emphasis will be placed on engaging the practices of a particular theory. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL4533 Studies in Literature and Gender (Irregular)** The study of a special topic involving literature and gender. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL4563 Topics in Major Authors (Irregular)** The concentrated study of works by one or more major authors. At least one major paper will be required. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL4573 Studies in Major Literary Movements (Irregular)** This course focuses on the literature either of a major literary movement such as Romanticism or Modernism, or of a



more specific topic such as Utopianism in twentieth-century writing. Content varies. May be repeated for up to 9 hours of degree credit.

**ENGL4603 Special Studies (Irregular)** Concentrated study of a specific topical area related to literature and culture but not otherwise encompassed by the curriculum. Content varies. May be repeated for up to 3 hours of degree credit.

**ENGL4603H Honors Special Studies (Irregular)** Concentrated study of a specific topical area related to literature and culture but not otherwise encompassed by the curriculum. Content varies. May be repeated for credit.

**ENGL498V Senior Thesis (Irregular) (1-6)**

**ENGL5003 Composition Pedagogy (Fa)** Introduction to teaching college composition. Designed for graduate assistants at the University of Arkansas.

**ENGL5013 Creative Writing Workshop (Irregular)**

**ENGL5023 Writing Workshop: Fiction (Irregular)**

**ENGL5033 Writing Workshop: Poetry (Irregular)**

**ENGL5043 Translation Workshop (Irregular)** Problems of translation and the role of the translator as both scholar and creative writer; involves primarily the discussion in workshop of the translations of poetry, drama, and fiction done by the students, some emphasis upon comparative studies of existing translations of well-known works. Primary material will vary. Prerequisite: reading knowledge of a foreign language. (Same as WLLC 504V) May be repeated for up to 15 hours of degree credit.

**ENGL507V Creative Non-Fiction Workshop (Irregular) (1-3)** The theory and practice of the "New Journalism" with a study of its antecedents and special attention to the use of "fictional" techniques and narrator point of view to make more vivid the account of real people and real events.

**ENGL5083 Professing Literature (Irregular)** An introduction to the profession of literary scholarship and the teaching of literature at the college level.

**ENGL510V Readings in English and American Literature (Irregular) (1-6)** Open to Honors candidates and graduate students. May be repeated for credit.

**ENGL5173 Studies in Medieval Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5183 The Structure of Present English (Sp)** Structural analysis of the language.

**ENGL5203 Introduction to Graduate Studies (Irregular)** Students learn to carry out and report on literary research. Practical assignments introduce them to the reference collections, professional journals, and microform texts with which scholars work. Meanwhile, advanced explication and composition exercises work on perfecting the students' control over the design and style of the articles they write.

**ENGL5223 Studies in Renaissance Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5233 Craft of Translation: I (Irregular)** An examination of the principal challenges that confront translators of literature, including the recreation of style, dialect, ambiguities, and formal poetry; vertical translation; translation where multiple manuscripts exist; and the question of how literal a translation should be.

**ENGL5243 Special Topics (Irregular)** Designed to cover subject matter not offered in other courses. May be repeated for credit.

**ENGL5263 Craft of Fiction: I (Irregular)** Such aspects of the genre as scene, transition, character, and conflict. Discussion is limited to the novel.

**ENGL5273 Craft of Poetry: I (Irregular)** An examination of perception, diction, form, irony, resolution, and the critical theories of the major writers on poetry, such as Dryden, Coleridge, and Arnold.

**ENGL5283 Craft of Fiction: II (Irregular)** Second part of the study of the techniques of fiction. Discussion is limited to the short story. Prerequisite: ENGL 5263.

**ENGL5293 Craft of Poetry: II (Irregular)** Second part of the study of the techniques of poetry; independent study of a poet or a problem in writing or criticism of poetry. Prerequisite: ENGL 5273.

**ENGL5303 Seminar in Restoration and Eighteenth-Century British Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5313 Introduction to Literary Theory (Irregular)** An

advanced introductory survey of a number of theoretical approaches to literature.

**ENGL5403 Studies in Nineteenth-Century British Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5463 Descriptive Linguistics (Fa)** A scientific study of language with primary emphasis on modern linguistic theory and analysis. Topics include phonology, morphology, syntax, semantics, language acquisition, and historical development of world languages. (Same as ANTH 5473, COMM 5463, WLLC 5463)

**ENGL5603 World Literature and Culture in English (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5623 The Bible as Literature (Irregular)** The several translations of the Bible; its qualities as great literature; its influence upon literature in English; types of literary forms. (Same as WLIT 5623)

**ENGL5633 English Drama from Its Beginning to 1642 (Irregular)** Early forms, Tudor drama, Shakespeare's contemporaries, and Stuart drama to the closing of the theatres.

**ENGL5653 Shakespeare: Plays and Poems (Irregular)**

**ENGL569V Seminar in Film Studies (Irregular) (1-3)** Research, discussion; papers on a variety of film genres and areas including the new American film, the science-fiction film, directors, film comedy, the experimental film, criticism, the film musical. (Same as COMM 569V) May be repeated for up to 6 hours of degree credit.

**ENGL5703 Studies in American Literature and Culture Before 1900 (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5723 Studies in Literature and Culture of the American South (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5803 Studies in Twentieth-Century American Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5923 Film and Media Studies (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5933 Studies in Popular Culture and Popular Genres (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5943 Studies in Criticism and Literary Theory (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5953 Studies in Literary History (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL5973 Studies in Rhetoric and Composition (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6113 Seminar in Medieval Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6203 Seminar in Renaissance Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6243 Seminar in Special Topics (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6443 Seminar in Nineteenth-Century British Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6513 Seminar in Twentieth-Century British Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6613 Seminar in World Literature and Culture in English (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6713 Seminar in Restoration and Eighteenth-Century British Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6723 Seminar in American Literature and Culture**

**Before 1900 (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6733 Seminar in Literature and Culture of the American South (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6803 Seminar in Twentieth-Century American Literature and Culture (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6933 Seminar in Popular Culture and Popular Genres (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6943 Seminar in Literary Theory (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6953 Seminar in Literary History (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL6973 Seminar in Rhetoric and Composition (Irregular)** Subject matter changes depending on student interest and faculty expertise. May be repeated for up to 12 hours of degree credit.

**ENGL698V Master's Thesis (Sp, Su, Fa) (1-6)**

**ENGL699V Master of Fine Arts Thesis (Sp, Su, Fa) (1-6)**

**ENGL700V Doctoral Dissertation (Sp, Su, Fa) (1-18)**

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#### Environmental Science (ENSC)

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**ENSC1001L Environmental Science Laboratory (Fa)** Laboratory, field trip, and discussion sessions covering the concepts and information allowing students to critically evaluate environmental issues. Topics will include: laboratory safety, recycling, composting, geographic information systems, soil testing, water quality, hazardous wastes, waste disposal, wetlands, wastewater treatment, and sustainable food systems. Laboratory 2 hours/week. Prerequisite or Corequisite: ENSC 1003.

**ENSC1003 Environmental Science (Fa)** Series of lectures and discussions introducing the topic of environmental science including factors related to water, soil, and air quality. May not be taken for natural science credit by students in Fulbright College.

**ENSC3003 Introduction to Water Science (Sp)** Properties, occurrence, and description of the types, functions, quality and quantity, potential contaminants, uses, and guiding policies and regulations of the various water resources in the environment. Prerequisite: ENGL 1023 and ENSC 1003 or CHEM 1053 or higher or GEOL 1113 or higher or BIOL 1543.

**ENSC3103 Plants and Environmental Restoration (Odd years, Fa)** Selection, establishment, and use of plants to promote soil stabilization, water quality, and wildlife habitat. Principles and practices of managing plants for soil remediation, nutrient and sediment trapping, and restoration of plant communities. Prerequisite: CSES 1203 or HORT 2003 or BIOL 1613.

**ENSC3221L Ecosystems Assessment Laboratory (Even years, Fa)** The purpose of this laboratory is to complement concepts learned in lecture by carrying out experiments that familiarize students with methods used in soil and aquatic ecology. Students will collect samples, analyze and interpret data obtained from soil and water samples. Lab will meet once per week for 3 hours. Corequisite: ENSC 3223.

**ENSC3223 Ecosystems Assessment (Even years, Fa)** Application of ecological principles for ESWs majors and college students interested in environmental science. Applications of the basic ecological principles of organisms, populations, communities, and ecosystems to gain an appreciation for how large scale patterns in terrestrial and aquatic ecosystems are influenced by small scale interactions among individuals (microorganisms to invertebrate macrofauna) and between individuals and their local environment. Lecture 3 hours per week. Corequisite: ENSC 3221L. Prerequisite: BIOL 1543, CSES 2203, and ENSC 3003.

**ENSC3263 Environmental Soil and Water Conservation (Even years, Fa)** Effect of land use on water quality. Major sources of agricultural nonpoint pollutants. Best management practices used to minimize water quality impacts. Corequisite: Lab component. Prerequisite: CSES 2203.

**ENSC3413 Principles of Environmental Economics (Sp)** An introductory, issues-oriented course in the economics of the environment. What is involved in society making decisions about environmental quality will be studied. Environmental issues important to the State of Arkansas and the United States

will be emphasized. Prerequisite: AGECE 1103 or ECON 2023. (Same as AGECE 3413)

**ENSC3603 GIS for Environmental Science (Odd Years, Sp)** Provide instruction on the uses of GIS techniques in solving practical environmental and agricultural land use problems. Areas include: 1) an introduction to spatial variability in soils with an emphasis on the application of GIS techniques to map and understand spatial parameters important to different land uses, and 2) development of individual experience in the use of GIS in solving environmental and agricultural problems using an oral and written term project. Prerequisite: CSES 2203.

**ENSC3933 Environmental Ethics (Odd years, Sp)** The course addresses ethical questions about nature and the natural environment. Topics of discussion include anthropocentric and biocentric ethics, population control, obligations to future generations, animal rights, moral considerability, Leopold's land ethic, deep ecology, and ecofeminism. Lecture/discussions 3 hours per week. Prerequisite: ENSC 1003 or PHIL 2003 or PHIL 2103.

**ENSC400V Special Problems (Irregular) (1-3)** Work on special problems in environmental science or related fields. May be repeated for up to 8 hours of degree credit.

**ENSC4021L Water Quality Laboratory (Fa)** Field and laboratory experience in physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Laboratory experiments in water sampling, measurement of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc., and instrumentation. Prerequisite or Corequisite: ENSC 4023

**ENSC4023 Water Quality (Fa)** Physical, chemical, and biological characteristics of natural waters (rain, river, lake, soil, ground, etc.). Discussion of water quality parameters such as pH, alkalinity and acidity, redox, hardness, BOD, TSS, etc. Aquatic processes of pollutants and principles of modeling. Prerequisite: CHEM 1123/CHEM 1121L and BIOL 1543/1541L.

**ENSC4034 Analysis of Environmental Contaminants (Even years, Sp)** Methods of analysis for inorganic and organic contaminants, radionuclides and microorganisms in soil and water. Quality assurance and quality control, sampling protocols, sample handling, instrumentation and data analysis. Lecture 2 hours and laboratory 4 hours per week. Corequisite: Lab component. Prerequisite: CSES 2203 and ENSC 3003.

**ENSC404V Special Topics (Irregular) (1-3)** Studies of selected topics in environmental sciences not available in other courses. May be repeated for up to 12 hours of degree credit.

**ENSC4263 Environmental Soil Science (Even years, Sp)** Study of the behavior of pesticides, toxic organic compounds, metals, nutrients, and pathogenic microorganisms in the soil/plant/water continuum. Lecture 3 hours per week. Pre- or Corequisite: PHYS 2013/2011L. Prerequisite: CSES 3214.

**ENSC4401 Professional Certification Preparation (Sp)** This class is meant to reinforce concepts and skills already learned in other soil and environmental science and related courses and to provide the opportunity to prepare to take a national certification examination. If so chosen, students may pursue certification as soil or environmental science professionals. Prerequisite: Senior standing.

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#### Entomology (ENTO)

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**ENTO1023 Insects and People (Sp)** Appreciation of the insects and their roles in nature and in civilization for students not required to take ENTO 3013. Biological, historical, social economic, cultural, and medical aspects of insects are discussed. Emphasizes appreciation of entomology and employs many visual aids. Lecture 3 hours per week.

**ENTO1031L Field and Laboratory Studies in Entomology (Sp)** A systematic survey and identification of insects and other arthropods occurring in woodland, aquatic and agricultural environments with emphasis on identification and observation of insects in their natural settings. Laboratory 2 hours per week. Corequisite: ENTO 1023.

**ENTO3011L Introduction to Insect Identification Lab (Fa)** Introductory lab course on insect identification, collection, and curation techniques, primarily designed as an intensive add-on to ENTO 3013 for students wanting a more in-depth examination of insect diversity. Insect collection required. Course includes field trips. Students are encouraged to contact instructor before enrolling. Pre- or Corequisite: ENTO 3013. (Same as BIOL 3011L)

**ENTO3013 Introduction to Entomology (Fa)** Fundamentals of insect biology including structure and function, development, ecology, behavior, plant feeding and disease transmission. Lecture 3 hours/week. Students interested in a more intensive examination of insects, including collection, curation, and identification techniques, should sign up for the separate

one credit lab ENTO 3011L. Suggested prerequisite: BIOL 1543. (Same as BIOL 3013)

**ENTO400V Special Problems (Sp, Su, Fa) (1-4)**

**ENTO4013 Insect Behavior and Chemical Ecology (Even years, Sp)** Basic concepts in insect senses and patterns of behavioral responses to various environmental stimuli. Previous knowledge of basic entomology is helpful, but not required. Lecture 2 hours, laboratory/discussion 2 hours per week. Corequisite: Lab component (Same as BIOL 4013)

**ENTO4024 Insect Diversity and Taxonomy (Even years, Fa)** Principles and practices of insect classification and identification with emphasis on adult insects. Corequisite: Lab component. Prerequisite: ENTO 3013. (Same as BIOL 4024)

**ENTO4043 Apiculture (Odd years, Sp)** Review of social behavior of insects and its exemplification in Honeybees. Previous knowledge of basic entomology is helpful but not required. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component.

**ENTO4053 Insect Ecology (Even years, Fa)** To develop understanding of important ecological concepts through study of dynamic relationships among insects and their environment. To become familiar with the literature of insect ecology, and interpretation and critique of ecological research. Previous knowledge of basic entomology and/or ecology will be assumed. Corequisite: Lab component. (Same as BIOL 4053)

**ENTO410V Special Topics (Irregular) (1-3)** Special Topics course available to both undergraduate and graduate students, to address emerging issues and timely topics. This would supplement our graduate-only special topics course. May be repeated for credit.

**ENTO4123 Insect Pest Management (Odd years, Sp)** Study of principles and concept of insect pest management. Areas covered include survey of arthropod pests and damage, population dynamics, damage thresholds, physiological units, prediction models, surveillance, arthropod sampling, strategies and tactics utilized to maintain pest populations below economic injury levels. Prerequisite: ENTO 3013.

**ENTO4133 Advanced Applied Entomology (Even years, Sp)** Biology and ecology of major arthropod pests as model applied management systems. Activities include independent study, literature review and group discussions. Knowledge of general entomology and pest management is required. Self-learning modules are available. Lecture 2 hours/week and direct self-study laboratory 2 hours/week. Corequisite: Lab component. Prerequisite: ENTO 3013.

**ENTO462V Internship (Irregular) (3-6)** Supervised practical work experience in pest management to develop and demonstrate professional competence. A maximum of 6 hours credit per semester or summer session is permitted. Faculty approval of projects proposal prior to enrollment, and written or oral reports are required.

**ENTO500V Special Problems (Sp, Su, Fa) (1-4)** Prerequisite: graduate standing. May be repeated for up to 4 hours of degree credit.

**ENTO5013 Morphology of Insects (Odd years, Fa)** Origin, evolution, and functional significance of external insect structure. Structure and function of major internal systems. Previous knowledge of basic entomology is helpful, but not required. Lecture 2 hours, laboratory 4 hours per week. Corequisite: Lab component.

**ENTO511V Special Topics (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of specific topics in entomology. Prerequisite: graduate standing. May be repeated for credit.

**ENTO5123 Biological Control (Even years, Fa)** Theoretical and practical basis for biological control of arthropod pests and weeds via parasites, predators, and pathogens. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component.

**ENTO5133 Applied Molecular Genetics (Even years, Sp)** A hands on course in applied molecular genetic techniques used in agricultural research including molecular diagnostics and population genetics. Students will learn how to apply advanced molecular genetic methodologies and Internet database resources to the organism that they are using for their graduate research. Prerequisite: ANSC 3123. (Same as BIOL 5133)

**ENTO600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: graduate standing.

**ENTO6071 Seminar (Sp, Fa)** Fall: special topics not covered in regular course work. Spring: critical review of research papers in entomology. Seminar will be taken by graduate student majors for both semesters. May be repeated for up to 6 hours of degree credit.

**ENTO6113 Insect Physiology and Molecular Biology (Even years, Sp)** Overview of insect physiology and modern molecular techniques to study physiological processes. Previous

knowledge of basic entomology is helpful, but not required. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. (Same as BIOL 6113)

**ENTO6213 Insect Toxicology (Odd years, Fa)** Toxicology of chemicals to insects and humans including techniques of testing collecting data, and factors that influence reactions to different classes of insecticides. Previous knowledge of organic physiological chemistry is helpful, but not required. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component.

**ENTO700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: graduate standing.

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#### Educational Statistics and Research Methods (ESRM)

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**ESRM5013 Research Methods in Education (Sp, Su, Fa)** General orientation course which considers the nature of research problems in education and the techniques used by investigators in solving those problems. Prerequisite: graduate standing.

**ESRM5393 Statistics in Education and Health Professions (Sp, Su, Fa)** Applied statistics course for Master's degree candidates. Includes concepts and operations for frequency distributions, graphing techniques, measures of central tendency and variation, sampling, hypothesis testing, and interpretation of statistical results.

**ESRM5653 Educational Assessment (Irregular)** Introduction to measurement issues and basic test theory. Focus on types and usage of assessment tools, data management, and analysis and interpretation of educational data. Practical training in the utilization and interpretation of academic achievement data in Arkansas.

**ESRM599V Seminar (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

**ESRM600V Master's Thesis (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**ESRM605V Independent Study (Sp, Su, Fa) (1-6)**

**ESRM6403 Educational Statistics and Data Processing (Sp, Su, Fa)** Theory and application of frequency distributions, graphical methods, central tendency, variability, simple regression and correlation indexes, chi-square, sampling, and parameter estimation, and hypothesis testing. Use of the computer for the organization, reduction, and analysis of data (required of doctoral candidates). Prerequisite: ESRM 5013 or equivalent.

**ESRM6413 Experimental Design in Education (Sp)** Principles of experimental design as applied to educational situations. Special emphasis on analysis of variance techniques used in educational research. Prerequisite: ESRM 6403 or equivalent.

**ESRM6423 Multiple Regression Techniques for Education (Fa)** Introduction to multiple regression procedures for analyzing data as applied in educational settings, including multicollinearity, dummy variables, analysis of covariance, curvilinear regression, and path analysis. Prerequisite: ESRM 6403.

**ESRM6453 Applied Multivariate Statistics (Sp)** Multivariate statistical procedures as applied to educational research settings including discriminant analysis, principal components analysis, factor analysis, canonical correlation, and cluster analysis. Emphasis on use of existing computer statistical packages. Prerequisite: ESRM 6413.

**ESRM6513 Advanced Experimental Design (Irregular)** Advanced topics of the general linear model, including hierarchical linear modeling and longitudinal analysis with a focus on developing the mathematical and theoretical basis for these methods. Prerequisite: ESRM 6413.

**ESRM6523 Advanced Multiple Regression (Irregular)** Advanced topics of correlational research methods, including logistic regression and path analysis with a focus on developing the mathematical and theoretical basis for these advanced methodological designs. Prerequisite: ESRM 6423.

**ESRM6533 Qualitative Research (Sp, Fa)** Introduction of non-quantitative methods, including data collection through interviews, field observation, records research, internal and external validity problems in qualitative research. Prerequisite: ESRM 6403.

**ESRM6543 Advanced Qualitative Research (Sp)** Preparation for the conduct of qualitative research, structuring, literature reviews, data collection and analysis, and reporting results. Prerequisite: ESRM 6533. May be repeated for up to 6 hours of degree credit.

**ESRM6553 Advanced Multivariate Statistics (Irregular)** Builds on the foundation provided in Multivariate and introduces techniques that extend methodological elements of canonical, discriminant, factor analytic, and longitudinal analyses, providing the mathematical and theoretical foundations neces-

sary for these designs. Prerequisite: ESRM 6453.

**ESRM6613 Evaluation of Policies, Programs, and Projects (Fa)** Introduction to evaluation in social science research, including why and how evaluations of programs, projects, and policies are conducted; includes analysis of actual evaluations in a variety of disciplines. Prerequisite: ESRM 6403. (Same as EDRE 6213)

**ESRM6623 Techniques of Research in Education (Sp, Su)** Use of scientific method in attacking educational problems. Emphasis placed on the planning and design of research studies, collection of reliable and valid data, sampling methods, and analysis and interpretation of data. Prerequisite: ESRM 6403.

**ESRM6633 Survey Research Methods (Even years, Sp)** The course addresses all phases of conducting a survey research study, including conceptualization, sample selection, instrument development, and analysis and reporting of findings. Prerequisite: ESRM 6403.

**ESRM6653 Measurement and Evaluation (Irregular)** Fundamentals of measurement: scales, scores, norms, reliability, validity. Test and scale construction and item analysis. Standardized measures and program evaluation models in decision making. Prerequisite: ESRM 6403.

**ESRM668V Practicum in Research (Irregular) (1-6)** Practical experience in educational research on campus, in school systems, or in other agencies in educational program development.

**ESRM6753 Advanced Measurement (Odd years, Sp)** Topics of measurement in the psychometric field focusing on modern test theory; item level and test level analyses including differential item functioning, test dimensionality, item response theory; computer adaptive testing, equating, and general evaluation and usage of measurement instruments. Prerequisite: ESRM 6653.

**ESRM699V Seminar (Irregular) (1-6)** Prerequisite: advanced graduate standing. May be repeated for up to 6 hours of degree credit.

**ESRM700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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#### Educational Technology (ETEC)

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**ETEC5203 Foundations of Educational Technology (Sp, Su, Fa)** Provides learners with a comprehensive survey of the major trends, issues, people, processes, and products that have significantly affected the evolution of the field of educational technology.

**ETEC5213 Introduction to Educational Media (Sp, Su, Fa)** Instruction in selecting, utilizing and evaluating instructional materials and equipment. Prerequisite: Graduate standing.

**ETEC5243 Instructional Design Theory & Models (Fa)** A study of the instructional development process as it pertains to the design and production of instructional materials which use modern technologies. Goal analysis, objectives, evaluation, instructional strategy development, production of an educational product, and revision of the instructional materials are considered. Prerequisite: Graduate standing.

**ETEC5253 Information Technologies (Irregular)** Students perform intensive examinations of the role of new technologies and their implications for instructional practice. Emphasis is on identification and evaluation of new technologies in instructional environments. Establishing and maintaining learning environments, exploring selected theories and concepts, assessing potential uses of IT, and utilization of new technologies will occur.

**ETEC5263 Grant Writing in Instructional Technology (Sp, Su, Fa)** Students will have an opportunity to find grant funding sources, write a grant, and submit an actual grant proposal to an agency for consideration. Will survey research in instructional media over the past 60 years and learn specific criteria for reading and evaluating research reports and articles. Will investigate current issues and topics related to research and grant writing in instructional media.

**ETEC5283 Field Experiences in Educational Technology (Sp, Su, Fa)** Field experience in educational technology settings. Prerequisite: Graduate standing and 6 hours of graduate work in educational technology.

**ETEC5303 Learning with Computers in K-12 Classrooms (Irregular)** Students learn how technology can be used to support K-12 classroom environments. Various learning theories and technologies will be explored and projects will be developed that utilize technologies and current learning theories in K-12 settings. Emphasis is on identification, evaluation, and the effective use of technologies to support classroom environments. Prerequisite: Graduate standing.

**ETEC5313 Principles in Visual Literacy (Irregular)** Stu-

dents gain understanding of visual literacy research and learn to create graphics that support learning. Literature in the area of visual literacy and learning theories as well as tools that facilitate effective visual literacy will be used to create visuals that are clear, communicate well, and help enhance learner performance.

**ETEC5373 Web Design (Irregular)** Students design, create, and analyze Web sites by applying processes, standards and techniques used to identify target audience; ensure compliance with copyright and disability laws, measure effectiveness, and coordinate Web design. Topics include copyright and fair use, user and task analysis, usability, accessibility, testing, search engine optimization, and web analytics. May be repeated for up to 3 hours of degree credit.

**ETEC5743 Internship (Sp, Su, Fa)** A supervised field placement in educational technology that provides experience consistent with the student's professional goals and training emphasis. Internship experiences are planning and directed under the guidance of a faculty member. On-campus and on-site supervision is required. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ETEC5981 Eportfolio Production (Sp, Su, Fa)** This is a capstone course designed to: 1) review key constructs presented within the Educational Technology curriculum; 2) provide ETEC students the opportunity for reflection relative to his/her learning of the key concepts; and 3) utilize technology to assemble student-created artifacts that demonstrate mastery of the key concepts. Prerequisite: Must be in last semester of coursework.

**ETEC5993 Seminar (Irregular)** This course is designed to enhance the established educational technology curriculum by providing students with special topic content and classroom experiences under the guidance of a faculty member. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ETEC600V Master's Thesis (Sp, Su, Fa) (1-6)**

**ETEC6053 Special Problems in Educational Technology (Sp, Su, Fa)** Individually designed and conducted studies of educational technology under the guidance of a faculty member. Negotiated learning contract with supervising faculty required before enrollment. On-campus supervision required. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ETEC6223 Strategic Planning and IDT Programs (Sp, Su, Fa)** The course offers readings and experiences intended to develop strategic planning knowledge, values, attitudes, and skills in future instructional design and technology leaders. Topics covered include strategic planning and leadership.

**ETEC6243 Advanced Instructional Design (Sp)** This course explores advanced topics in instructional design to facilitate understanding of grounded models, advanced theories, and research. This course focuses on: 1) design and development of contextualized technology-supported learning environments; 2) analysis and application of advanced theoretical foundations of design; and 3) examination and critique of instructional design research. Prerequisite: ETEC 5243 or equivalent.

**ETEC6253 Distance Learning (Irregular)** An intensive examination of the role of telecommunications and distance education technologies and their implications for educational practices. Emphasis is on techniques of development, utilization and evaluation of telecommunication and distance education technologies in classroom environments. Prerequisite: ETEC 5213.

**ETEC6393 Issues and Trends in Instructional Design and Technology (Irregular)** Critical challenges posed as a result of the increasing infusion of technology into the school and training environments are explored. The course prepares students to make and defend policy decisions and become conversant with current trends and issues in the field. Prerequisite: ETEC 5213.

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#### European Studies (EUST)

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**EUST2013 Introduction to Europe (Fa)** This course will cover the basic physical and human geography of Europe, emphasizing the factors that tie Europe together as well as the diversity of environmental and cultural conditions in the region. The class will focus particularly on those countries that are current members of the EU and on possible future entrants.

**EUST399VH Honors Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**EUST4003 European Studies Colloquium (Sp)** An interdepartmental colloquium with an annual change in subject of investigation, required of students in the European studies

program. Prerequisite: Sophomore standing. May be repeated for up to 6 hours of degree credit.

**EUST4003H Honors European Studies Colloquium (Sp)** May be repeated for up to 3 hours of degree credit.

**EUST470V Special Topics (Irregular) (1-6)** An examination of pertinent issues in Europe. May be repeated for credit.

**EUST470VH Honors Special Topics (Irregular) (1-6)** An examination of pertinent issues in Europe. May be repeated for credit.

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#### Extension Education (EXED)

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**EXED3023 An Introduction to the Cooperative Extension Service (Irregular)** Development of the Extension Service as a part of the Land-Grant College system; organization, personnel and functions of the Extension Service in agriculture and human environmental sciences. Prerequisite: Junior standing.

**EXED4173 Principles of Extension Teaching (Irregular)** An understanding of the principles of teaching and learning, selection, and use of teaching methods and materials with emphasis on the role of extension as a part of the community education system. Prerequisite: EXED 3023 and PSYC 2003.

**EXED4183 Management of Volunteer Programs (Irregular)** Recruiting, training, management, evaluation, and recognition of volunteers in agricultural-related agencies, non-profit organizations, community groups, and advisory committees. Prerequisite: Junior standing.

**EXED475V Internship in Extension (Sp, Su, Fa) (3-6)** A supervised practical work experience in Cooperative Extension which is designed to give the student an insight into the role of Extension employees and an opportunity to gain professional competence in this area. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**EXED5113 Program Development and Evaluation (Irregular)** Principles and proceedings of program development process including planning, designing, implementing, and evaluating of extension education programs. An emphasis on the framework for applying adult and non-formal education principles to the change process. Prerequisite: EXED 3023.

**EXED5133 Extension Organization and Administration (Irregular)** Program and personnel administration for planning and management of county extension programs. Emphasis will be given to organization, structures, principles, and theories of administration, personnel management, training and evaluation. Prerequisite: Graduate standing.

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#### Food Science (FDSC)

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**FDSC1011 Food Science Orientation (Fa)** Introduces food science as a unique program offering exciting career opportunities. This course emphasizes the importance of science in processing and preservation of food and discusses current topics and issues. Provides sound, basic information on food constituents, additives, labeling, environmental issues, food regulations, and food safety. Lecture 2 hours per week for 8 weeks.

**FDSC1103 Introduction to Food Science (Sp)** This course is designed to provide students with a general application and understanding of current issues associated with food products and food ingredients. Discussions will focus on controversial subjects involving food products, food additives, food safety and preservation techniques based on scientific principles and popular belief. Lecture/discussions/demonstrations, 3 hours per week.

**FDSC2503 Food Safety and Sanitation (Fa)** Principles of sanitation, cleaners and sanitizers, sanitary equipment and plant design, and microbial growth and control in food processing operations. Lecture/discussion/demonstrations, 3 hours per week.

**FDSC2523 Sanitation and Safety in Food Processing Operations (Irregular)** Topics to be covered include understanding and control of microbial, chemical, and physical food hazards as well as emerging food safety issues. Course will include a study of cleaners and sanitizers and sanitary equipment and plant designs. Bioterrorism and food safety will also be discussed. Web-based course.

**FDSC3103 Principles of Food Processing (Even years, Fa)** The course is designed as an overview of the unit; food processing operations common to all types of food processing plants. Examples will be drawn from international food processing operations processing fruits and vegetables, poultry and meats, and oil seeds and cereal grains. Emphasis on oral communication and critical thinking skills. Corequisite: Lab component. Prerequisite: CHEM 1123 and CHEM 1121L and (MATH 2043 or MATH 2554).

**FDSC3202 Introduction to Food Law (Even years, Sp)** Discussion of government laws and regulations affecting the

manufacture of food. Emphasis is on federal regulations relating to food safety, labeling, and the FDA. Discussion relates to practical use of food law. Lecture 2 hours per week.

**FDSC400V Special Problems (Sp, Su, Fa) (1-4)** Investigation of assigned problems in food science. Prerequisite: Junior standing.

**FDSC4114 Food Analysis (Even years, Sp)** Methods of analysis, instrumentation, and laboratory techniques for measuring the chemical composition of raw and value-added products. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CHEM 1123 and CHEM 1121L and CHEM 2613 and CHEM 2611L or (CHEM 3603 and CHEM 3601L).

**FDSC4121L Food Microbiology Lab (Sp)** A hands-on laboratory course designed to teach students microbiological techniques and certain enumeration and plating techniques of specific food spoilage and pathogenic bacteria. Pre- or Corequisite: FDSC 4123.

**FDSC4123 Food Microbiology (Sp)** The study of food microbiology including classification/ taxonomy, contamination, preservation and spoilage of different kinds of foods, pathogenic microorganisms, food poisoning, sanitation, control and inspection and beneficial uses of microorganisms. Prerequisite: BIOL 2013 and 2011L or BIOL 2533. (Same as BIOL 4123)

**FDSC4203 Quality Evaluation and Control (Even years, Fa)** Definition of grades and standards of quality by chemical, physical, and sensory techniques. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: CHEM 1123 and CHEM 1121L.

**FDSC4304 Food Chemistry (Odd years, Fa)** Water, carbohydrates, lipids, proteins, vitamins, and minerals in foods; biochemical and functional properties, enzymes, food additives (emulsifiers, pigments, colors, flavors, preservatives, and sweeteners) and texture as related to properties in food systems and during processing. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: CHEM 1123 and CHEM 1121L and CHEM 2613 and CHEM 2611L or (CHEM 3603 and CHEM 3601L).

**FDSC431V Internship in Food Science (Sp, Su, Fa) (1-4)** The Food Science Internship is a supervised practical work experience with a food industry, research program or governmental agency to gain professional experience and insight into career opportunities. A maximum of 4 hours credit is allowed for degree credit. Prerequisite: Junior standing and consent. For graduate credit, completion of first year of graduate studies and consent of major professor.

**FDSC4413 Sensory Evaluation of Food (Odd years, Fa)** Principles and procedures for sensory evaluation of food. Appropriate uses of specific tests are discussed, along with physiological, psychological, and environmental factors affecting sensory verdicts. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: STAT 2303 or WCOB 1033 or AGST 4023 or STAT 2023 or PSYC 2013.

**FDSC4713 Food Product and Process Development (Odd years, Sp)** Multidisciplinary approaches for developing new food products and processes; in the context of an industry-sponsored project. Group dynamics and interpersonal skills. Factors that influence product and process development. Analysis and modeling applied to food process design. Lecture 2 hours and laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: COMM 1313 and BIOL 2013 and BIOL 2011L, junior standing, Food Science majors only or consent.

**FDSC4754 Engineering Principles of Food Processing (Odd years, Sp)** Basic mechanics of refrigeration, temperature controls, materials handling and mechanical problems as applied to foods and food processing. Lecture 3 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: MATH 1213, PHYS 2013, and PHYS 2011L.

**FDSC4823 Principles of Food Microbiology (Irregular)** This web-based course is a study of the fundamentals of food microbiology to include its history, classifications, spores and their importance, and the most common and serious pathogenic food microorganisms. Fermentation, spoilage microorganisms and control methodology are also discussed.

**FDSC5001 Seminar (Sp, Fa)** Presentation and discussion of graduate student research. Prerequisite: Graduate standing.

**FDSC509V Special Problems Research (Sp, Su, Fa) (1-4)** Original investigation on assigned problems in food science. Prerequisite: Graduate standing.

**FDSC5223 Food Biosecurity (Irregular)** This course is the study of the security of agricultural products and the protection of our food supply from intentional and accidental, domestic and international contamination. Prerequisite: Graduate standing.

**FDSC5503 Safety and Sanitation for the Food Industry (Irregular)**

This web-based course will provide an appreciation of the need for sanitation in food processing and increase the students' knowledge of sanitary techniques. Topics will include contamination sources, plant and equipment design, cleaners and sanitizers, HACCP, and food biosecurity. Also covered will be considerations in selecting, establishing and maintaining a sanitation program. Prerequisite: General Microbiology or Food Microbiology; General Chemistry.

**FDSC600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**FDSC602V Special Topics (Irregular) (1-3)** Discussions focused on selected topics of particular fields of raw product physiology and food processing. chemistry, physiology, microbiology, evaluation, sensory analysis and preservation. Prerequisite: Graduate standing. May be repeated for credit.

**FDSC6033 Food Biochemistry (Even years, Sp)** Biochemical characteristics, functions, regulation and impact of components in raw and processed foods of plant origin. Lecture/discussion 3 hours per week. Prerequisite: CHEM 3813.

**FDSC6123 Food Carbohydrate Chemistry (Odd years, Sp)** Focus is on carbohydrate chemistry including molecular structures and physical properties, production and food applications, analytical methods for food carbohydrates, and interactions among food polysaccharides. Prerequisite: FDSC 4304.

**FDSC6133 Food Lipid Chemistry (Even years, Fa)** Chemistry and technology of commercial fats and oils in food systems with discussion of lipid changes affecting food quality and human health. Prerequisite: FDSC 4304.

**FDSC6143 Advanced Food Processing and Packaging and their Environmental Impact (Sp)** The course is directed to graduate students in food science and related fields. Students will learn advanced food processing technologies and packaging as well as the environmental issues associated to food production, processing, and distribution. Prerequisite: FDSC 3103 or equivalent, or food processing/engineering background with knowledge of basic food processing operations.

**FDSC6323 Nutraceuticals and Functional Foods (Even years, Sp)** Course will include past, present and future of nutraceuticals and functional foods, chemistry, mechanism, novel technologies, nutrigenomics, processing, healthy lifestyle, regulation, safety, marketing, international aspects, and industry project. Prerequisite: CHEM 2613 (or CHEM 3603 and CHEM 3813 and FDSC 4304 or instructor consent).

**FDSC6333 Food Protein Chemistry and Functionality (Odd years, Sp)** This course is a study in advanced food protein chemistry, including molecular structures, characterization, physicochemical bases of food protein functionality, structure-function relationship, processing technologies to improve functionality, as well as hands-on experiences with timely, practical projects related to food proteins. Lecture and problem solving projects for 3 hours per week. Pre- or corequisite: FDSC 4304.

**FDSC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** The doctoral program in food science is an interdepartmental program offered by the departments of Food Science, Animal and Poultry Sciences, and Human Environmental Sciences. Prerequisite: Graduate standing.

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Finance (FINN)

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**FINN1003 Your Money and Credit (Sp, Su, Fa)** Introduction to personal finance. Topics include building wealth, do's and don'ts of credit, car and home ownership. Lectures on theory and concepts; 'learning from the masters' video on best practices; and financial simulations and case exercises.

**FINN3003 Personal Financial Management (Sp, Fa)** Topics covered include budgeting, financial planning, managing credit, taxes, insurance, investments, and retirement planning.

**FINN3013 Financial Analysis (Sp, Su, Fa)** Focuses on how information contained in financial statements can be used in financial decision-making; in particular, to assess financial performance, evaluate credit and default risk, forecast future funds needs, weigh the risk-reward of debt vs. equity financing, and develop estimates of intrinsic value using relative valuation metrics and discounted cash flow methods. Prerequisite: WCOB 2043

**FINN3053 Financial Markets and Institutions (Sp, Su, Fa)** Role and operations of financial markets and institutions in the economy. Supply of, demand for, funds, interest rates and flow of funds analysis. Financial policies, practices of bank and nonbank financial institutions. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**FINN3063 Investments (Sp, Su, Fa)** Introduction to basic investment concepts including: risk-return and mean-variance efficient frontiers, diversification and the pricing of risk, security valuation. Prerequisite: WCOB 2043 and FINN 3013.

**FINN3103 Financial Modeling (Sp, Su, Fa)** Develop strong

computer skills in financial analysis by integrating conceptual material with spreadsheet-based numerical solution and simulation techniques. Prerequisite: WCOB 2043.

**FINN3133 Commercial Banking (Sp, Fa)** Commercial bank administration, management; loans; bond portfolios; credit analysis; public relations; analysis and interpretations of Federal Reserve regulations and publications. Prerequisite: WCOB 2043.

**FINN3603 Corporate Finance (Sp, Su, Fa)** Develop analytical competencies in financial planning, cost of capital estimation, application of discounted cash flow approach to valuation and capital allocation, lease analysis, evaluation of merger and organizational restructuring strategies. Prerequisite: WCOB 2043 and FINN 3013.

**FINN3623 Risk Management (Sp, Fa)** A survey of the extent and types of risk in business; ways of dealing with business risk; use of security and commodity exchanges; survey of insurance for risk bearing purposes.

**FINN3703 International Finance (Sp, Su, Fa)** Introduction to international financial markets, exchange rates and exchange rate determination, balance of trade measures, and vehicles for foreign trade financing.

**FINN3933 Real Estate Principles (Sp, Fa)** Comprehensive, covering economics of real estate, real estate value, real estate finance, rights in real property and their transfer, public programs, policies relating to real property.

**FINN4003H Honors Finance Colloquium (Fa)** Explores important concepts, significant events and/or new developments in the field of Finance. Prerequisite: Senior standing.

**FINN4013 Seminar in Personal Financial Planning (Sp)** Explores financial planning function, including contact, data acquisition, plan development and implementation; covers all areas of personal financial planning including investments, insurance, taxes, and estate planning; addresses planning techniques and financial planning ethical issues; emphasis on case studies. Pre- or Corequisite: FINN 4733. Prerequisite: FINN 3003, FINN 3063, FINN 3623, and ACCT 3843.

**FINN410V Special Topics in Finance (Irregular) (1-6)** Explore current events, new developments and special topics in Finance not covered in other courses. Prerequisite: FINN 3013. May be repeated for up to 6 hours of degree credit.

**FINN4133 Advanced Investments (Sp, Fa)** Sound training in the principles of security analysis and portfolio management and certain advanced techniques of financial management. Modern portfolio theory and its application to portfolio management practices will be emphasized. Prerequisite: FINN 3063.

**FINN4143 Portfolio Management I (Fa)** This course applies modern investment theory to the practical management of the Rebsament Trust. Students prepare a statement of investment objectives, recommend an asset allocation strategy based on a quantitative analysis of asset class returns, and select securities using fundamental analysis. Classes are organized as management meetings and visits to investment firms are an important part of the class. Selection is by invitation. Corequisite: ACCT 3723. Prerequisite: FINN 3063 and by invitation only.

**FINN4153 Portfolio Management II (Sp)** This course is a continuation of FINN 4143. Topics covered include technical analysis, dynamic asset allocation and derivative strategies. Visits to major investments firms and organized exchanges in New York City or other locations are generally planned. Selection is by invitation. Prerequisite: FINN 4143 and by invitation only.

**FINN4163 Fixed Income Securities I (Fa)** The markets and institutional settings of fixed income securities; valuation and risk analysis of money market and capital market instruments; strategies and management of bond portfolios; taxable and tax-exempt securities; U.S. and non-U.S. fixed income securities; term structure of interest rate; and interest rate derivatives as hedging tools. Prerequisite: FINN 3013 and FINN 3063.

**FINN4173 Fixed Income Securities II (Sp)** Continuation of FINN 4163. The markets and institutional settings of fixed income securities; valuation, and risk analysis of money market and capital market instruments; strategies and management of bond portfolios; taxable and tax-exempt securities; U.S. and non-U.S. fixed income securities; term structure of interest rate; and interest rate derivatives as hedging tools. Prerequisite: FINN 4163.

**FINN4233 Advanced Corporate Finance (Irregular)** Addresses complex and multifaceted issues and problems in financial decision-making. Prerequisite: FINN 3603.

**FINN4313 Advanced Commercial Banking (Sp)** Problems and cases emphasizing application of analytical tools and techniques in decision making process. Determination of operating policies regarding loans, investments, liquidity, capital; efficient performance of lending, investment function; profit

planning, analysis; strategies of growth, competition; and evaluation of bank performance. Prerequisite: FINN 3133.

**FINN4413 Real Estate Appraisal (Fa)** Valuation theories applied to real estate. Characteristics which affect value are studied and valuation methodologies are learned and performed by the students. Focus is on residential real estate but all types of real estate are addressed. Students prepare in actual residential appraisal report. Prerequisite: FINN 3933.

**FINN4433 Real Estate Finance and Investment (Sp)** Consideration of professional aspects of the real estate field. Emphasis is placed upon finance techniques and investment analysis. The focus is on commercial real estate. Brokerage, property management, appraisal, property development and current problems are also addressed. Students prepare a feasibility study on a commercial development project. Prerequisite: FINN 3933.

**FINN450V Independent Study (Irregular) (1-3)** Permits students on an individual basis to explore selected topics in finance, with the consent of instructor.

**FINN4733 Life and Health Insurance I (Fa)** Basic principles, functions, uses of life and health insurance; types of policy contracts; calculation of premiums, reserves; organizations, management, supervision, of companies.

**FINN4833 Property and Casualty Insurance I (Sp)** Forms and functions of fire, marine, inland marine, automobile title, miscellaneous types insurance and bonds for business, personal use.

**FINN5223 Financial Markets & Valuation (Sp)** Analysis of financial information by capital markets in the determination of security values with specific applications to retail and logistics companies. This course views these and other companies from the point of view of the capital markets. May be repeated for credit.

**FINN5303 Advanced Corporate Financial Management (Irregular)** Focus on financial policy issues using real situational cases. Topics include cost of capital, capital budgeting and long-term planning, value-based management, real options, as well as project financing and valuation. Prerequisite: FINN 511V or FINN 5223.

**FINN5333 Investment Theory and Management (Fa)** Integration of theory, practice of investments with solution of individual and institutional portfolio management problems; Institute of Chartered Financial Analysts' Problems; variable annuity in estate planning. Prerequisite: FINN 5223.

**FINN541V Shollmier Investment Project (Sp, Fa) (1-3)** Provide students with the opportunity to design and apply complex investment strategies used in institutional portfolio management on the Shollmier MBA Fund that can involve fixed income and equity securities as well as derivatives. Students will use top down asset allocation models, bottom up security selection, and hedge fund strategies. Prerequisite: FINN 5223 and FINN 5333. May be repeated for up to 9 hours of degree credit.

**FINN5443 Retail Finance (Sp)** The financial success of retail product and service offerings depends on a clear understanding of the socio-economic as well as demographic and environmental factors that drive the changing patterns of consumption. This course introduces the fundamentals and use of consumer and trade area analysis tools, specifically geographic information systems (GIS) and psychographic market analysis, to make informed financial decisions. Extensive case studies are utilized throughout the course to learn concepts and best practices. Prerequisite: FINN 5223

**FINN5703 Multinational Business Finance (Irregular)** Problems pertinent to managers of firms in multinational business environments, including international institutions, risks, investments and capital budgeting. Prerequisite: FINN 5203.

**FINN6043 Finance Theory (Irregular)** Provides a conceptual understanding of key theoretical developments in the field of financial economics, including firm decisions under risk within a world of uncertainty.

**FINN6133 Seminar in Investment Theory (Sp)** Study advanced literature in field investments, with special reference to theory of random walks, stock valuation models, portfolio management.

**FINN6233 Seminar in Financial Management (Irregular)** Financial management of firm with emphasis on financial theory or firm, quantitative methods used in financial analysis, planning.

**FINN6333 Empirical Research in Finance (Irregular)** A study of recent empirically based research in finance.

**FINN636V Special Problems in Finance (Irregular) (1-6)** Case studies in investments, corporation finance, money and banking, monetary theory, international finance, public finance. By arrangement. May be repeated for up to 6 hours of degree credit.

**FINN6733 Seminar in Financial Markets and Institutions**

**(Irregular)** Recent developments in the literature of financial markets and institutions. Participants will be involved in the extensive study of existing theories and empirical tests of the theories.

**FINN683V Contemporary Issues in Doctoral Colloquium (Sp, Su, Fa) (1-3)** To explore and evaluate contemporary research issues in finance. Course content to reflect the most recent developments in theory and empirical research methodologies. Prerequisite: Doctoral student status and instructor consent. May be repeated for up to 18 hours of degree credit.

**FINN700V Doctoral Dissertation (Sp, Fa) (1-18)** Prerequisite: Candidacy.

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French (FREN)

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**FREN1003 Elementary French I (Sp, Fa)**

**FREN1013 Elementary French II (Sp, Fa)** Elementary courses stress correct pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**FREN2003 Intermediate French I (Sp, Fa)** Intermediate courses lead to greater facility in spoken language and to more advanced reading skills.

**FREN2013 Intermediate French II (Sp, Fa)** Continued development of basic speaking comprehension and writing skills and intensive development of reading skills.

**FREN2013H Honors Intermediate French II (Sp, Fa)**

**FREN3003 Advanced French (Sp, Su, Fa)** Further intensive practice for the purpose of strengthening written and oral expression. Includes a review of the essentials of French grammar. Prerequisite: FREN 2013 or equivalent.

**FREN3033 French Conversation (Fa)** Three hours per week of guided conversation practice for the post-intermediate student. Prerequisite: FREN 2013.

**FREN3063 Ph.D. Reading Requirement I (Su)**

**FREN3103 Cultural Readings (Sp)** A course designed to build vocabulary and to strengthen reading skills and oral expression through extensive practice with culturally authentic materials. Prerequisite: FREN 2013.

**FREN3113 Introduction to Literature (Sp)** Further development of reading skills and introduction to literacy commentary and analysis. Prerequisite: FREN 3003 or FREN 3103.

**FREN399VH Honors French Course (Sp, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**FREN4003 French Grammar and Composition (Fa)** Prerequisite: FREN 3003 or FREN 3103.

**FREN4033 French for Oral Proficiency (Sp)** Three hours per week of conversation practice for the advanced undergraduate. Prerequisite: FREN 3003 or FREN 3103.

**FREN4113 Special Themes in French (Irregular)** Topics not normally covered in period courses. Sample topics: "The Comic Tradition in French Literature," "French Cinema." Topics announced one semester in advance. Prerequisite: FREN 3113. May be repeated for up to 3 hours of degree credit.

**FREN4213 French Civilization (Sp)** Prerequisite: FREN 3113.

**FREN4223 Survey of French Literature I (Irregular)** A survey of French literature, its forms and themes from the medieval period through the 18th century. Prerequisite: FREN 3113.

**FREN4233 Survey of French Literature II (Irregular)** A survey of French literature, its forms and themes in the 19th and 20th centuries. Prerequisite: FREN 3113.

**FREN4243 Studies in Francophone Literature (Irregular)** Introduction to seminal writers from Francophone cultures, mainly Quebec, the Maghreb and West Africa. Exploration of the following topics: national identity, morality, religion, and exile. Study of socio-political and cultural problems, while discovering recent trends in the globalization of Francophone literature. Prerequisite: FREN 3113.

**FREN4333 Business French (Odd years, Sp)** Introduction and orientation to the French world of business and commerce through the study of vocabulary, forms, and formulas and expression used in commercial correspondence. Prerequisite: FREN 3113 or FREN 3103.

**FREN4663 French Short Story (Irregular)** Introduces the genre of the French Short Story, focusing on close readings of the stories and providing an overview of the most important literary movements of the periods from the Middle Ages to the twentieth century. Prerequisite: FREN 3113.

**FREN475V Special Investigations (Sp, Fa) (1-6)** May be repeated for credit.

**FREN5003 French Grammar and Phonetics (Irregular)** Systematic review of principles of French grammar and syntax; comprehensive presentation of French phonetics.

**FREN5033 Advanced French Conversation (Irregular)** This

course will provide a small discussion environment in which graduate students will improve their command of spoken French in an interactive setting. Discussion will concentrate on current cultural issues in the French speaking world.

**FREN5213 French Culture & Civilization (Irregular)** An analysis of French cultural symbols and attitudes as observed in their historical, economical, political, social, educational, and linguistic aspects.

**FREN5333 Old French Literature (Irregular)** An intensive study of French Medieval Literature from the Chansons de Geste to Villon, including an in-depth analysis of the genres and their evolution, and of the major authors of the times.

**FREN5353 Survey of French Poetry (Irregular)** A comprehensive study of French poetry from the Middle Ages to the twentieth century, focusing on close readings of individual poems. This course will cover literary movements and trends of the periods and presents the terminology required to do explication de texte.

**FREN5433 French 16th-Century Literature (Irregular)** A survey of representative writers of the sixteenth century.

**FREN5543 French 17th-Century Literature (Irregular)** A survey of representative writers of the seventeenth century.

**FREN5663 French Short Story (Irregular)** An introduction to the French short story, focusing on close readings of a variety of contes and nouvelles from the Middle Ages through the twenty-first century.

**FREN5673 French 18th-Century Literature (Irregular)**

**FREN5703 Special Topics (Irregular)** May be offered in a subject not specifically covered by the courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**FREN575V Special Investigations (Irregular) (1-6)** May be repeated for credit.

**FREN5773 Survey of Francophone Literature (Irregular)** A survey of representative texts in the field of sub-Saharan and North African literature concentrating on postcolonial novels using contemporary critical approaches.

**FREN5783 The French Nineteenth-Century Novel (Irregular)**

**FREN5813 French 20th-Century Theatre (Irregular)**

**FREN5833 French 20th-Century Novel (Irregular)**

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Geography (GEOG)

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**GEOG1033 Buried Cities and Lost Tribes: Cultural Geography of Our Human Heritage (Sp)** Explores cultural geography through an introductory survey of the world's greatest ancient discoveries and the people who made them.

**GEOG1123 Human Geography (Sp, Su, Fa)** Basic course in human geography stressing the interrelationships between the natural factors of the environment and man's activities, especially the role of geography in the understanding of social problems and economic and political activities.

**GEOG2003 World Regional Geography (Sp, Fa)** Survey of problems, development potential, and physical and human resources of the developing and developed world.

**GEOG3003 Conservation of Natural Resources (Sp, Su, Fa)** Theory and growth of conservation and the wise use of the major natural resources of the United States. This course meets the requirement in conservation for teachers. Prerequisite: Junior standing.

**GEOG3003H Honors Conservation of Natural Resources (Sp, Su, Fa)** Theory and growth of conservation and the wise use of the major natural resources of the United States. This course meets the requirement in conservation for teachers. Prerequisite: junior standing.

**GEOG3013 Southwestern Native American Cultural Geography (Fa)** An introduction to the cultural geography of the Native Americans in the Southwest from remote antiquity to present day.

**GEOG3033 Building Materials Field Studies and Laboratory (Even Years, Sp)** Study of durable building materials, their availability, strength, deterioration, limitation and utility. Historic construction techniques, identification of architectural materials, architectural elements assessment, causes and mechanisms of deterioration, conservation and treatment of architectural materials, preservation philosophies and standards and creation of a practical field identification kit will also be covered.

**GEOG3333 Oceanography (Even years, Sp)** The sea, its landforms; its winds and currents as related to the atmosphere, world climates, and world trade; its basin as avenues for continental drift; its waters as habitat for plant and animal life; its marine and submarine resources as presently and potentially useful to man. Offered as physical science. Prerequisite: Junior standing.

**GEOG3353 Economic Geography of NAFTA (Irregular)**

Systematic study of the geographical distribution of economic activities in the countries of the North American Free Trade Agreement. Prerequisite: Junior standing.

**GEOG3383 Principles of Landscape Evolution (Fa)** Examines the role of waves, rivers, wind, and tectonics in shaping and modifying the surface of the earth. Considers the way in which an understanding of landscape processes is essential to the effective solution of environmental problems. Lecture 3 hours. May be repeated for up to 3 hours of degree credit.

**GEOG3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in geography). May be repeated for credit.

**GEOG399VH Honors Course (Irregular) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**GEOG4023 Fallen Temples & Forgotten Gods: Cultural Geography of Ancient Religions (Fa)** A global survey of ancient religious life.

**GEOG4033 Geography of the Middle East (Irregular)** Physical and cultural landscapes, natural and cultural resources, art and architecture, land use, political history, OPEC, and current problems of North Africa and the Middle East region west of Afghanistan are discussed. Class participation, discussions, slides and films, and student presentations will round out the class. Prerequisite: Junior standing.

**GEOG4033H Honors Geography of the Middle East (Irregular)** Physical and cultural landscapes, natural and cultural resources, art and architecture, land use, political history, OPEC, and current problems of North Africa and the Middle East region west of Afghanistan are discussed. Class participation, discussions, slides and films, and student presentations will round out the class. Prerequisite: Junior standing.

**GEOG4053 Kokopelli and the Rainbow Serpent: Native American Rock-Art (Sp)** An introduction to Native American Cultural Geography through the study of rock-art, often referred to as "petroglyphs" and "pictographs". This course focuses on the conservation, documentation, analysis, and interpretation of ancient imagery carved and painted by Native Americans on cliffs, boulders, and cave walls.

**GEOG4063 Urban Geography (Sp)** Areal patterns of modern urban regions and the focus shaping these patterns. Emphasis is placed on American urban areas and their evolution and functional areas. Field work. Prerequisite: Junior standing.

**GEOG410V Special Problems in Geography (Fa) (1-6)** Designed to meet the needs of students who wish to study one particular geographic topic in some detail. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**GEOG410VH Honors Special Problems in Geography (Fa) (1-6)** Designed to meet the needs of students who wish to study one particular geographic topic in some detail. Prerequisite: junior standing. May be repeated for up to 6 hours of degree credit.

**GEOG4243 Political Geography (Odd years, Fa)** Contemporary world political problems in their geographic context. Development of the principles of political geography with emphasis upon the problems of Eastern Europe, Africa, and Southeast Asia. Prerequisite: Junior standing.

**GEOG430V Internship in Physical Geography (Sp, Su, Fa) (3-6)** Supervised experience in municipal, county, state or private natural resource management agency, or any other such organization approved by instructor.

**GEOG4353 Elements of Weather (Fa)** Examination of the atmospheric processes that result in multifarious weather systems. Offered as physical science. Prerequisite: Junior standing.

**GEOG4363 Climatology (Sp)** Fundamentals of topical climatology followed by a study of regional climatology. Offered as physical science. Prerequisite: GEOG 1003 and/or GEOG 4353.

**GEOG4383 Hazard & Disaster Assessment, Mitigation, Risk & Policy (Sp)** Comprehensive introduction to interdisciplinary approaches to natural and environmental hazards and risk. Hazards and disaster assessment, mitigation, and policy are the focus of the class. Prerequisite: Junior standing or above. May be repeated for up to 3 hours of degree credit.

**GEOG4383H Honors Hazard & Disaster Assessment, Mitigation, Risk & Policy (Sp)** Comprehensive introduction to interdisciplinary approaches to natural and environmental hazards and risk. Hazards and disaster assessment, mitigation, and policy are the focus of the class. Prerequisite: Junior standing or above.

**GEOG4783 Geography of Europe (Irregular)** Geographic regions of the area with emphasis on their present development. Prerequisite: Junior standing.

**GEOG5003 Seminar in Geography (Irregular)** Selected

topics, the nature of which varies with the need. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**GEOG5011 Colloquium (Sp)** Weekly meetings of faculty, graduates, advanced students and guests to discuss research and trends in the field of geography. May be repeated for up to 2 hours of degree credit.

**GEOG5093 History of Geography (Even years, Sp)** Chronological development of the science; leaders in the field of geography; and the evolution of the major concepts of geography. Prerequisite: Graduate standing.

**GEOG510V Special Problems in Physical Geography (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**GEOG5113 Global Change (Fa)** Examines central issues of global change including natural and human induced climate change, air pollution, deforestation, desertification, wetland loss urbanization, and the biodiversity crisis. The U.S. Global Change Research Program is also examined. (Same as ENDY 5113)

**GEOG520V Special Problems in Human Geography (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**GEOG530V Special Problems in Regional Geography (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**GEOG5313 Planetary Atmospheres (Irregular)** Origins of planetary atmospheres, structures of atmospheres, climate evolution, dynamics of atmospheres, levels in the atmosphere, the upper atmosphere, escape of atmospheres, comparative planetology of atmospheres.

**GEOG5333 Research Methods and Materials in Geography (Odd years, Fa)** Geographical research and the preparation of research papers. Prerequisite: Graduate standing.

**GEOG600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

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Geology (GEOL)

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**GEOL1111M Honors General Geology Laboratory (Fa)** Survey of geological processes and products and their relationships to landforms, natural resources, living environments, and human beings. Lecture 3 hours, laboratory 2 hours per week. Corequisite: GEOL 1113 H. (Same as GEOL 1111L)

**GEOL1111L General Geology Laboratory (Sp, Su, Fa)** Laboratory exercises concerning the identification of rocks and minerals, use of aerial photographs and topographic maps, and several field trips. Pre- or Corequisite: GEOL 1113.

**GEOL1113 General Geology (Sp, Su, Fa)** Survey of geological processes and products, and their relationships to landforms, natural resources, living environments and human beings. Lecture 3 hours per week. GEOL 1111L is recommended as a corequisite.

**GEOL1113H Honors General Geology (Irregular)** Survey of geological processes and products and their relationships to landforms, natural resources, living environments, and human beings. Lecture 3 hours, laboratory 2 hours per week. Corequisite: GEOL 1111 M.

**GEOL1131L Environmental Geology Laboratory (Sp)** Laboratory exercises concerning human interactions with the physical environment including the study of earthquakes, volcanoes, flooding, erosion, mass wasting, water supply and contamination, and waste disposal. Prerequisite: GEOL 1113 and GEOL 1111L.

**GEOL1133 Environmental Geology (Sp)** The application of geologic principles and knowledge of problems created by human occupancy and exploitation of the physical environment. Prerequisite: GEOL 1113 and GEOL 1111L.

**GEOL2313 Mineralogy and Petrology (Fa)** General principles of mineralogy and petrology, study and identification of common minerals, igneous & metamorphic rocks using hand samples. Corequisite: Lab component. Prerequisite: GEOL 1113.

**GEOL3002 Geology for Engineers (Fa)** Geologic principles involved in construction, reservoir location, etc. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component.

**GEOL3032 Geology of Arkansas (Sp)** A survey of the distribution, genesis, and age of the rocks, fossils, structures, landforms and geological processes of Arkansas. Equivalent to two hours of lecture per week. Field trips required. Prerequisite: GEOL 1113 or GEOL 1113H.

**GEOL3114 Invertebrate Paleontology (Sp)** Survey of the invertebrate phyla commonly preserved as fossils emphasizing their physical and biological characteristics. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component.

Prerequisite: GEOL 1133 or (BIOL 1543 and BIOL 1541L) or equivalent.

**GEOL3313 Igneous and Metamorphic Rocks (Sp)** Megaoscopic study and classification of igneous and metamorphic rocks. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: GEOL 2313.

**GEOL3413 Sedimentary Rocks & Fossils (Sp)** An introductory study of sedimentary rocks and fossils from the standpoint of classification, field and laboratory description, genesis, and preservation. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: GEOL 2313.

**GEOL3514 Structural Geology (Sp)** Survey of deformational features and their geological significance in the crust of the earth. Lecture 3 hours per week. Corequisite: Lab component. Prerequisite: GEOL 1113 or GEOL 3002.

**GEOL360V Undergraduate Special Problems (Sp, Su, Fa) (1-6)** Library, laboratory, or field research in different phases of geology. May be repeated for up to 6 hours of degree credit.

**GEOL3901 Junior Honors Course (Sp, Su, Fa)** Special honors research in geology. One hour credit each semester. Prerequisite: Junior standing.

**GEOL3911 Junior Honors Course (Sp, Su, Fa)** Special honors research in geology. One hour credit each semester. Prerequisite: Junior standing.

**GEOL3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in geology). May be repeated for credit.

**GEOL4033 Hydrogeology (Sp)** Occurrence, movement, and interaction of water with geologic and cultural features. Lecture 3 hours per week. Corequisite: Lab component. Prerequisite: MATH 2043 or MATH 2554, and GEOL 3513.

**GEOL4053 Geomorphology (Sp)** Mechanics of landform development. Lecture 2 hours, laboratory 3 hours per week. Several local field trips are required during the semester. Corequisite: Lab component. Prerequisite: GEOL 1113 or GEOL 3002.

**GEOL4063 Principles of Geochemistry (Fa)** Introduction to fundamental principles of geochemistry from historic development to modern concepts. Corequisite: Lab component. Prerequisite: CHEM 1121 and CHEM 1123.

**GEOL4153 Karst Hydrogeology (Irregular)** Assessment of ground water resources in carbonate rock terrains; relation of ground water and surface water hydrology to karst; quantification of extreme variability in karst environments; data collection rationale. Field trips required. Prerequisite: GEOL 4033.

**GEOL4223 Stratigraphy and Sedimentation (Fa)** Introductory investigation of stratigraphic and sedimentologic factors important to the study of sedimentary rocks. Lecture 2 hours, laboratory 3 hours per week. A required weekend, two-day field trip will be conducted during the semester. Corequisite: Lab component. Prerequisite: GEOL 3413.

**GEOL4253 Petroleum Geology (Fa)** Distribution and origin of petroleum. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: Geology major and senior standing. May be repeated for up to 3 hours of degree credit.

**GEOL436V Geology Field Trip (Sp) (1-2)** Camping field trip to areas of geologic interest, usually conducted during Spring Break. Prerequisite: GEOL 3313. May be repeated for up to 4 hours of degree credit.

**GEOL4433 Geophysics (Irregular)** Derivation from physical principles, of the geophysical methods for mapping the Earth. Computational methods of converting gravity, magnetic, radiometric, electrical, and seismic data into geologic information. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: MATH 2564 and PHYS 2033 and PHYS 2031L and GEOL 3513 and GEOL 3511L.

**GEOL4443 The Solid Earth: Structure, Composition and Evolution (Irregular)** Modern views for the origin of the solid Earth and its structure, composition, and evolution through geologic time. Topics will include examination of relevant geophysical and geochemical constraints used to develop global models for the Earth. Prerequisite: CHEM 1123, GEOL 3313, MATH 2564, PHYS 2074 or permission of the instructor.

**GEOL4553 Volcanology (Irregular)** A broad introduction to volcanic processes and their associated hazards. Emphasis will be placed on applying basic physical and chemical principles to understanding volcanic systems. Prerequisite: GEOL 2313.

**GEOL4666 Geology Field Camp (Su)** A professional course taught off campus emphasizing occurrence, description, mapping, and interpretation of major rock types. Prerequisite: GEOL 3413 and GEOL 3514. (may not be taken for graduate credit).

**GEOL481V Cooperative Education Program (Sp, Su, Fa) (1-6)** Credit for off-campus, compensated work experience re-

lated to geology arranged through the Cooperative Education Office and Department of Geology. May be repeated for credit.  
**GEOL4863 Geological Data Analysis (Sp)** Quantitative methods and techniques for analysis and interpretation of geological data. Prerequisite: MATH 2564, GEOL 3514.

**GEOL4922 Senior Honors Course (Sp, Su, Fa)** Special honors research in geology. Two hours of credit each semester. Prerequisite: Junior honors.

**GEOL4924 Earth System History (Sp)** Physical and biological events that form the history of the earth from its formation to the beginning of the historical era. Graduate enrollment only with departmental permission. Prerequisite: GEOL 3514.

**GEOL4932 Senior Honors Course (Sp, Su, Fa)** Special honors research in geology. Two hours of credit each semester. Prerequisite: Junior honors.

**GEOL5001 Graduate Seminar (Irregular)** Informal discussions of research as reported in geological literature. All graduate students are expected to attend.

**GEOL5076 Advanced Field Methods of Applied Hydrogeology (Su)** Applied field course emphasizing collection and interpretation of ground water data. Three hours may be applied toward an M.S. degree in geology. Prerequisite: GEOL 4033.

**GEOL5123 Stratigraphic Principles and Practice (Irregular)** Physical and biological characteristics of sedimentary environments and their correlation in time with emphasis on the local geologic section. Corequisite: Lab component. Prerequisite: GEOL 4223.

**GEOL5153 Environmental Site Assessment (Irregular)** Principles, problems, and methods related to conducting an environmental site assessment. An applied course covering field site assessment, regulatory documentation, and report preparation. Prerequisite: GEOL 4033. (Same as ENDY 5153)

**GEOL5163 Hydrogeologic Modeling (Irregular)** Topics include numerical simulation of ground water flow, solute transport, aqueous geochemistry, theoretical development of equations, hypothesis testing of conceptual models, limitations of specific methods, and error analysis. Emphasis on practical applications and problem solving. Prerequisite: GEOL 4033 and computer literacy.

**GEOL5223 Sedimentary Petrology (Fa)** Sediments and sedimentary rocks. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: GEOL 4223.

**GEOL5263 Hydrochemical Methods (Even years, Fa)** Collection, analytical and interpretation techniques and methods for water, including quality control and quality assurance. Prerequisite: CHEM 1123 and CHEM 1121L.

**GEOL5413 Planetary Geology (Irregular)** Exploration of the solar system, geology and stratigraphy, meteorite impacts, planetary surfaces, planetary crusts, basaltic volcanism, planetary interiors, chemical composition of the planets, origin and evolution of the Moon and planets.

**GEOL5443 The Solid Earth (Irregular)** Modern views for the origin of the solid Earth and its structure, composition, and evolution through geologic time. Topics will include examination of relevant geophysical and geochemical constraints used to develop global models for the Earth. Prerequisite: GEOL3313, MATH2564, CHEM1123, PHYS2074 or permission of the instructor.

**GEOL5543 Tectonics (Fa)** Development of ramifications of the plate tectonics theory. Analysis of the evolution of mountain belts. Lecture 3 hours per week. Prerequisite: GEOL 3513 and GEOL 3511L.

**GEOL5553 Volcanology (Irregular)** A broad introduction to volcanic processes and their associated hazards. Emphasis will be placed on applying basic physical and chemical principles to understanding volcanic systems. Prerequisite: GEOL 2313.

**GEOL560V Graduate Special Problems (Sp, Su, Fa) (2-6)** Library, laboratory, or field research in different phases of geology. May be repeated for up to 4 hours of degree credit.

**GEOL600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

Geosciences (GEOS)

**GEOS3023 Introduction to Cartography (Fa)** Students learn basic principles of map design, cartographic theory and field surveying to produce a variety of computer-generated maps. An introductory course designed for students in a variety of different disciplines using AutoCad software and various new technologies. Field trips may be required.

**GEOS3543 Geographic Information Science (Fa)** Computer assisted analysis and display of geographic resource data. Course develops the theory behind spatial data analysis techniques, and reinforces the theory with exercises that demonstrate its practical applications. (Same as ANTH 3543)

**GEOS3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in geology or geography). May be repeated for credit.

**GEOS4333 Pollution of Lakes and Rivers (Sp)** Explores human impact on aquatic ecosystems. Covers critical issues such as acidification, eutrophication, land-use changes, pollution by metals and other contaminants, climatic change, and bio-diversity losses. Examines biological indicators and geochemical markers archived in lake sediments to identify key environmental stressors of aquatic ecosystems. Prerequisite: One upper-division science course.

**GEOS4333H Honors Pollution of Lakes and Rivers (Sp)** Explores human impact on aquatic ecosystems. Covers critical issues such as acidification, eutrophication, land-use changes, pollution by metals and other contaminants, climatic change, and bio-diversity losses. Examines biological indicators and geochemical markers archived in lake sediments to identify key environmental stressors of aquatic ecosystems. Prerequisite: One upper-division science course.

**GEOS440V Internship in GIS & Cartography (Sp, Su, Fa) (3-6)** Supervised experience in GIS and/or cartographic applications with municipal, county, state, or private enterprises. May be repeated for up to 6 hours of degree credit.

**GEOS4413 Principles of Remote Sensing (Fa)** Fundamental concepts of remote sensing of the environment. Optical, infrared, microwave, LIDAR, and in situ sensor systems are introduced. Remote sensing of vegetation, water, urban landscapes, soils, minerals, and geomorphology is discussed. The course includes laboratory exercises in geomatics software and both remote and in situ sensor system field trips.

**GEOS4523 Computer Mapping (Sp)** This course addresses advanced cartographic concepts (i.e. visual hierarchy, aesthetics, image cognition) and production techniques as they relate to computer-assisted mapping. Students produce a variety of maps using AutoCad and Illustrator software to build a map portfolio. Field trips may be required. Prerequisite: GEOS 3023.

**GEOS4553 Introduction to Raster GIS (Fa)** Theory, data structure, algorithms, and techniques behind raster-based geographical information systems. Through laboratory exercises and lectures multidisciplinary applications are examined in database creation, remotely sensed data handling, elevation models, and resource models using boolean, map algebra, and other methods. Prerequisite: GEOS 3543 or ANTH 3543. (Same as ANTH 4553)

**GEOS4563 Geology of Our National Parks (Fa)** This course examines the underlying geology responsible for selected parks, and explores the interplay of geology, biology, climate, topography, and humans to evaluate the value of the parks, and to anticipate the problems they will face in the near and long-term. Prerequisite: GEOL 1113.

**GEOS4563H Honors Geology of Our National Parks (Fa)** This course examines the underlying geology responsible for selected parks, and explores the interplay of geology, biology, climate, topography, and humans to evaluate the value of the parks, and to anticipate the problems they will face in the near and long-term. Prerequisite: GEOL 1113.

**GEOS4583 Vector GIS (Sp)** Introduction to geographic information systems (GIS) applications in marketing, transportation, real estate, demographics, urban and regional planning, and related areas. Lectures focus on development of principles, paralleled by workstation-based laboratory exercises using mainstream GIS software and relational data bases. Prerequisite: GEOS 3023 or GEOS 3543. (Same as ANTH 4563)

**GEOS4593 Introduction to Global Positioning Systems (Fa)** Fundamentals of navigation, mapping, and high-precision positioning using the Navstar Global Positioning System. Topics include datum definition and transformation, map projections, autonomous and differential positioning using both code and carrier processing, and analysis of errors. Prerequisite: GEOS 3543. (Same as ANTH 4593)

**GEOS4653 Advanced Raster GIS (Odd years, Sp)** Advanced raster topics are examined beginning with a theoretical and methodological review of Tomlin's cartographic modeling principles. Topics vary and include Fourier methods, image processing, kriging, spatial statistics, principal components, fuzzy and regression modeling, and multi-criteria decision models. Several raster GIS programs are examined with links to statistical analysis software. Prerequisite: GEOS 4553 or ANTH 4553. (Same as ANTH 4653, ENDY 5043)

**GEOS4693 Environmental Justice (Sp)** This course deals with the ethical, environmental, legal, economic, and social implications of society's treatment of the poor, the disenfranchised, and minorities who live in the less desirable, deteriorating neighborhoods, communities, and niches of our country.

The class integrates science with philosophy, politics, economics, policy, and law, drawing on award-winning films, current news, and case studies.

**GEOS4693H Honors Environmental Justice (Sp)** This course deals with the ethical, environmental, legal, economic, and social implications of society's treatment of the poor, the disenfranchised, and minorities who live in the less desirable, deteriorating neighborhoods, communities, and niches of our country. The class integrates science with philosophy, politics, economics, policy, and law, drawing on award-winning films, current news, and case studies.

**GEOS4863 Quantitative Techniques in Geosciences (Sp)** An introduction to the application of standard quantitative and spatial statistical techniques to geoscientific analysis. Students will use both micro and large system computers in the course. Prerequisite: (STAT 4003 and STAT 4001L) or equivalent. (Same as ANTH 4863)

**GEOS5023 Technical and Proposal Writing for the Geosciences (Sp)** Preparation of technical reports, research proposals, and manuscripts for publication in the area of geosciences.

**GEOS5033 Advanced Vector Geographic Information Systems (Irregular)** Advanced vector operations and analysis. Topics will include topological analysis, network analysis, geocoding, conflation, implications of source and product map scale, map generation, error mapping, and cartographic production. Prerequisite: (ANTH 4563 or GEOS 4583) or equivalent. (Same as ANTH 5043)

**GEOS5053 Quaternary Environments (Fa)** An interdisciplinary study of the Quaternary Period, including dating methods, deposits, soils, climates, tectonics, and human adaptation. Lecture 2 hours, laboratory 2 hours per week. Prerequisite: Graduate standing. (Same as ANTH 5053, ENDY 5053)

**GEOS5063 Climate Through Time (Irregular)** The earth's climate history over the last 2 million years and the influence various factors have had on it; compilation and paleoclimatic histories and methods of dating climatic effects. Prerequisite: GEOG 4363 or equivalent. (Same as BIOL 5063, ENDY 5063)

**GEOS5423 Remote Sensing of Natural Resources (Even years, Sp)** Introductory digital image processing of remotely sensed data. Topics include data collection, laboratory design, scientific visualization, radiometric and geometric correction, enhancement, pattern recognition, artificial intelligence, and change detection in natural resource remote sensing. GIS-based exercises and a course project are included. Prerequisite: GEOS 4413 is recommended.

**GEOS5853 Environmental Isotope Geochemistry (Sp)** Introduction to principles of isotope fractionation and distribution in geologic environments, isotopic analytical methods, and extraction of isotope samples; application of isotopes in characterization of geologic processes and interaction with hydrologic, surficial, and biologic attenuation, paleothermometry soil, and biogeochemical processes. Prerequisite: GEOL 5063 or GEOL 5263. (Same as ENDY 5853) May be repeated for up to 3 hours of degree credit.

German (GERM)

**GERM1003 Elementary German I (Sp, Su, Fa)**

**GERM1013 Elementary German II (Sp, Su, Fa)** Elementary courses stress correct pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**GERM2003 Intermediate German I (Sp, Su, Fa)** Intermediate courses lead to greater facility in spoken language and to more advanced reading skills.

**GERM2013 Intermediate German II (Sp, Su, Fa)** Continued development of basic speaking comprehension and writing skills and intensive development of reading skills.

**GERM3003 Advanced German I (Fa)** Development of reading, writing, listening, and speaking skills. Some grammar review and translation exercises. Emphasis on vocabulary acquisition and the correct use of idiomatic expressions. Prerequisite: GERM 2013.

**GERM3013 Introduction to Literature (Fa)** Development of reading skills and introduction to literary analysis. Prerequisite: GERM 2013 or equivalent.

**GERM3013 Introduction to Literature (Fa)** Development of reading skills and introduction to literary analysis. Prerequisite: GERM 2013 or equivalent.

**GERM3033 Conversation (Sp)** Three hours per week of guided conversation practice for the post-intermediate student. Prerequisite: GERM 2013 or instructor consent.

**GERM3063 Ph.D. Reading Requirement (Su)** (Same as GERM 4003, GERM 4003)

**GERM399V Honors German Course (Sp, Fa) (1-6)** Prereq-

uiste: Junior standing. May be repeated for up to 12 hours of degree credit.

**GERM4003 Advanced German II (Sp)** Further development of reading, writing, listening, and speaking skills. Some grammar review and translation exercises. Emphasis on vocabulary acquisition and the correct use of idiomatic expressions. Prerequisite: GERM 2013. (Same as GERM 3063)

**GERM4003 Advanced German II (Sp)** Further development of reading, writing, listening, and speaking skills. Some grammar review and translation exercises. Emphasis on vocabulary acquisition and the correct use of idiomatic expressions. Prerequisite: GERM 2013. (Same as GERM 3063)

**GERM4013 Germany and the Holocaust: The Significance of the Holocaust in Differentiated Contexts (Irregular)** Taught in English. Topics covering the role of the Holocaust in German history, culture, art, language and German Studies. Equal emphasis will be placed on historical competence and philosophical/theoretical inquiry, addressed from a variety of media and primary and secondary sources. May be repeated for up to 6 hours of degree credit.

**GERM4043 German Cinema (Irregular)** Presents a range of German films in cultural-historical context; vocabulary and structures for discussing film, film history, and film theory in German. Prerequisite: GERM 3003.

**GERM4123 The German Novelle (Irregular)** An intensive study of the novelle as a genre from its origin to the present. Prerequisite: GERM 3013.

**GERM4133 The German Drama (Irregular)** A study of the development of the forms and themes of the German drama from the middle ages to the present. Prerequisite: GERM 3013.

**GERM4143 German Lyric Poetry (Irregular)** A study of the forms and themes of German lyric poetry from the middle ages to the present. Prerequisite: GERM 3013.

**GERM4213 German Civilization (Irregular)** Prerequisite: GERM 2013 or equivalent.

**GERM4333 Business German I (Fa)** Introduces students to the language of business German and provides insights into business practices in the German-speaking countries. Covers aspects of business geography, the European Union, transportation/shipping, business correspondence, resume writing and job application. Open to all majors; no business prerequisites. Prerequisite: GERM 2013. May be repeated for up to 6 hours of degree credit.

**GERM470V Special Topics (Irregular) (1-3)** May be offered in a topic not specifically covered by courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**GERM475V Special Investigations (Irregular) (1-6)** May be repeated for credit.

**GERM5223 Early German Literature: Middle Ages to the Enlightenment (Irregular)**

**GERM5273 German Literature: Enlightenment, Storm and Stress, and Classicism (Irregular)**

**GERM5343 Early Modern German Literature: Late 19th and Early 20th Century (Irregular)**

**GERM5363 German Literature after 1945 (Irregular)**

**GERM5703 Special Topics (Irregular)** May be offered in a subject not specifically covered by the courses otherwise listed. May be repeated for up to 6 hours of degree credit.

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Gerontology (GERO)

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**GERO4443 Gerontology (Sp)** Physiological and psychological development of the aging individual, extended family relations, service networks for the elderly, and retirement activities. Some attention to housing and care needs of persons in advanced years. Lecture 3 hours per week. Seminar. Prerequisite: HESC 1403 (or HESC 2413 or PSYC 2003 or SCWK 2133) and junior standing. (Same as HESC 4443)

**GERO5013 Field Experience in Gerontology (Irregular)** Supervised research/practical experience in field setting. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**GERO5023 Critical Issues in Aging (Irregular)** Consideration of current issues of aging not covered in depth in other courses. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**GERO5443 Gerontology (Sp)** Examines physiological and psychological development of the aging individual, extended family relationships, service networks for older adults, and retirement activities. Some attention given to housing and care needs of persons in advanced years. Lecture 3 hours per week, seminar format. Prerequisite: Graduate standing. (Same as HESC 5443)

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General Engineering (GNEG)

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**GNEG1103 Introduction to Engineering (Sp)** This introductory course for undergraduate freshmen students introduces them to the fields of engineering and many of the modeling and problem solving techniques used by engineers. It also introduces the students to the engineering profession and some of the computer tools necessary for pursuing a degree in engineering. Corequisite: Drill component. Prerequisite: Departmental consent.

**GNEG1111 Introduction to Engineering I (Fa)** Fundamentals of engineering problem-solving including skills from mathematics, science, and computing. Introduction to the engineering design process through team-based activities. Study of the contemporary engineering profession and the disciplines within the College of Engineering. Corequisite: Drill component. Prerequisite: Engineering First Year majors only.

**GNEG1111H Honors Introduction to Engineering I (Fa)** Fundamentals of engineering problem-solving including skills from mathematics, science, and computing. Introduction to the engineering design process through team-based activities. Study of the contemporary engineering profession and the disciplines within the College of Engineering. Corequisite: Drill component. Prerequisite: Engineering First Year majors only. Honors College students only.

**GNEG1121 Introduction to Engineering II (Sp)** Further study of engineering problem-solving including skills from mathematics, science, and computing. Experience with the engineering design process through a major, team-based project. Selecting a major within the College of Engineering. Discussion of academic and professional opportunities for engineering students. Corequisite: Drill component. Prerequisite: GNEG 1111 or GNEG 1111H and Engineering First Year majors only.

**GNEG1121H Honors Introduction to Engineering II (Sp)** Further study of engineering problem-solving including skills from mathematics, science, and computing. Experience with the engineering design process through a major, team-based project. Selecting a major within the College of Engineering. Discussion of academic and professional opportunities for engineering students. Corequisite: Drill component. Prerequisite: GNEG 1111H. Engineering First Year majors only. Honors College students only.

**GNEG1122 Introduction CAD (Sp, Fa)** General course in the use of engineering drawings for communications and design. Proper use of computer for computer-aided drafting and design; 2-dimensional, 3-dimensional, and solid modeling; use of manual drafting equipment; geometrical exercises; orthographic projections; auxiliary view; sketching; dimensioning. Corequisite: Lab component. Pre- or Corequisite: MATH 1213 or higher.

**GNEG1201 Fundamentals of Success in Engineering Study (Irregular)** Assisting Engineering First Year students in developing skills for successful completion of engineering course work. Building a supportive learning community, assisting students in developing positive attitudes and productive behaviors resulting in both academic and personal success, and informing students of the resources available for maintaining their academic and personal wellness. Prerequisite: Consent required.

**GNEG1301H Honors Research Colloquium (Fa)** Exploration of topics and processes associated with academic research in the engineering profession. Offered to a select group of Engineering First Year students enrolled in the Honors College. Corequisite: GNEG 1111H and GNEG 1311H.

**GNEG1311H Honors Research Experience I (Fa)** An initial undergraduate research experience for a select group of Engineering First Year students enrolled in the Honors College. Corequisite: GNEG 1111H and GNEG 1301H.

**GNEG1322H Honors Research Experience II (Sp)** Continuation of GNEG 1311H culminating with the annual Freshman Engineering Program Honors Research Symposium. Corequisite: GNEG 1121H. Prerequisite: GNEG 1311H.

**GNEG1503 Pre-Engineering Applications of Mathematics (Irregular)** Overview of the basic algebra and trigonometry skills used in engineering. All topics are motivated by engineering applications. Prerequisite: Departmental consent.

**GNEG1514 Engineering Applications of Mathematics (Sp, Fa)** Overview of the mathematics topics heavily used in sophomore-level engineering courses. Topics include algebraic analysis, trigonometry, vectors and complex numbers, sinusoids and harmonic signals, systems of equations and matrices, differentiation, integration, and differential equations. All topics motivated by engineering applications. Usage of mathematical analysis software is emphasized. Corequisite: Drill component. Prerequisite: MATH 1203, MATH 1204, a score of 80% or better on the Mastery of Algebra Exam, a score of at least 26

on the math component of the ACT, or a score of at least 600 on the math component of the SAT.

**GNEG190V Special Topics (Irregular) (1-5)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent.

**GNEG290V Special Topics (Irregular) (1-5)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent.

**GNEG3103 Globalization and Innovation (Irregular)** Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. May not earn credit for GNEG 4103 or 5103.

**GNEG3103H Honors Globalization and Innovation (Irregular)** Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. May not earn credit for GNEG 4103 or 5103.

**GNEG3801 Internship (Sp, Su, Fa)** Supervised experience in industry where students can learn to apply classroom skills to problems in the real-world environment. Prerequisite: Instructor permission. May be repeated for up to 2 hours of degree credit.

**GNEG3811 Cooperative Education (Sp, Su, Fa)** Supervised experience in industry where students can learn to apply classroom skills to problems in the real-world environment. Prerequisite: Instructor consent. May be repeated for up to 2 hours of degree credit.

**GNEG390V Special Topics (Irregular) (1-4)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. May be repeated for up to 4 hours of degree credit.

**GNEG390VH Honors Special Topics (Irregular) (1-4)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. May be repeated for up to 4 hours of degree credit.

**GNEG4103 Globalization and Innovation (Irregular)** Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. May not earn credit for GNEG 3103 or 5103.

**GNEG4103H Honors Globalization and Innovation (Irregular)** Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. May not earn credit for GNEG 3103 or 5103.

**GNEG490V Special Topics (Irregular) (1-4)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. May be repeated for up to 4 hours of degree credit.

**GNEG490VH Honors Special Topics (Irregular) (1-4)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. May be repeated for up to 4 hours of degree credit.

**GNEG5103 Globalization and Innovation (Irregular)** Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. May not earn credit for GNEG 3103 or 4103.

**GNEG550V Master's Research Project (Irregular) (1-3)** Required course for MSE students who wish to complete a Master's research project as part of their degree program. Prerequisite: Instructor permission.

**GNEG5801 Internship (Sp, Su, Fa)** Supervised experience in industry where students can learn to apply classroom skills to problems in the real-world environment. Prerequisite: Instructor permission. May be repeated for up to 3 hours of degree credit.

**GNEG5811 Cooperative Education (Sp, Su, Fa)** Supervised experience in industry where students can learn to apply classroom skills to problems in the real world environment. Prerequisite: Instructor permission.



**GNES590V Special Topics (Irregular) (1-4)** Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. May be repeated for up to 4 hours of degree credit.

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Greek (GREK)

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**GREK1003 Elementary Ancient Greek I (Fa)** The rudiments of classical Greek, with concentration on grammar, vocabulary, and syntax. Short selections from ancient authors lead to basic reading ability.

**GREK1013 Elementary Ancient Greek II (Sp)** A continuation of the rudiments of classical Greek, with concentration on grammar, vocabulary, and syntax. Short selection from ancient authors lead to basic reading ability.

**GREK1203 Beginning Modern Greek I (Fa)** Conversational language of Greece today. Stresses correct pronunciation, aural comprehension, and simple speaking ability. Leads to active mastery of basic grammar and limited reading ability.

**GREK1213 Beginning Modern Greek II (Sp)** A continuation of GREK 1203. Stresses correct pronunciation, aural comprehension, and simple speaking ability. Leads to active mastery of basic grammar and limited reading ability.

**GREK2003 Plato's Apology of Socrates or Greek New Testament or Both (Fa)** Prerequisite: GREK 1013 or equivalent.

**GREK2013 Homer (Sp)** Selections from the Iliad or the Odyssey: a survey of Greek epic poetry. Prerequisite: GREK 2003 or equivalent.

**GREK2203 Intermediate Modern Greek I (Fa)** Continuation of Beginning Modern Greek. Prerequisite: GREK 1203 and GREK 1213, or equivalent.

**GREK2213 Intermediate Modern Greek II (Sp)** Continuation of Intermediate Modern Greek I. Prerequisite: GREK 2203 or equivalent.

**GREK4003 Greek Lyric Poetry (Irregular)** Readings from selected Greek lyric poems, to be chosen from several appropriate authors from the 7th through the 5th centuries BCE: Archilochus, Hipponax, Sappho, Alcaeus, Tyrtaeus, Mimnermus, Semonides, Solon, Xenophanes, Theognis, Pindar, Bacchylides. Prerequisite: GREK 2013 or equivalent.

**GREK4013 Greek Epic Poetry (Irregular)** Study of the primary works of Greek hexameter poetry, including Homer, Hesiod, and/or the Homeric Hymns, with special attention to issues of oral composition and performance. Prerequisite: GREK 2013.

**GREK4023 Greek Philosophy (Irregular)** Study of representative works of Greek philosophy, including those of the Pre-Socratics, Plato, and/or Aristotle. Prerequisite: GREK 2013 or equivalent.

**GREK4033 Herodotus or Thucydides (Irregular)** Readings of Herodotus, Book VII, and Thucydides, Book VI; collateral readings on the Persian and Peloponnesian Wars. Prerequisite: GREK 2013 or equivalent.

**GREK4043 Greek Drama (Irregular)** Readings of 2 tragedies and one comedy; a study of the Greek theatre. Prerequisite: GREK 2013 or equivalent.

**GREK4053 Greek Syntax and Composition (Irregular)** Prerequisite: GREK 2013 or equivalent.

**GREK4063 Hellenistic Poetry (Irregular)** Selections from significant post-classical authors, including Callimachus, Theocritus, Bion, Moschus, Herondas, Apollonios of Rhodes, and/or poets of the Greek Anthology. Special attention to archaic and classical influences, contemporary Hellenistic culture, and Roman responses. Prerequisite: GREK 2013.

**GREK4073 Ancient Greek Novel (Irregular)** Study of the development of the Greek novel including the works of Lucian, Longus, Heliodorus, and/or Achilles Tatius. Prerequisite: GREK 2013 or equivalent.

**GREK4083 Greek Epigraphy (Irregular)** Study of inscriptions, especially Attic, in their historical and social contexts, from the 8th century BCE to the Hellenistic/Roman period. Training in epigraphical conventions and symbols. Prerequisite: GREK 2013 or equivalent.

**GREK4093 Biblical and Patristic Greek (Irregular)** Selected readings from appropriate texts, varying by semester, including the Septuagint, New Testament, Apostolic Fathers, and other patristic literature to the 5th century CE. Reading and discussion of selected texts in major genres. Prerequisite: GREK 2013 or equivalent.

**GREK4103 Greek Oratory (Irregular)** Readings from selected speeches, to be chosen from one or more appropriate authors: Lysias, Antiphon, Demosthenes, Isocrates, Andocides. Study of sophism and rhetoric of Athens in the 5th and 4th centuries BCE. Prerequisite: GREK 2013 or equivalent.

**GREK475V Special Investigations (Sp, Su, Fa) (1-6)** May be repeated for credit.

**GREK575V Special Investigations (Irregular) (1-6)** May be repeated for up to 12 hours of degree credit.

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Graduate Education Courses (GRSD)

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**GRSD400V Research Experience Undergraduate Internship (Su) (1-6)** Internship for students participating in an undergraduate research experience. May be repeated for up to 12 hours of degree credit.

**GRSD5003 The Professoriate: Teaching, Learning and Assessment (Sp)** Designed to introduce the future academic professional to the expectations of the faculty teaching role in higher education. Topics include techniques of effective teaching and learning, dealing with a variety of institutional expectations, course management issues, and using models of effective teaching across a broad spectrum of class sizes and levels.

**GRSD5013 Field Experience in Gerontology (Irregular)** Supervised research/practical experience in field setting. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**GRSD5013 Practicum for Future Faculty (Irregular)** This course is designed to follow GRSD 5003 and to give participants opportunities to apply theories and methods learned in that course. To accomplish these goals, the course instructor helps the participant arrange a mentoring opportunity as part of this course. Prerequisite: GRSD 5003. May be repeated for up to 6 hours of degree credit.

**GRSD502V Special Topics in Preparing Future Faculty (Irregular) (1-3)** Seminar on selected topics for those anticipating a career teaching in higher education. May be repeated for up to 6 hours of degree credit.

**GRSD5033 The Professoriate: Research and Service (Fa)** Designed to complement GRSD 5003 by focusing on topics of interest to future academic professionals beyond those related to instruction. Topics include developing a research statement, strategies for securing an academic position the general nature of employment and service expectations in higher education, research ethics, and funding issues, including grant proposal writing.

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Human Environmental Sciences (HESC)

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**HESC1013 Introduction to Clothing Concepts (Sp, Fa)** Origin of dress, the evolution of fashion as an economic power, the sociological and psychological aspects of clothing in various cultures, aesthetics of dress, selection and consumption of clothing. Lecture 3 hours per week. Pre- or corequisite: HESC 1501 if HESC major.

**HESC1023 Introduction to Apparel Production (Sp, Fa)** Course focuses on basic principles of apparel production and analysis of garment components of mass produced apparel. Students utilize computer generated designs in the production process. Laboratory 6 hours per week. Prerequisite: HESC students only.

**HESC1053 Computer Based Methods for Apparel (Sp, Fa)** This course is designed to give students basic experience with CAD (computer aided design) software in a computer laboratory environment. Lecture 2 hours; laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: APST majors only.

**HESC1201 Introduction to the Dietetic Profession (Sp, Fa)** Introduction to profession of dietetics and nutrition including history, scope and future of professionals with emphasis on academic preparation, internships, acquisition of professional credentials, career laddering and career opportunities. Guest speakers will supplement lectures and assignments.

**HESC1213 Fundamentals of Nutrition (Sp, Fa)** The functions of food, body processes, optimum diets in relation to health and physical fitness.

**HESC1403 Life Span Development (Sp, Fa)** A broad overview of the physical, psychological, and social development of the individual from conception until death. Emphasis is on individual development in a family context. Lecture 3 hours per week.

**HESC1411L Observation of Children in Early Childhood Programs (Sp)** In a laboratory setting, students will learn foundational observation skills necessary to understand and assess the development of young children. Emphasis will be on objectivity, confidentiality, and accuracy as students practice a variety of documentation techniques. Corequisite: HDFS majors only.

**HESC1501 Orientation to Human Environmental Sciences (Sp, Fa)** Adjustment to study and personal problems in college. History of human environmental sciences and breadth of its professional opportunities.

**HESC1603 Introduction to Hospitality Management (Sp, Fa)** Study of the hospitality industry from a global perspec-

tive. Emphasizes development and history, ethical issues, and professional opportunities. Course explores internship opportunities and structure within the hospitality industry pertaining to preparation in written communication, resumes, interviews, securing an internship, professional behavior and ethics in the hospitality industry.

**HESC2013 Quality Assessment of Apparel (Sp, Fa)** Study of apparel from the perspective of structure, aesthetics, cost and expected performance of the finished product. Lecture 2 hours per week, lab 2 hours per week. Prerequisite: HESC 1023 and HESC 2053.

**HESC2023 Visual Merchandising and Fashion Promotion (Sp, Fa)** Fashion components, terminology and design features as applied to apparel. Principles and techniques of visual merchandising and fashion promotions as a means of mass communication in the fashion industry. Window display and store floor planning for commercial purposes. Lecture 2 hours, laboratory 2 hours per week. Pre or Corequisite: APST majors only.

**HESC2053 Introduction to Textile Science (Sp, Fa)** Textile fibers and fabrics, their structure, properties, manufacture, wearing qualities and methods of laundering, finishing, and dyeing. Artistic and economic selection of materials for clothing and household furnishings. Lecture 3 hours per week.

**HESC2111L Principles of Foods Laboratory (Sp, Fa)** Laboratory exercises and practice applicable of Principles of Foods. Lab 3 hours. Corequisite: HESC 2112.

**HESC2112 Principles of Foods (Sp, Fa)** Physical and chemical characteristics of foods and factors that affect these characteristics during storage and preparation. Lecture 2 hours. Pre- or corequisite: HESC 1501 (applies to HESC majors only). Corequisite: HESC 2111L. Prerequisite: HESC 1213 and CHEM 1073 (or CHEM 1103 or CHEM 1213).

**HESC2203 Sports Nutrition (Sp)** The integration of concepts from nutrition and exercise physiology into an applied multidisciplinary study of how food, beverages and dietary supplements influence physical performance. Prerequisite: HESC 1213.

**HESC2403 Infant and Toddler Development (Sp, Fa)** Infant and toddler development from conception through toddlerhood with emphasis on physical, emotional, social, language, and cognitive domains. Theoretical and research-based information will be applied to developmentally appropriate practice. Historical and future perspectives will be explored as will the expanding opportunities for professional work with infants and toddlers. Observations in care centers will be assigned.

**HESC2413 Family Relations (Sp, Fa)** Courtship, marriage, and parenthood in the United States, with attention to cultural and psychological factors which affect relations among family members. On-campus and Web-based delivery sections are offered. Lecture 3 hours per week. Pre- or corequisite: HESC 1501 (applies to HESC majors only).

**HESC2433 Child Development (Sp, Fa)** Theory, research, and application in physical, cognitive, social, and emotional development of the child, studied in the biocultural context. Begins with prenatal development and continues through adolescence, with special emphasis on early and middle childhood. Prerequisite: HESC 1403 or PSYC 2003.

**HESC2443 The Hospitalized Child: Child Life Programming (Sp)** Introduces child life programming in health care settings. Topics include: roles and expectations of a Child Life Specialist, importance of play, coping techniques, family advocacy, administration and professionalism. Lecture 3 hours per week.

**HESC2453 Analytical Approaches to Research in Human Development and Family Sciences I (Fa)** This course is an introduction to analytical approaches to research in human environmental sciences and will examine the principles and practices underlying the development of knowledge in the field. Emphases in this course will be on conducting and evaluating research relevant to human development and family science majors. Students will become critical consumers of research and develop basic skills to design and interpret their own studies. Prerequisite: HESC majors only.

**HESC2463 Analytical Approaches to Research in Human Development & Family Sciences II (Sp)** This course is an introduction to analytical approaches to research in human development and family sciences and will examine the principles and practices underlying the development of knowledge in the field. Emphases in this course will be on conducting and evaluating data analyses relevant to human environmental sciences majors. Students will become critical consumers of data and develop basic skills to analyze and interpret their own data. Prerequisite: HESC majors only and HESC 2453.

**HESC255V Special Topics (Irregular) (1-6)** Topics not covered in other courses or a more intensive study of specific

topics in the specializations of human environmental sciences. May be repeated for credit.

**HESC2603 Purchasing and Cost Control (Fa)** Food purchasing with emphasis on specifications. Relationship of food purchasing to available equipment. Receiving, storage, distribution, and inventory control. Meal quality control and costing. Food and nonfood materials, management of the purchasing process, and communication. Specification writing, menu analysis, and costing.

**HESC2633 Hotel and Resort Operations Management (Fa)** Detailed study of different departments within hotel properties. Emphasis on front office, food and beverage, housekeeping, engineering, security, sales and night audit reporting. Offers a complete approach to the operation of resort properties. Introduces students to the complex world of private club management, including club entertainment, recreation, and golf course management. Prerequisite: HESC 1603.

**HESC3003 Apparel Production (Sp, Fa)** A study of product development and production and the related vocabulary necessary to communicate professionally within the industry. Laboratory 6 hours per week. Prerequisite: HESC 1023 and HESC 2013.

**HESC3013 Introduction to Fashion Merchandising (Sp, Fa)** A study of the retailing of fashion. Included are market structures, store philosophies, job descriptions, responsibilities at the management level, structural operations, work procedures, job performance evaluation, job application, the resume, interdependencies of the retail store with other segments of the fashion industry. Recommended for students seeking a career in business organizations which produce and/or distribute fashion products and services. Prerequisite: HESC 1013. Prerequisite or Corequisite: ECON 2143 or ECON 2013 and ECON 2023.

**HESC3033 Fashion Merchandising Methods (Sp, Fa)** Exploration of activities associated with the procurement of fashion apparel. A fashion analysis is directed toward apparel demands and the creation of a fashion statement by the use of specific quantitative skills. Course follows fashion item from the designer to the store. Lecture 3 hours per week. Prerequisite: HESC 1013 and Math 1203 or higher.

**HESC3203 Human Nutrition (Sp)** Fundamental human nutrition; nutritive value of foods and general functions of nutrients based on concepts derived from inorganic and organic chemistry. Examples relating nutrition to disease used as illustrations to deepen understanding of normal nutrition. Lecture 3 hours per week. Pre- or Corequisite: CHEM 2613 and CHEM 2611L or CHEM 3603 and CHEM 3601L. Prerequisite: HESC 1213.

**HESC3213 Communication in Nutrition and Dietetics (Fa)** A study of communication, nutrition education, health behavior theories, counseling and interviewing techniques, the Academy of Nutrition and Dietetics Code of Ethics, outcomes research, reimbursement, marketing and medical terminology. Prerequisite: HESC 1213.

**HESC3401L Child Guidance Laboratory (Sp, Fa)** Corequisite: HESC 3402.

**HESC3402 Child Guidance (Sp, Fa)** Introduction to the guidance system. Focus on discipline techniques that are positive and age/stage appropriate for children ages 3-8. Lecture 2 hours/week plus 1 hour demonstration. Corequisite: HESC 3401L. Prerequisite: HESC 2433.

**HESC3423 Adolescent Development (Sp)** Physiological and psychological development of the older child and youth, from pre-adolescence to adulthood. Theories of adolescent development. Cross-cultural studies. Peer group influences. Some attention to pathological behaviors. Prerequisite: HESC 1403 or PSYC 2003.

**HESC3443 Families in Crisis (Fa)** An interdisciplinary perspective on internal and external crises faced by contemporary families, including substance abuse, natural disasters and other crisis events. Students will explore the family processes during such experiences and develop strategies for stress management, coping, and recovery. Lecture 3 hours per week.

**HESC3604 Menu, Layout & Food Preparation (Sp, Fa)** Preparation and service of food for large groups. Course includes recipe standardization, menu planning, cost control, sanitation, safety, and overall quality assurance. Instruction for planning food flow from receiving to service of meals, including choosing proper equipment for the flow plan and service items, as well as sanitation, maintenance and comparison of personnel requirements. Observation of and experience with quantity food production and use of equipment will also be covered in this class. Lecture 2 hours, laboratory 6 hours per week. Corequisite: Lab component. Prerequisite: HESC 1213, HESC 2112, HESC 2111L, and HESC 2603.

**HESC3633 Front Office Revenue Management (Sp)** This

course offers students the opportunity to acquire the knowledge and skills necessary to provide the front desk services of a lodging establishment. Emphasis is placed on the interrelated elements of front desk operations including financial statements such as balance sheets, profit and loss statements, nightly audit, guest portfolios, and additional hotel charges. This course will examine the front office/desk as a revenue center of a hotel in comparison to other revenue centers on property including: food and beverage, events, catering, gift shops, golf courses, spas, etc. Pre or Corequisite: HESC 2633.

**HESC3653 Food Systems Management (Fa)** Organization and management of institutional and hospital food service with focus on functions of management, health codes, and professional development. Lecture 3 hours per week. Prerequisite: HESC 1213.

**HESC3763L Family Resource Management Laboratory (Fa)** Explores management concepts and practices in the lives of individuals and families from a systemic perspective. Lecture 2 hours per week. Laboratory 2 hours per week.

**HESC400V Special Problems (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**HESC4023 Advanced Apparel Merchandising (Sp, Fa)** Advanced Apparel Merchandising aspects of fashion through interpretation of apparel classification, seasonal cycles, stock emphasis, assortment strategies, target customers, and apparel trends and an overview of marketing communication including advertising, personal selling and sales promotion. Lecture 2 hours, Laboratory 2 hours per week. Prerequisite: HESC 2023, 3013 and 3033.

**HESC4033 Advanced Textile Study (Sp, Fa)** Use of advanced computer-aided-design (CAD) software to enhance skills in textile studies in a computer laboratory environment. Lecture 2 hours, Laboratory 2 hours per week. Prerequisite: HESC 1053 and HESC 2053.

**HESC4043 History of Apparel (Fa)** The evolution of clothing from ancient times to the twentieth century with emphasis upon Western civilization. Cultural and economic factors affecting dress and customs associated with dress will be stressed. Lecture three hours per week.

**HESC4053 Contemporary Apparel (Sp)** Fashion as a social force, the origin, scope, theory, and history of the fashion business, the materials of fashion, the fashion producers, auxiliary fashion enterprises, designers, fashion leaders, and leading market. Lecture three hours per week.

**HESC4063 Advanced Apparel Production (Sp, Fa)** An advanced study of product development incorporating technology used in the industry for a career in fashion merchandising and/or product development in a computer laboratory environment. Laboratory 6 hours per week. Prerequisite: HESC 3003 and HESC 2013.

**HESC4071 Apparel Studies Pre- Internship (Sp)** A study of job descriptions, responsibilities at the management level, structural operations, work procedures, job performance evaluations, job application, the resume, and portfolio development in preparation for HESC 4082, Apparel Studies Internship. Lecture 1 hour per week. Prerequisite: Junior Standing or consent of instructor.

**HESC4082 Apparel Studies Internship (Sp, Su, Fa)** A practical experience in a retail store or in a work situation related to the apparel industry to gain insight into the field of apparel merchandising and operations. Prerequisite: Junior standing and 2.50 cum GPA and HESC 1053, HESC 2013, HESC 2023, HESC 3003, HESC 3013 and HESC 3033, HESC 4071, COMM 1313 and consent of instructor. May be repeated for up to 4 hours of degree credit.

**HESC4103 Experimental Foods (Sp)** Application of experimental methods for investigations in cookery. Group and individual problems. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: HESC 2112 and HESC 2111L and CHEM 1123 and CHEM 1121L (or HESC 2112 and HESC 2111L and CHEM 1073 and CHEM 1071L) and AGST 4023 or STAT 2303 or PSYC 2013.

**HESC4213 Advanced Nutrition (Fa)** Normal nutrition with emphasis on utilization of nutrients. Lecture and reports on current literature 3 hours per week. Prerequisite: CHEM 3813 and HESC 3203.

**HESC4223 Life Cycle Nutrition (Fa)** Study of normal nutrition emphasizing quantitative needs for nutrients as functions of biologic processes that vary during stages of the life cycle. Attention is given to preconception, pregnancy, childhood and older adults. Prerequisite: HESC 1213 and either (BIOL 2213 and BIOL 2211L or ANSC 3032 and ANSC 3042) or (CHEM 1073 and CHEM 1071L or CHEM 1103 and BIOL 1543 and BIOL 1541L).

**HESC4243 Community Nutrition (Sp)** Identifying, assessing, and developing solutions for nutritional problems encountered

at the local, state, federal, and international levels. Lecture 3 hours per week. Prerequisite: HESC 1213.

**HESC425V Food and Nutrition Seminar (Sp) (1-2)** Under the direction of the instructor, each student will select a nutrition topic and will then study the current peer-reviewed literature related to that topic, and prepare and present an individual in-depth present for their class. The presentation should be appropriate for presentation to medical doctors and other health care providers in a post-baccalaureate internship or clinical work setting. The class will meet weekly for students to give their individual presentations. Prerequisite: HESC 3203. May be repeated for up to 2 hours of degree credit.

**HESC4263 Medical Nutrition Therapy I (Fa)** Principles of medical nutrition therapy with emphasis on the Nutrition Care Process, and the pathophysiology and current standards of practice for diseases and disorders. Pre- or corequisite: HESC 4213 and HESC 3213. Prerequisite: BIOL 2213 and BIOL 2211L (or ANSC 3042) and CHEM 3813.

**HESC4273 Medical Nutrition Therapy II (Sp)** Principles of medical nutrition therapy with emphasis on the Nutrition Care Process, and the pathophysiology and current standards of practice for diseases and disorders. Lecture 3 hours per week. Prerequisite: HESC 4263.

**HESC4313 Building Family and Community Relationships (Sp)** This course will help students interested in early childhood to value the role parents play in schools and the role schools play in a community. Various models of parent involvement will be explored. Students will plan a school-community collaborative which values diverse cultures.

**HESC4332 Curriculum and Assessment: Birth to Three Years (Sp)** The course will introduce students to curriculum planning and assessment in programs serving children from birth to three years of age. Emphasis will be on responsive relationships and curriculum focused on routines and activities. Prerequisite: HESC 1411L and HESC 2403. Corequisite: HESC 4332L.

**HESC4332L Curriculum and Assessment: Birth to Three Years Laboratory (Sp)** Laboratory. Corequisite: HESC 4332.

**HESC4342 Curriculum and Assessment: Three Years through Kindergarten (Fa)** Students will plan curriculum and assessment for children three years of age through kindergarten. Emphasis will be on professionalism, philosophy and a code of ethics. Students will interact with young children and facilitate learning and assessment experiences in a program for young children. Prerequisite: HESC 1411L, HESC 3402, and HESC 3402L. Corequisite: HESC 4342L.

**HESC4342L Curriculum and Assessment: Three Years through Kindergarten (Fa)** Laboratory. Corequisite: HESC 4342.

**HESC4373 Field Experience in Birth through Kindergarten Programs (Sp)** This course provides the student with interactive and observational experiences with young children in community-based early childhood programs. Prerequisite: HESC 4332, HESC 4332L, HESC 4342, and HESC 4342L.

**HESC4423 Adult Development (Fa)** Examine individual development beginning with the transition adulthood through middle age; approximate age ranges are 18-60 years. Content focuses on physical, cognitive, psychological, and social changes that occur throughout this period of the life span. The impact of love, work, and family on men's and women's movement through the transitions that comprise adulthood are emphasized. Prerequisite: HESC 1403 or PSYC 2003 and junior standing.

**HESC4433 Dynamic Family Interaction (Sp)** Examination of family interaction across the lifespan. Methods for enhancing marriage and family relations will be examined. Sources of marital conflict, intergenerational support and negotiations process will be analyzed. Lecture three hours per week. Prerequisite: HESC 2413 and junior standing.

**HESC4443 Gerontology (Sp)** Physiological and psychological development of the aging individual, extended family relations, service networks for the elderly, and retirement activities. Some attention to housing and care needs of persons in advanced years. Lecture 3 hours per week. Seminar. Prerequisite: HESC 1403 (or HESC 2413 or PSYC 2003 or SCWK 2133) and junior standing. (Same as GERO 4443)

**HESC4453 Parenting and Family Dynamics (Sp, Fa)** Focus is on influence of parenting and family dynamics on individual development, especially factors in family life which contribute to normal psychological development. Topics include family values, the psychology of sex and pregnancy, the transition to parenthood, childbearing techniques, family influences on cognitive and social development, and changes in family relationships during the life cycle. Prerequisite: HESC 1403 or PSYC 2003 and COMM 1313.

**HESC4463 Administration and Leadership in the Helping**

**Professions (Fa)** Planning, developing, operating, and evaluating programs in the helping professions, including child care and family-related agencies. Emphasis will be on administrators' roles as leaders in organizations. Topics include facilities, budget, staff development, and policy manuals. Prerequisite: HDF5 major and senior standing or permission from instructor.

**HESC4472 Child Development Practicum (Sp)** Interaction with parents and planning, implementing, and evaluating directed experiences with children ages 3-5 in an NAEYC accredited laboratory setting -- U. of A. Nursery School. 2 hours lecture per week. Corequisite: HESC 4472L. Prerequisite: HESC 3402 and HESC 3401L and HESC 2403.

**HESC4472L Child Development Practicum Laboratory (Sp)** Actual experience facilitating children's learning with classroom activities. Participation in planning, implementing, and evaluating individual children and program. 6 hours laboratory per week. Corequisite: HESC 4472. Prerequisite: HESC3402 and HESC3401L and HESC 2403.

**HESC4483 Internship in Human Development and Family Studies (Sp, Su, Fa)** The internship experience provides practical experience for students in settings that are designed to serve the needs of individuals and/or families across the life span. Students must work a minimum of 60 hours per credit hour in the setting. Must be taken no sooner than the summer following completion of junior year. May be taken for an additional 3 hours of elective credit if second experience is distinctly different from first internship. Prerequisite: GPA Greater or Equal to 2.75. May be repeated for up to 3 hours of degree credit.

**HESC4493 Public Policy Advocacy for Children and Families (Fa)** Public policy advocacy as related to children and family issues. Strategies for advocacy will be emphasized. Lecture three hours per week. Prerequisite: RSOC 2603 or SOCI 2013.

**HESC455V Special Topics (Irregular) (1-6)** Topics not covered in other courses, a focused study of specific topics in the students' areas of concentration. May be repeated for up to 6 hours of degree credit.

**HESC4633 Hospitality Operations and Financial Analysis (Sp)** This course is an in-depth, comprehensive study of hospitality operations, with emphasis on financial statements and other accounting reports that are usually used by management staffs for strategic decision making. It includes the application of computer software and human resource management skills. Corequisite: HESC 3633. Prerequisite: AGEC 2142/2141L or WCOB 1023.

**HESC4643 Meetings, Events and Convention Management (Fa)** Focuses on the planning and management of meetings and conventions in the hospitality industry. Includes catering in food service operations & management for on-premise and off-premise. Course content will also cover working with contract management operations and theme catering. Pre- or Corequisite: AGEC 3303 or MKTG 3433. Prerequisite: HESC 1603

**HESC4653 Global Travel and Tourism Management (Fa)** Course recounts the history of travel, explores the future, and discusses the components of tourism from a global perspective. An overview of tourism planning at the global level will be presented. A variety of planning theories, procedures and tourism guidelines to meet the diverse needs of travelers, destination communities, hospitality organizations, public, non-governmental organizations, and the private sector will be introduced in this class. Prerequisite: HESC 1603 and PSYC 2003 or SOCI 2013.

**HESC4663 Issues & Trends in Hospitality & Tourism (Sp)** A study of world trends, issues, and the current state of the industry as well as predictions for the future of lodging, cruise, restaurant, technology, travel and tourism industries with applications to forecasting change in the hospitality and tourism industries. Prerequisite: HESC 1603.

**HESC4673 Destination Marketing & Operations (Sp)** This course is designed to provide students with a basic understanding of the tasks and processes involved in running a successful destination management organization (DMO). The course places heavy emphasis on destination marketing. Prerequisite: HESC 1603.

**HESC4683 Food and Wine Management, Service and Evaluation (Fa)** This course provides students with knowledge of the sensory relationship of wine and food and the important role this process has on gastronomic satisfaction and gastronomic tourism. Course topics will include developing and marketing the wine/food tourism product, wine and food pairing as a hierarchical process, gastronomic identity, Old and New World traditions, managing a food and wine program, trends in food and wine, and promoting Arkansas food and wine. Students must have senior standing and be at least 21 years old. Students are required to complete an alcohol compliance edu-

cation program prior to taking course. Students who may not imbibe for any reason should speak with the instructor about an accommodation and alternative assignments. Prerequisite: Senior standing, hospitality major, completion of alcohol compliance education program, HESC 2112/2111L, and HESC 2603.

**HESC4693 Hospitality Management Internship (Sp, Su, Fa)** Supervised experience in an instructor approved work/learning situation relating to the hospitality industry in multiple aspects of a hospitality organization. Emphasis on application of knowledge and skills to actual job roles and responsibilities. Requires employment in a hospitality setting for a minimum of 250 clock hours. Prerequisite: Junior standing, restricted to FHNH/HRMN students, & 500 hours of documented work-related hospitality industry experience. May be repeated for up to 6 hours of degree credit.

**HESC4753 Family Financial Management (Sp, Fa)** Economic considerations of the family in a rapidly changing society. Family finance and consumer problems are emphasized.

**HESC4901 Apparel Studies Pre-Study Tour (Sp) (Even years, Fa)** A study of specific regional and international fashion markets for apparel studies in preparation for HESC 4912 APST Study Tour. The course examines the design, production, distribution and retailing of fashion goods from couture fashion to mass markets. Prerequisite: 2.0 minimum GPA.. APST majors only. May be repeated for up to 4 hours of degree credit.

**HESC4912 Apparel Studies Study Tour (Su) (Even years, Fa)** An on-site study of specific regional and international fashion markets for apparel studies. Course further examines the design, production, distribution and retailing of fashion goods from couture fashion to mass markets as outlined in HESC 4901. Course includes study trip; length based upon destination. Additional fees required. Pre- or Corequisite: HESC 4901 Prerequisite: Minimum 2.0 GPA.. APST majors only. May be repeated for up to 8 hours of degree credit.

**HESC5003 Apparel Studies in the Global Economy (Even years, Fa)** Analysis of economic, social and political aspects of the domestic and international textile and apparel industries. Lecture 3 hours.

**HESC5013 Advanced Apparel Pattern Design (Sp)** Use of computer aided design technology to perform pattern making techniques for apparel production. Laboratory 5 hours per week. Prerequisite: HESC 3003.

**HESC5023 Social, Psychological and Cultural Aspects of Dress (Odd years, Fa)** Integration of social, psychological and cultural theories as they apply to appearance and clothing behavior. Lecture 3 hours.

**HESC502V Special Problems Research (Sp, Su, Fa) (1-6)**

**HESC5033 Issues and Trends in Textile Studies (Odd years, Sp)** Studies of advances in textile science and recent developments in the textile industry. Lecture 3 hours.

**HESC5043 Theories and Practices in Apparel Merchandising (Even years, Sp)** Theoretical perspectives, concepts and current practices that influence apparel merchandising. Lecture 3 hours.

**HESC5223 Nutrition During the Life Cycle (Fa)** Study of normal nutrition emphasizing quantitative needs for nutrients as functions of biologic processes that vary during stages of the life cycle. Nutritive needs during pregnancy and childhood are emphasized with some attention to nourishing aging and elderly adults. Factors that affect food choices and eating behavior are also considered. Lecture 3 hours per week. On campus and web-based delivery is offered. Prerequisite: Graduate standing and consent of instructor.

**HESC522V Readings in Nutrition (Sp) (1-6)** Seminar and individual study. Prerequisite: HESC 4213 or HESC 4223 or ANSC 3143.

**HESC5263 Medical Nutrition Therapy I (Fa)** Principles of medical nutrition therapy with emphasis on Nutrition Care Process, and the pathophysiology and current standards of practice for diseases and disorders. Lecture 3 hours, laboratory 3 hours per week. Prerequisite: Graduate standing and consent of instructor.

**HESC5273 Medical Nutrition Therapy II (Sp)** Principles of medical nutrition therapy with emphasis on the Nutrition Care Process, and the pathophysiology and current standards of practice for diseases and disorders. Lecture 3 hours per week. Prerequisite: HESC 5263.

**HESC5403 Advanced Studies in Family Relations (Fa)** This course examines family relationships in cultural and ethnic contexts. It reviews family theories, current research, and policy issues related to marriage and family in context. The course explores marriage and family relationships across the lifespan. Prerequisite: Graduate standing.

**HESC5423 Theories of Human Development (Fa)** Classic

and contemporary theories and theoretical issues concerning human development across the life span. Prerequisite: Graduate standing.

**HESC5433 Advanced Studies in Child Development (Sp)** An in-depth examination of issues in development during infancy, early, and middle childhood. Developmental theory and accomplishments/milestones are studied in the biocultural context. Emphasis is on review and analysis of classic and recent research literature and on evaluation of theoretical perspectives based on research evidence.

**HESC5443 Gerontology (Sp)** Examines physiological and psychological development of the aging individual, extended family relationships, service networks for older adults, and retirement activities. Some attention given to housing and care needs of persons in advanced years. Lecture 3 hours per week, seminar format. Prerequisite: Graduate standing. (Same as GERO 5443)

**HESC5463 Research Methodology in Social Sciences (Sp)** Logical structure and the method of science. Basic elements of research design; observation, measurement, analytic method, interpretation, verification, presentation of results. Applications to research in the economic and sociological problems of agriculture and Human Environmental Sciences. Prerequisite: Graduate standing. (Same as AGED 5463)

**HESC5643 Meetings and Convention Management (Fa)** Focuses on the planning and management of meetings and conventions in the hospitality industry.

**HESC5653 Global Travel and Tourism Management (Fa)** The course recounts the history of travel, explores the future, and discusses the components of tourism from a global perspective.

**HESC5663 Critical Issues and Trends in Hospitality and Tourism (Sp)** The hospitality industry is arguably one of the most important sources of income and foreign exchange and is growing rapidly. However, national and international crises have huge negative economic consequences. This course explores change in the world and applies this to forecasting change in the hospitality and tourism industries. This course examines the current state of the industry and makes educated predictions to the future of the lodging, cruise, restaurant, technology, and travel and tourism industries.

**HESC5683 Food and Wine Management, Service and Evaluation (Fa)** This course provides students with knowledge of the sensory relationship of wine and food and the important role this process has on gastronomic satisfaction and gastronomic tourism. Course topics will include developing and marketing the wine/food tourism product, wine and food pairing as a hierarchical process, gastronomic identity, Old and New World traditions, managing a food and wine program, trends in food and wine, and promoting Arkansas food and wine. Students must be at least 21 years old. Students are required to complete an alcohol compliance education program prior to taking course. Students who may not imbibe for any reason should speak with the instructor about an accommodation and alternative assignments. Limited to hospitality graduate students only. Prerequisite: Restricted to graduate students in HESC, must be 21 years old, completion of alcohol compliance education program.

**HESC600V Master's Thesis (Sp, Su, Fa) (1-6)**

**HESC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Health, Human Perform and Recreation (HHPR)

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**HHPR5353 Research in Health, Human Performance and Recreation (Sp, Su, Fa)** Methods and techniques of research in health, human performance and recreation including an analysis of examples of their use and practice in their application to problems of interest to the student.

**HHPR560V Workshop (Irregular) (1-6)**

**HHPR6233 Management in HHPR (Irregular)** Deals with principles, procedures, relationships, problems, and current practices in the supervision of health education and kinesiology. Includes management of facilities, programs, personnel, and processes.

**HHPR6333 Measurement in HHPR (Odd years, Fa)** Competencies for analysis and application of evaluation and measurement in HHPR.

**HHPR689V Directed Research (Sp, Su, Fa) (1-6)** Laboratory investigations, in basic and applied research.

**HHPR699V Seminar (Irregular) (1-3)** May be repeated for up to 3 hours of degree credit.

**HHPR700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

## Higher Education (HIED)

**HIED5003 Overview-American Higher Education (Fa)** A basic course in the study of higher education open to all students seeking careers in colleges and universities. Serves as an introduction to the programs, problems, issues, and trends in higher education.

**HIED5033 Student Affairs in Higher Education (Fa)** Study of origins, functions, and policies in student personnel services in contemporary 2- and 4-year colleges and universities with emphasis on the student and student development.

**HIED5043 The Student in Higher Education (Sp)** Provides those who work or plan to work in post secondary educational institutions with an understanding of the student population in contemporary colleges and universities.

**HIED504V Practicum in Higher Education (Sp, Su, Fa) (1-6)** Students are assigned to a department or agency within or outside the university for professional experience under the joint supervision of on-site personnel and university faculty. Periodic meetings are scheduled for evaluation, discussion, and examination of techniques.

**HIED5053 The Community-Junior College (Irregular)** An overview of the community college. Topics include the history and philosophy of the community college movement, students, curriculum, state and local campus governance, teaching, student personnel work, finance and issues, problems, and trends.

**HIED5073 Management of Higher Education Institutions (Su, Fa)** Principles and concepts of management and their application in college and university settings.

**HIED5083 History and Philosophy of Higher Education (Sp)** An examination of the history and development of higher education including the study of the philosophy, objectives, and functions of various types of institutions.

**HIED5173 Individual and Group Management Skills (Even years, Sp)** Development of knowledge, skill, and confidence in personal management, interpersonal relations, and structured group facilitation in a higher education setting. Prerequisite: Graduate Standing. For students not enrolled in the Higher Education Leadership program, permission of the instructor.

**HIED5643 Internship Seminar in Student Affairs (Sp)** The Internship Seminar in Student Affairs is designed to give students the opportunity to work in a functional area of Student Affairs. The seminar will meet as a class five times over the semester. May be repeated for up to 6 hours of degree credit.

**HIED574V Internship (Sp, Su, Fa) (1-3)** Supervised field experiences in student personnel services, college administration, academic advising, institutional research, development, or other areas of college and university work.

**HIED600V Master's Thesis (Sp, Su, Fa) (1-6)**

**HIED6013 The Professoriate: Problems and Issues (Sp)** An examination of the vital issues and trends affecting college faculty personnel with emphasis upon institutional practices and policies.

**HIED6023 Introduction to the Study of Higher Education (Sp, Fa)** A requirement for all new doctoral and specialist students. Familiarization with writing requirements, library search procedures, library resources, and program requirements. Prerequisite: Admission to Higher Education program (Ed.S. & Ed.D.)

**HIED605V Independent Study (Sp, Su, Fa) (1-6)** Provides students with an opportunity to pursue special study in higher education.

**HIED6083 Management Skills for Effective Leadership (Irregular)** Development of management skills that enhance leadership includes understanding yourself, managing yourself, team building, personnel selection, group and individual decision-making, problem solving, managing conflict, developing valid performance appraisal systems, conducting performance appraisal interview, and other topics of current interest. Prerequisite: Doctoral students in Higher Education or permission of the instructor.

**HIED6093 Leading Change (Irregular)** An in-depth examination of leadership, change, and culture in postsecondary education.

**HIED6183 Organization Development and Change in Higher Education (Irregular)** An examination of the theory and practice of organization development as it relates to planned change in colleges and universities.

**HIED6323 Design and Evaluation of College Teaching (Irregular)** Theory and practice of effective college teaching. Emphasis is placed on preparation and evaluation of instruction.

**HIED6343 Strategies for Effective College Teaching (Even years, Sp)** An examination of traditional and innovative instructional strategies for use in college teaching.

**HIED6423 Trends, Issues and Problems in Higher Edu-**

**cation (Odd years, Fa)** A study of the current problems and trends related to the field of higher education.

**HIED6533 Assessment of Institutional Effectiveness in Higher Education (Sp)** The course examines the fundamentals of assessment of learning outcomes and institutional effectiveness and introduces assessment as a tool to inform strategic planning and data-driven decision-making in higher education.

**HIED6653 Legal Aspects of Higher Education (Sp)** An examination of the legal status of higher education in the United States; the rights and responsibilities of educators and students including fair employment; due process; torts liability and contracts; student rights landmark court decisions; federal and state legislation having an impact on education.

**HIED6663 Finance and Fiscal Management (Sp)** Higher education finance and budgeting practices: problems, issues, trends, and policy issues in higher education.

**HIED6683 Governance and Policy Making in Higher Education (Odd years, Fa)** An analysis of governance and policy making affecting the control of colleges and universities. Attention is given to policy generation, governing board supervision, and the impact of institutional, professional, and regional groups as well as community, state, and federal pressures.

**HIED6693 Research Techniques in Higher Education (Irregular)** Techniques of research applicable to Higher Education

**HIED674V Internship (Sp, Su, Fa) (1-6)** Supervised field experiences in student personnel services, college administration, college teaching, institutional research, development, or other areas of college and university work.

**HIED699V Seminar (Sp, Su, Fa) (1-6)** A series of seminar for specialized study into areas of current significance in postsecondary education, such as leadership and planning; organization, development, and change; human resource development and appraisal; the student in higher education; etc. May be repeated for up to 6 hours of degree credit.

**HIED700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

## History (HIST)

**HIST1113 Institutions and Ideas of World Civilizations I (Sp, Fa)** Introduces the major civilizations of the world in their historical context to 1500.

**HIST1113H Honors Institutions and Ideas of World Civilizations I (Irregular)** Study of Western and non-Western civilizations.

**HIST1123 Institutions and Ideas of World Civilizations II (Sp, Fa)** Introduces the major civilizations of the world in their historical context, since 1500.

**HIST1123H Honors Institutions and Ideas of World Civilizations II (Irregular)** Study of Western and non-Western civilizations.

**HIST2003 History of the American People to 1877 (Sp, Su, Fa)** A history of American life encompassing constitutional, political, social, intellectual and economic development from prior to European colonization to 1877.

**HIST2013 History of the American People, 1877 to Present (Sp, Su, Fa)** A history of American life encompassing constitutional, political, social, intellectual and economic development from Reconstruction to the present.

**HIST2013H Honors History of the American People, 1877 to Present (Sp, Su, Fa)** A history of American life encompassing constitutional, political, social, intellectual and economic development from Reconstruction to the present. Particular emphasis will be placed on the evolution of American political institutions.

**HIST3003 History of Christianity (Irregular)** This course surveys the theological, political, and cultural history of Mediterranean Christianity, c. 30-600 CE. Special topics include patristics, Christianity and Empire, and the formation of Christian sacred space.

**HIST300V Internship in History (Sp, Su, Fa) (1-3)** Work experience in a historical agency arranged by the student under the guidance of a faculty member. Paper required. May be repeated for up to 6 hours of degree credit.

**HIST3033 Islamic Civilization (Irregular)** A survey of the foundation, evolution, and distinctive character of Islam, with attention to religion, literature, art, architecture, science, and political society. Particular attention given to the development of Islamic doctrines, sectarian movements, and systematic theology. Concludes with a look at Islamic resurgence movements and their place in the contemporary world.

**HIST3043 History of the Modern Middle East (Irregular)** Examines the history of the Islamic Middle East from the rise of the Ottoman and Safavid Persian empires up to World War

I and then concludes with the issues and patterns of 20th century Middle Eastern political and socio-economic life. Topics include Islam and politics, Arab nationalism, Western imperialism, the Arab-Zionist conflict, petroleum politics, and modernization vs. traditionalism.

**HIST3063 Military History (Irregular)** Survey of the basic principles and problems of strategy, tactics, and military organization from Alexander the Great to the present. Special attention will be given to the operation of these factors in the American Revolution, the Napoleonic Wars, the American Civil War, and World War II.

**HIST3073 Women and Gender in Latin American History (Odd years, Fa)** Examines the role of women in Latin America and the Spanish Caribbean from pre-Columbian to modern times. Special emphasis will be on women's changing gender roles and expectations as they confronted legal, political, and social institutions.

**HIST3083 Women and Christianity (Irregular)** From Paul to the mystics of the late medieval church, this course considers women's religious expression, symbolic action, interaction with holy men, and their relationship with the ecclesiastical hierarchy. Other important questions include women's institutional subordination opportunities for autonomous action.

**HIST3203 Colonial Latin America (Odd years, Fa)** An introduction to the social, cultural, political and economic formation of Latin America, during the period from 1492 to the movements for independence.

**HIST3213 Modern Latin America (Even years, Sp)** An investigation of the varying courses of modernization in Latin America, covering popular revolution, urban populism and military dictatorship.

**HIST3233 African American History to 1877 (Fa)** History of the African American experience in North America emphasizing economic, social, and cultural perspectives. Topics include the African slave trade, the creation of race and racism, the institution of slavery, free community formation in North, and the impact of the Civil War and Reconstruction on African Americans. (Same as AAST 3233)

**HIST3243 African American History Since 1877 (Sp)** The course will study the major social, political, and economic issues relating to the African American experience beginning with the late post-Reconstruction period and will include, all of the major personalities and influences in the Civil Rights Movement, from 1877 to the present.

**HIST3253 The History of Sub-Saharan Africa (Fa)** Sub-Saharan African history from the 18th century to the present, with emphasis on the impact of the slave trade, colonization, independence, and contemporary issues of the post-colonial period. Examination of the ways Africans experienced change in terms of culture, society, economics, gender, religion, politics, and labor.

**HIST3263 History of the American Indian (Fa)** Survey of North American Indian history from their arrival include pre-Columbian Indian history, the interaction of Indian and white societies, U.S. Government policy, and the role of Indians in modern American culture.

**HIST3293 History of Popular Culture (Irregular)** Historical survey of the popular arts in American with emphasis upon 20th century. Principal topics are the history of bestsellers, the theatre, popular music, movies, radio, television, and sports.

**HIST3323 The West of the Imagination (Irregular)** The changing image of the American West from the colonial period to the present and how popular impressions have reflected national attitudes and values. Special attention given to the West's portrayal in folklore, literature, art, films, and television.

**HIST3383 Arkansas and the Southwest (Sp, Fa)** Political, economic, social, and cultural development of Arkansas from the coming of the Indian to the 20th century, with special emphasis on Arkansas as a national and regional component.

**HIST3443 Modern Imperialism (Odd years, Fa)** Examines the causes, nature, and consequences of modern imperialism. The histories of five different empires are studied and compared to give an overview of the phenomenon.

**HIST3453 Modern Terrorism (Irregular)** Examines the historical foundations and course of modern terrorism, from the French Revolution to the present. Special attention is given to the Irish Republican Army, Baader Meinhoff Gang (Red Army Faction), the American militia movement, and al-Qaeda.

**HIST3473 Palestine and Israel in Modern Times (Irregular)** History of 19th-20th Century Palestine, Zionism and the founding of modern Israel, and the Palestine-Israel conflict in local and regional perspective.

**HIST3513 History of China to 1644 (Fa)** An interdisciplinary introduction to Chinese history and culture, beginning with the archaeological record and extending over the dynastic period and into early 17th century. Covers the major events, philo-

sophical and religious traditions of pre-modern China, including Confucianism, Taoism, and Buddhism.

**HIST3523 Modern China (Sp)** Survey of Chinese culture, society, government and diplomacy between 1644 and the present.

**HIST3533 World War II (Sp)** Study of the causes, conduct and consequences of the Second World War.

**HIST3553 Russia Since 1861 (Sp)** Survey of political, cultural and intellectual trends in modern Russia with emphasis upon the Revolutions of 1917, the Soviet Union, and its successor states.

**HIST3583 The United States and Vietnam, 1945-1975 (Fa)** A survey and analysis of the Vietnam War with special emphasis on its impact on American and Indochinese society.

**HIST3593 The 1960s: A World Transformed (Odd years, Sp)** The tumultuous decade of the 1960s witnessed global political, social and cultural upheavals. We will study movements for change in the United States, as well as in Europe, China, Vietnam, and Latin America. Topics will include the New Left, the counterculture, and the student, civil rights, antiwar and women's movements.

**HIST3683 Europe in the 19th Century (Even years, Fa)** Examines the political, social, and cultural history of Europe during the "long" nineteenth century from the French Revolution of 1789 to the outbreak of the First World War in 1914.

**HIST3693 Europe in the 20th Century (Even years, Sp)** Examines the political, social, and cultural history of Europe during the twentieth century from the outbreak of the First World War to the collapse of Communist states in Eastern Europe in 1989.

**HIST3923H Honors Colloquium (Irregular)** Treats a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in history). May be repeated for credit.

**HIST3973H Honors Methods (Sp)** A practical introduction to historical research and writing. Examines research methods and current theories of interpreting and evaluating the past. Prepares students for honors thesis development and writing. Required for and restricted to history honors students. Prerequisite: Junior standing as honors history major.

**HIST3983 Special Topics (Irregular)** Historical topics which are not usually presented in depth in regular courses. May be repeated for up to 9 hours of degree credit.

**HIST399VH Honors History Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**HIST4003 Greece and the Ancient Near East (Irregular)** An introduction to the origins of civilization in the ancient Near East and Greece. Emphasis placed upon the development of agriculture and cities, Hebrew religious ethics, and Greek culture, political institutions, and thought.

**HIST4013 Alexander the Great and the Hellenistic World (Irregular)** A survey of the achievements of Alexander and the culture of the new world he created. The personality and career of Alexander are examined as well as the rich diversity of the Hellenistic world: trade with India, religious syncretism, and the development of Hellenistic science and philosophy.

**HIST4023 The Roman Republic and Empire (Even years, Fa)** An introduction to Rome's cultural development from its origins as a small city state in the 8th century B.C. to its rule over a vast empire extending from Scotland to Iraq. Emphasis is placed upon the causes of Roman expansion during the Republic, the urbanization and Romanization of Western Europe, and the persecution and spread of Christianity.

**HIST4043 Late Antiquity and the Early Middle Ages (Even years, Fa)** This course examines the political, spiritual, intellectual, and social-economic developments of European history, c. 300-1000 CE. Special topics include the Christianization of the late Roman Empire and Byzantium, as well as the formation of Celtic and Germanic Kingdoms in the West.

**HIST4053 Late Middle Ages (Odd years, Sp)** This course examines the political, social-economic, intellectual, and spiritual developments of European history, c. 1000-1400 CE. Special topics include monasticism, sacred kingship, the crusades, and the medieval university.

**HIST406V Independent Study (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**HIST4073 Renaissance and Reformation, 1300-1600 (Even years, Fa)** Examines the history of Europe from the end of the Middle Ages through the Renaissance to the Reformation and Counter-Reformation. Special attention is paid to changes in popular piety, political thought, religious representation, and the discovery of the New World.

**HIST4083 Early Modern Europe, 1600-1800 (Odd years, Sp)** Begins with the upheaval of the reformation, moves through the crisis of the 17th century and culminates with the

democratic revolution of the 18th century. Examines the consolidation of the European state system, the propagation of modern science, discovery of overseas worlds, and the advent of the Industrial Revolution.

**HIST4093 The History of African Americans and Social Justice (Even years, Fa)** Explores how the United States has extended social justice to African Americans during the nation's history. Examines social justice for blacks and the impact of historic policies and practices on black life today.

**HIST4123 Africa and the Trans-Atlantic Slave Trade (Irregular)** Examines the trans-Atlantic slave trade with a primary focus on the role of Africa and Africans in creating the unique economy and culture of the trans-Atlantic world.

**HIST4133 Society and Gender in Modern Europe (Odd years, Sp)** Changing values and attitudes toward childhood, family life, sexuality, and gender roles in Europe from the Renaissance to the present. The social impact of the Industrial Revolution, urbanization, demographic change, and the two world wars.

**HIST4143 Intellectual History of Europe Since the Enlightenment (Even years, Fa)** A survey of the major developments in European thought and culture since the emergence of Romanticism. Topics include Romanticism, Darwinism, Marxism, and Modernism.

**HIST4153 Modern Ireland, 1798-1948 (Irregular)** Examines the course of Irish history from the 1798 United Irishmen rebellion to the 1948 declaration of the Republic of Ireland. Special attention is given to Catholic emancipation, the Great Famine, the Home Rule movements, the Irish War of Independence, and the Emergency (Second World War).

**HIST4163 Tudor-Stuart England, 1485-1714 (Even years, Sp)** Examines the history of the British Isles from the ascension of Henry VII and the Tudor dynasty until the close of the Stuart Era in 1714. Special attention is given to the English Reformation, the Elizabethan years, the 17th Century Revolutions, and the birth of an overseas Empire.

**HIST4173 The Latin American City (Irregular)** This course examines the social, political, and cultural aspects of the modern Latin American city from an interdisciplinary perspective. The course includes an introduction to urban studies concepts, and each semester is organized around a specific set of case studies.

**HIST4183 Great Britain, 1707-1901 (Even years, Fa)** Examines the history of the British Isles from the 1707 Act of Union between Scotland and England until the death of Queen Victoria in 1901. Special attention is given to the spread of Empire, industrialization, and the political, social, and cultural aspects of the Georgian and Victorian Eras.

**HIST4193 Great Britain, 1901-2001 (Odd years, Sp)** Examines the history of the British Isles from the death of Queen Victoria in 1901 to the reelection of Prime Minister Tony Blair in 2001. Special attention is given to the collapse of the British Empire, the birth of the welfare state, and the challenges inherent in the decline of British world power.

**HIST4213 The Era of the French Revolution (Odd years, Fa)** France from the salons of the Enlightenment to the Napoleonic Wars. The French Revolution will be explored in terms of politics and personalities, ideas and symbols, class and gender relations, and violence and terror.

**HIST4223 France Since 1815 (Even years, Sp)** Survey of French history from the overthrow of Napoleon to the 5th Republic, with emphasis on French politics, society, and culture.

**HIST4243 Germany, 1789-1918 (Odd years, Fa)** Study of German history from the Age of Absolutism to the collapse of the German Empire at the end of the First World War. Special attention is paid to the Enlightenment and Romantic movements; nationalism and the unification of Germany; and evolving conflicts over the political and social order.

**HIST4253 Germany, 1918-1945 (Irregular)** Study of German history from advent of the Weimar Republic to the end of the Third Reich with emphasis upon the failure of democratic government in the 1920s and the rise and fall of the National Socialist dictatorship.

**HIST4263 Independence and Africa Today (Sp)** Examines the last half-century of Africa's history, focusing on the last few decades. Introduction of Africa's colonial past, revolutions and struggles for independence. Review of African development in the post-colonial and contemporary era, successes and failures of independent Africa, and the challenges the continent faces today.

**HIST4283 Russia to 1861 (Fa)** Study of the political, social and cultural development of Russia through the Napoleonic invasion.

**HIST4303 Transatlantic Relations, 1919-Present (Irregular)** US-Western European Relations, from the Wilsonian era to the present, covering strategic, economic, and cultural aspects.

**HIST4313 Islamic Theology and Philosophy, 650-1700 (Irregular)** Doctrines and main figures in Islamic theology and philosophy from the origins of Islam through the seventeenth century C.E.

**HIST4333 Modern Islamic Thought (Irregular)** Main currents in Islamic theology and political philosophy from the Ottoman Empire to the end of the twentieth century.

**HIST4353 Middle East, 600-1250 (Even years, Fa)** An examination of the origins of modern Middle Eastern societies-Arabic, Turkish, and Persian-with emphasis upon the development of the Islamic faith and culture.

**HIST4363 The Middle East since 1914 (Irregular)** Middle East since 1914 addresses European colonialism, the rise of new social elites, independence, revolution, globalization, economic self-determination, persistent regional conflicts and ongoing battles over "cultural authenticity".

**HIST4373 Mongol & Mamluk Middle East 1250-1520 (Even years, Sp)** An examination of Egypt, the Fertile Crescent, and Iran in the period of the Turco-Mongol military elites. Special attention given to the rise of slave and free governments and their roles in shaping Middle East political and social patterns.

**HIST4383 The American Civil Rights Movement (Irregular)** Introduction to the history and development of the civil rights movement in the United States. (Same as AAST 4383)

**HIST4393 Early Modern Islamic Empires, 1300-1750 (Odd years, Sp)** An examination of the historical development of the three great Islamic empires in the early modern period-the Ottomans, the Safavids of Iran, and the Mughals of India. Special attention given to imperial expansion, administrative structures, religious-legal establishment, and the formation of distinct traditions in political ideology, historiography, and the arts and sciences.

**HIST4413 New Women in the Middle East (Irregular)** This course covers the transformation of social and cultural roles of women in the Middle East since the 19th Century. Emphases include political emancipation, religious reformation, artistic representation, and gendered re-definition.

**HIST4433 Social and Cultural History of the Modern Middle East (Irregular)** An analysis of Middle East history in the 17th-20th centuries which focuses on the social transformation of urban and rural life. Particular emphasis is given to the roles of economics, genealogy, art, and popular culture.

**HIST4463 The American Frontier (Odd years, Fa)** American westward expansion and its influence on national institutions and character. Emphasis on the pioneer family and the frontier's role in shaping American society, culture, economy, and politics. Topics include exploration, the fur trade, the cattle kingdom and the mining, farming, and military frontiers.

**HIST4483 African American Biographies (Irregular)** Introduction to the history and intellectual development of famous and not-so-famous African Americans. (Same as AAST 4483)

**HIST4493 Religion in America to 1860 (Irregular)** History of religion in early America, primarily from a social and cultural perspective. Topics will include region, social class, growth of institutions, slavery, print culture, and social reform in traditions including Protestantism, West African religion, Catholicism, Native American religion, and Judaism.

**HIST4503 History of Political Parties in the United States, 1789-1896 (Even years, Fa)** Origin and development of the American party system from the implementation of the constitution to the election of McKinley. (Same as PLSC 4303)

**HIST4513 History of Political Parties in the United States Since 1896 (Odd years, Sp)** Response of the party system to America's emergence as an industrial nation and world power from the election of 1896 to present. (Same as PLSC 4313)

**HIST4543 American Social and Intellectual History Since 1865 (Odd years, Sp)** Survey of thought and society since the Civil War.

**HIST4553 The Recluse in Early East Asia (Even years, Fa)** A cross-cultural study of those who chose or needed to leave the world of officialdom for the world of nature in early East Asia.

**HIST4563 The Old South, 1607-1865 (Odd years, Fa)** Survey of the political, social, and economic development of the antebellum South.

**HIST4573 The New South, 1860 to the Present (Even years, Fa)** Survey of the development of the Civil War and postwar South to the present.

**HIST4583 Arkansas in the Nation (Sp)** Designed to provide advanced undergraduate and graduate students with a comprehensive understanding of the full sweep of Arkansas history. The focus will be on social, economic and political history, and historiography.

**HIST4603 U.S. Labor History to 1877 (Odd years, Fa)** Examines the changing nature of work in U.S. history from 1607 until 1877 including the ways that workers--individually and

collectively-- understand the meanings of their labor and to the ways that notions of class, gender, ethnicity, and race inform these understandings.

**HIST4613 Colonial America 1600-1763 (Irregular)** History of colonial America from 1600 to the end of the Seven Years War emphasizing economic, social, and cultural perspectives. Topics include Native American, French, Spanish, English, Dutch, and Russian interactions in North America and the larger Atlantic World.

**HIST4623 Revolutionary America, 1763 to 1789 (Irregular)** History of revolutionary America emphasizing economic, social, and cultural perspectives. Topics include historical interpretations of the causes of the war, the impact of war on African Americans, women, loyalists, elite, and poor Americans. The course also examines the formation of the new national government.

**HIST4633 Heian Japan (794-1192) (Odd years, Sp)** A study of courtly culture and the religious world of Heian Japan.

**HIST4633H Honors Heian Japan (794-1192) (Odd years, Sp)** A study of courtly culture and the religious world of Heian Japan.

**HIST4643 Early American Republic, 1789-1828 (Irregular)** History of the early United States emphasizing social and cultural perspectives. Topics addressed will include westward expansion, slavery, religion, and economic change.

**HIST4653 Antebellum America, 1828-1850 (Irregular)** History of antebellum U.S. emphasizing social and cultural perspectives. Topics addressed will include slavery, religion, gender, the market economy, regionalism, and political developments.

**HIST4663 Rebellion to Reconstruction, 1850-1877 (Irregular)** A survey of political, social, and economic issues from the late antebellum period through Reconstruction. Emphasis is placed on the causes of the Civil War and the problems of postwar America. A brief examination of the Civil War is included.

**HIST4673 The American Civil War (Fa)** An intensive study of the political, social, military, and economic aspects of the American Civil War period.

**HIST4703 Emergence of Modern America, 1876-1917 (Odd years, Fa)** A survey of the impact of the Industrial Revolution, Imperialism, and progressivism upon American life and institutions.

**HIST4723 America Between the Wars, 1917-1941 (Irregular)** The impact of World War I, the 1920s, and the Great Depression upon American society and culture.

**HIST4733 Recent America, 1941 to the Present (Irregular)** A general survey of American history since World War II with emphasis upon the presidency, reform movements, the Cold War, and cultural developments.

**HIST4753 Diplomatic History of the United States, 1776-1900 (Even years, Fa)** Survey of American foreign relations from the American Revolution through the Spanish-American War. Principal topics include isolationism, freedom of the seas, manifest destiny and continental expansion, overseas expansion, and the diplomacy of war and peace. Emphasis on the relationship between domestic politics and foreign affairs. Prerequisite: HIST 2003.

**HIST4763 Diplomatic History of the United States, 1900-1945 (Odd years, Sp)** America's development as a world power. The course examines U.S. relations with Europe, Latin America, and East Asia, plus America's first approach to the Middle East. Particular emphasis is placed on America's involvement in World War I and World War II. Prerequisite: HIST 2013.

**HIST4773 Diplomatic History of the US, 1945 to Present (Odd years, Fa)** U.S. involvement in world affairs since WWII. The Cold War from an international perspective, including strategies, nuclear deterrence, conflicts, economic developments, cultural relations among allies and adversaries. Post-Cold War scenarios, including war on terrorism.

**HIST4783 History of Modern Mexico (Odd years, Sp)** This course examines the history of Mexico from the wars of independence to the present. Emphasis will be placed on the turbulent nineteenth century and the Mexican Revolution. Themes covered include colonial legacies, national identities, popular culture, emigration, and relations with the United States.

**HIST4793 Colonial India, 1758-1948 (Irregular)** Examines the course of Indian history from the 1758 Battle of Plassey to eventual independence from Great Britain in 1948. Special attention is given to India's place within the British Empire, particularly the East India Company, the Indian Mutiny, the Raj, the rise of Gandhi, and India's independence movement.

**HIST4853 Early Chinese Empires: Mythology, Archeology, and Historiography (Sp)** A critical introduction to the most important sources and major themes, both textual and archeological, for the study of early China.

**HIST4853H Honors Early Chinese Empires: Mythology, Archeology, and Historiography (Sp)** A critical introduction to the most important sources and major themes, both textual and archeological, for the study of early China.

**HIST4863 Classical Thought in East Asia (Fa)** Introduces the major East Asian philosophical and religious traditions including Confucianism, Daoism, Buddhism, and Shintoism. Read original sources in translation, such as Analects, and explore perspectives that stem from the traditions as they bear on contemporary global issues.

**HIST4863H Honors Classical Thought in East Asia (Fa)** Introduces the major East Asian philosophical and religious traditions including Confucianism, Daoism, Buddhism, and Shintoism. Read original sources in translation, such as Analects, and explore perspectives that stem from the traditions as they bear on contemporary global issues.

**HIST4873 Germany since 1945 (Even years, Fa)** Examines the history of Germany since the end of the Second World War including political division and economic recovery, dissident movements in East Germany and alternative cultures in West Germany, reunification in 1990, and the legacy of Nazism and the Holocaust.

**HIST4883 Health and Disease: 1500 to the present (Irregular)** Explores the emergence of epidemics against the backdrop of the nation state and anxieties over women, the lower classes, and other marginalized groups. The rise of modern health programs illuminates the cultural construction of medicine, the biases of scientific inquiry, and the tensions among paternalism, liberty, and prejudice.

**HIST4893 Senior Capstone Seminar (Fa)** Required for all history majors. Examines research methods and current theories of interpreting and evaluating the past. Emphasizes skills of analysis, synthesis, and integration. Students produce a primary source-based research paper. A grade of a B or better will satisfy the Fulbright senior writing requirement. Prerequisite: History major; senior standing.

**HIST4903 Music and the Arts of Edo Japan (1600-1868) (Odd years, Fa)** A music and arts view of urban and popular culture of the Edo period of Japan (1600-1868). Readings drawn from history, literature, aesthetics, religion and science.

**HIST4903H Honors Music and the Arts of Edo Japan (1600-1868) (Odd years, Fa)** A music and arts view of urban and popular culture of the Edo period of Japan (1600-1868). Readings drawn from history, literature, aesthetics, religion and science.

**HIST4913 Reading Japanese Noh as Cultural History (Even years, Fa)** A historical, sociocultural, and inter-arts approach to the medieval lyric-drama Japanese Noh, a form of masked theater with roots reaching beyond the 14th century.

**HIST4913H Honors Reading Japanese Noh as Cultural History (Even years, Fa)** A historical, sociocultural, and inter-arts approach to the medieval lyric-drama Japanese Noh, a form of masked theater with roots reaching beyond the 14th century.

**HIST4923 Song China (960-1279) (Odd years, Fa)** Examination of the Song dynasty (960-1279) concentrating on the education and role of the scholar-official and the literatus. Readings drawn from history, literature, personal diaries, travel accounts, political memoranda, and scientific writings.

**HIST4923H Honors Song China (960-1279) (Odd years, Fa)** Examination of the Song dynasty (960-1279) concentrating on the education and role of the scholar-official and the literatus. Readings drawn from history, literature, personal diaries, travel accounts, political memoranda, and scientific writings.

**HIST4933 Ad Paradisum: Utopias, imaginary places, and the afterlife in East Asia (Odd years, Fa)** Confucian, Daoist, and Buddhist ideas of ideal communities ('utopias'), of imaginary places ('paradise islands'), and of the afterlife ('heaven and hell') in East Asia will be traced in a broad sweep across literature, painting, and the performing arts.

**HIST4933H Hon Ad Paradisum: Utopias, imaginary places, and the afterlife in East Asia (Odd years, Fa)** Confucian, Daoist, and Buddhist ideas of ideal communities ('utopias'), of imaginary places ('paradise islands'), and of the afterlife ('heaven and hell') in East Asia will be traced in a broad sweep across literature, painting, and the performing arts.

**HIST4943 U.S. Labor History, from 1877-present (Even years, Sp)** This course will examine the changing nature of work in U.S. history from 1877 until the present. It will pay particular attention to the ways that workers--individually and collectively--understand the meanings of their labor and to the ways that notions of class, gender, ethnicity, and race inform these understandings.

**HIST4943V Senior Thesis (Irregular) (1-6)**  
**HIST5023 Historical Methods (Fa)** Practical introduction to historical research and writing. Consists of lecture, library

reading, and class criticism of research papers. Prerequisite: Graduate standing.

**HIST5043 Historiography (Irregular)** Survey of the history of historical writing and a study of the important schools and historical interpretation. Prerequisite: Graduate standing.

**HIST5053 Reading Seminar in Asian History (Irregular)** Concentrated reading in selected specialized areas of Asian history. Prerequisite: Advanced graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST506V Readings in European History (Irregular) (1-6)** Prerequisite: Graduate standing.

**HIST507V Readings in American History (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST508V Research Problems in European History (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**HIST509V Research Problems in American History (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**HIST5103 Reading Seminar in American History (Irregular)** Historiographical and bibliographical study of special areas of U.S. history, such as the Age of Jackson, the Civil War, etc. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**HIST511V Research Problems in Latin American History (Irregular) (1-6)**

**HIST5123 Research Seminar in American History (Irregular)** Research projects in selected fields of American history, such as the Civil War, the Age of Jackson, etc. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**HIST5133 Reading Seminar in European History (Irregular)** Historiographical and bibliographical study of special periods in European history, such as the Roman Empire, the late Middle Ages, the French Revolution, etc. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**HIST5143 Research Seminar in European History (Irregular)** Research projects in selected fields of European history, such as the French Revolution, humanism, etc. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**HIST5153 Reading Seminar in British History (Irregular)** Historiographical and bibliographical study of selected periods of British history. May be repeated for up to 6 hours of degree credit.

**HIST5163 Research Seminar in British History (Irregular)** Research projects in selected fields of British history. May be repeated for up to 6 hours of degree credit.

**HIST517V Readings in Asian History (Irregular) (1-6)** Prerequisite: Graduate standing.

**HIST518V Research Problems in Asian History (Irregular) (1-18)** Prerequisite: graduate standing.

**HIST5213 Reading Seminar in Middle Eastern History (Irregular)** Historiographical and bibliographical study of special areas of Middle Eastern history. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**HIST522V Readings in Latin America History (Irregular) (1-6)**

**HIST5233 Research Seminar in Middle Eastern History (Irregular)** Research projects in selected fields of Middle Eastern history. Prerequisite: Graduate standing. May be repeated for up to 3 hours of degree credit.

**HIST524V Readings in African History (Irregular) (1-6)**

**HIST525V Research Problems in African History (Irregular) (1-6)**

**HIST526V Readings in Middle Eastern History (Irregular) (1-6)**

**HIST527V Readings in Medieval History (Irregular) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST528V Research Problems in Middle Eastern History (Irregular) (1-6)**

**HIST529V Research Problems in Medieval History (Irregular) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5313 Reading Seminar in Latin American History (Irregular)** Historiographical and bibliographical study of special areas in Latin American history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5323 Research Seminar in Latin American History (Irregular)** A research seminar for the production of a major research project in Latin American history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST533V Readings in Ancient History (Irregular) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6

hours of degree credit.

**HIST534V Research Problems in Ancient History (Irregular) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5353 Reading Seminar in Medieval History (Irregular)** Historiographical and bibliographical study of special areas in medieval history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5363 Research Seminar in Medieval History (Irregular)** A research seminar for the production of a major research project in medieval history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5373 Reading Seminar in Ancient History (Irregular)** Historiographical and bibliographical study of special areas in ancient history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5383 Research Seminar in Ancient History (Irregular)** A research seminar for the production of a major research project in ancient history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5413 Reading Seminar in African History (Irregular)** Historiographical and bibliographical study of selected periods and/or topics in African history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST5423 Research Seminar in African History (Irregular)** A seminar for the production of a major research project in selected fields of African history. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**HIST570V Special Topics (Irregular) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 9 hours of degree credit.

**HIST600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**HIST700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy. May be repeated for up to 18 hours of degree credit.

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#### Honors Education (HNED)

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**HNED3001H Honors Education Thesis Tutorial (Sp, Su, Fa)** Designed to provide the foundation for the Honors Thesis. Students and faculty tutors work "one-on-one" exploring a specific topic which has been agreed upon by the student and the professor. Prerequisite: Honors candidacy. May be repeated for up to 6 hours of degree credit.

**HNED3923H Honors Education Seminar (Irregular)** Special topics or issues in education for the Honors student. Prerequisite: Honors candidacy. May be repeated for credit.

**HNED400VH Honors Education Thesis/Project (Sp, Su, Fa) (1-3)** Prerequisite: Honors candidacy and HNED 3001H.

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#### Horticulture (HORT)

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**HORT1103 Plants in the Home Environment (Fa)** A course describing the aesthetic, nutritional and health value, and other importance of plants to humans. The course will highlight the use and importance of plants and gardening through the ages, study significant gardens to humankind, and introduce students to using plants to their benefit. The use of color, texture, aroma and flavor in the home and landscape will be presented. Basic home gardening, plant care and use will be discussed and practiced.

**HORT2003 Principles of Horticulture (Sp, Fa)** A course introducing students to the biological and technologies underlying the propagation, production, handling and use of horticultural crops, turf and landscape plants. Students will be introduced to the various disciplines and commodities of horticulture. The use of plants for the benefit of humankind because of their aesthetic and nutritional value will be explored. Previous instruction in Plant Science, Plant Biology, or general Botany is strongly encouraged. Corequisite: Lab component.

**HORT2303 Introduction to Turfgrass Management (Fa)** An introductory course in turfgrass management emphasizing turfgrass growth, adaptation, and management. Methods for establishment, fertilization, mowing, cultivation, irrigation, and pest management are presented, and their impact on culture of lawns, golf courses, athletic fields, and other managed turf areas discussed.

**HORT3103 Woody Landscape Plants (Fa)** Identification, climatic adaptation and landscape design values of woody ornamental trees, shrubs and vines. Lecture 2 hours per week. Corequisite: Lab component.

**HORT3113 Herbaceous and Indoor Plant Materials (Odd years, Sp)** Identification, culture, and use of annuals, perennials in landscapes and foliage plants in interiors. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component.

**HORT3123 International Horticulture (Sp)** Considerable globalization of agriculture has occurred over the past several decades, especially in the area of horticultural crops. This course provides a base of knowledge of the international horticulture industry focusing on principles and practices of development and trade of horticultural crops.

**HORT3203 Sustainable Landscape Practices (Sp)** New methods of landscape management are required to restore or protect the ecological services provided by developed landscapes. This course is focused on methods for sustainable land management. Included as part of the curriculum is a survey of sustainable management as it applies to site resources, including water, nutrients, energy and biodiversity. Retrofitting existing development, organic lawn, tree, and shrub care, successional landscapes, permaculture, sustainable material selection, and best available equipment will be covered in depth. Prerequisite: HORT 2003.

**HORT3303 Vegetable Crops (Irregular)** General course in vegetable crops with attention to the principles underlying methods of production and handling related to yields and quality of the products. Lecture 2 hours, laboratory 2 hours per week. Prerequisite: HORT 2003 and CSES 2203.

**HORT3403 Turfgrass Management (Even years, Sp)** Cultural and management practices of commercial and residential lawns. Principles and practices of mowing, fertilizing, irrigating, and control of weed, disease, and insects. Identification of turfgrasses; equipment selection. Corequisite: Lab component. Prerequisite: HORT 2303.

**HORT3503 Sustainable and Organic Horticulture (Even years, Fa)** This course will provide a base of knowledge of the principles and practices of sustainable, organic, and alternative horticulture management systems.

The class will review and evaluate topics including soil biological processes (compost, humus and fertility), pest management, alternative farming systems, and organic agriculture. After this foundation information is studied, the class will study applications of sustainable agriculture principles to production systems such as greenhouse vegetable production, ornamental production, fruit production, and landscape and turf management.

**HORT3803 Horticulture Physiology (Sp)** This course provides students with a background into the physiological processes of plants with an emphasis on horticultural crops and how the processes relate to horticultural crop production practices. Among the topics covered are photosynthesis, respiration, water relations and morphogenesis. Prerequisite: HORT 2003 and CHEM 1073.

**HORT3901 Horticultural Career Development (Sp)** A course which presents concepts necessary for developing a career and becoming a professional in horticulture industries or businesses. Concepts of goal setting, effective communication and interpersonal skills, behaviors and performance, portfolio and resume, development and job hunting skills will be presented.

**HORT400V Special Problems (Sp, Su, Fa) (1-6)** Original investigations on assigned problems in horticulture. Prerequisite: Junior standing.

**HORT401V Special Topics in Horticulture, Turf or Landscape (Irregular) (1-6)** Topics related to horticulture, turfgrass or landscape science or management not covered in other courses or a more intensive study of a specific topic. May be repeated for credit.

**HORT402V Horticulture Judging and Competition Activity (Irregular) (1-6)** Training for and participation on horticultural identification, judging and competitive teams. Prerequisite: HORT 2003. May be repeated for up to 4 hours of degree credit.

**HORT4033 Professional Landscape Installation and Construction (Even years, Fa)** Principles and practices involved in landscape installation and construction. Topics covered include sequencing construction activities, protecting existing trees, landscape soils, selecting plants, planting and transplanting plant materials, wood construction, cement and masonry construction, and low-voltage lighting. Lecture 3 hours per week. Preparatory training in agribusiness or business is suggested. Prerequisite: HORT 2003 and HORT 3103.

**HORT4043 Professional Landscape Management (Odd years, Fa)** Principles and practices of landscape management and maintenance. Topics include low maintenance and seasonal color design, pruning and hazard tree management, water and fertilizer management, pesticide use, and other maintenance activities. Basic elements of marketing, specifications and contracts, estimating, personnel management, and equipment selection and acquisition relevant for landscape services will be introduced. Preparatory training in agribusiness or business is suggested. Prerequisite: HORT 2003 and HORT 3103.

**HORT4103 Fruit Production Science and Technology (Odd**

**years, Sp)** The management technologies and cultural practices of fruit crops including (but not limited to) blueberries, blackberries, raspberries, strawberries, grapes, peaches, and apples will be presented. The underlying scientific principles of crop genetics, nutrition, and physiology will be presented as a basis for making management decisions in fruit crop productions. Corequisite: Lab component. Prerequisite: HORT 2003.

**HORT4403 Plant Propagation (Sp)** Principles of plant propagation using seeds, cuttings, grafting, budding, layering, and tissue culture. The physiological basis of propagation is described. Knowledge of plant growth and physiology is needed. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: BIOL 1613 and BIOL 1611L.

**HORT4503 Sustainable Nursery Production (Sp)** This course addresses issues and practices involved in production of quality woody nursery crops (e.g. trees and shrubs produced in open filed and containerized systems).

**HORT4603 Practical Landscape Planning (Even years, Sp)** Ornamental planting design and landscape planning concepts. Preparing planting plans, materials sheets, and cost estimates for residential properties. Prerequisite: HORT 3103.

**HORT462V Horticulture, Landscape, Turf Sciences Internship (Sp, Su, Fa) (1-6)** A supervised practical work experience in a horticulture, landscape design, or turf business or research program to gain professional competence and insight into employment opportunities. Prerequisite: COMM 1313. May be repeated for up to 6 hours of degree credit.

**HORT4701L Greenhouse Management and Controlled Environment Horticulture Laboratory (Odd years, Fa)** Laboratory involving hands-on experiments designed to demonstrate principles discussed in the lecture section. Includes field trips. Corequisite: HORT 4703.

**HORT4703 Greenhouse Management and Controlled Environment Horticulture (Odd years, Fa)** Operation and management of greenhouses and other controlled environments used in horticultural production. Emphasis on system design and construction, control of light intensity and photoperiod, heating and cooling systems, substrates, mineral nutrition, water quality and irrigation systems. Prerequisite: HORT 2003 and CHEM 1073.

**HORT4801L Greenhouse Crops Production Laboratory (Even years, Sp)** Laboratory involving hands-on experiments designed to demonstrate principles discussed in the lecture section. Includes field trips. Corequisite: HORT 4803.

**HORT4803 Greenhouse Crops Production (Even years, Sp)** Principles and practices of production and marketing of crops commonly grown in controlled environments including flowering containerized herbaceous species, geophytes, annual and perennial bedding plants, hydroponic vegetables and herbs. Prerequisite: HORT 4703.

**HORT4903 Golf and Sports Turf Management (Odd years, Fa)** Turf management techniques for golf courses, and athletic fields including species selection, root-zone construction and modification, fertilization, mowing, irrigation and pest control. Corequisite: Lab component. Prerequisite: CSES 2203 and CSES 2201L and (HORT 2303 or HORT 3403).

**HORT4913 Rootzone Management for Golf and Sports Turf (Odd years, Sp)** An overview of the fundamental concepts of the physical and chemical properties of rootzones as related to construction and turfgrass management. Prerequisite: HORT 2303.

**HORT4921 Golf Course Operations (Even years, Fa)** This course is designed to cover specific aspects of golf course operations that would not be included in traditional turfgrass management courses. Topics will include budgeting, personnel management, tournament setup and operation, dealing with golf club committees, communication, and other relevant topics related to managing a golf course maintenance operation. Prerequisite: HORT 4903.

**HORT4932 Turf Best Management Practices (Odd years, Sp)** The course covers the impacts of turfgrass management practices on turf quality and the environment. In addition, the identification, biology, and control practices for the major insects, diseases, and weeds that infest turf will be covered. Emphasis will be placed on management strategies that include both chemical and non-chemical approaches to the prevention and control of common turfgrass pests. Prerequisite: HORT 2303 and 6 hours selected from CSES 2003, PLPA 3004, and ENTO 3013.

**HORT5001 Seminar (Sp, Fa)** Review of scientific literature and oral reports on current research in horticulture. May be repeated for up to 4 hours of degree credit.

**HORT503V Special Problems Research (Sp, Su, Fa) (1-6)** Original investigations on assigned problems in horticulture. Prerequisite: Graduate standing.

**HORT5043 Advanced Plant Breeding (Odd years, Sp)**

Application of genetic principles to the improvement of crop plants. Presentation of conventional plant breeding methods and special techniques such as polyploidy, interspecific hybridization and induced mutation. Lecture 3 hours per week. Prerequisite: BIOL 2323 and BIOL 2321L (or ANSC 3123 and CSES 4103).

**HORT5103 Plant Growth and Development (Fa)** This course will focus on environmental and developmental processes of plant growth and development. A student completing this course should have an understanding of the developmental processes of plant growth and how environmental factors interact to affect and control plant growth and development.

**HORT5203 Temperature Stress Physiology (Sp)** This course will teach students how to apply biological, chemical and physical principles to models of how plants are damaged by temperature extremes and how they change to increase resistance. Student will apply these principles to better understand plant responses to other environmental challenges, including both biotic and abiotic stresses.

**HORT600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**HORT602V Special Topics in Horticulture (Irregular) (1-3)** Discussion and advanced studies on selected topics in genetics, plant breeding, physiology and culture of horticultural crops. Prerequisite: Graduate standing. May be repeated for credit.

**HORT6033 Genetic Techniques in Plant Breeding (Irregular)** In-depth study of genetic improvement and techniques. Covers both current and classical literature. Topics to be discussed: haploidy, genetic control of pairing, somatic instability, tissue culture and protoplast fusion, and male sterility. Lecture discussion 3 hours per week. Prerequisite: BIOL 2323 and BIOL 2321L (or ANSC 3123 and CSES 4103 or equivalent).

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#### Human Resources Development (HRDV)

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**HRDV200V Work Experience (Irregular) (1-30)** Credit by advanced standing examination for job knowledge as measured by advisor approved National Occupational Competency Testing Institute (NOCTI) assessments. May be repeated for up to 30 hours of degree credit.

**HRDV3113 Skills/Strategies in Human Resource Development (Sp)** Addresses the acquisition of professional skills and strategies associated with creating and maintaining adult learning environments. Involves a regular class workshop situation where skills are practiced and encouraged and a work-based situation where skills are tried and implemented as well as assessed. Pre- or Corequisite: HRDV 3213 and HRDV 4113.

**HRDV3123 Theory and Principles of Needs Assessment and Evaluation in Human Resource Development (Sp, Fa)** Addresses the acquisition of and application of knowledge associated with needs assessment and evaluation of human resources with emphasis on workplace situations. Pre- or Corequisite: HRDV 3213 and HRDV 4113.

**HRDV3133 Theories and Principles of Communication in Human Resource Development (Sp)** This course introduces communication principles and practices in HRD. Coursework emphasizes identifying and developing communication skills that apply to roles, responsibilities, and strategies while exploring how individuals communicate in organizational systems. Both theoretical and practical applications will be included. Pre- or Corequisite: (COMM 1313 or COMM 2303) and HRDV 3213 and HRDV 4113.

**HRDV3213 Introduction to Human Resource Development (Fa)** Presents the theory and processes associated with human resource development (HRD) used to design and measure interventions in the areas of organization development, personnel training and development, and career development. Students will analyze organizations and study global implications of HRD. Also surveys topics in human resource management (HRM) that distinguish HRM from HRD. Pre- or Corequisite: PSYC 2003. Prerequisite: Departmental approval.

**HRDV3403 Employment Law in Human Resource Development (Sp, Su, Fa)** This course covers the major employment law facts and concepts used in human resource development. Applications of the key concepts and facts are emphasized in the class. Knowledge of the employment law facts and concepts and their applications at the workplace is vital for the human resource development professional. Prerequisite: HRDVBS majors only.

**HRDV3503 Workforce Behavior (Su)** The prerequisite for HRDV 450V Experiential Learning, this content examines the psychological impact of work on the individual through a study of organizational culture, job satisfaction, motivation, communication, behavioral styles, and career development. In addition,

students will assess individual personality traits, learning styles, work skills, and develop both professional and personal life goals. Prerequisite: HRDVBS majors only.

**HRDV4113 Theory and Principles of Adult Education (Fa)** Focus of study on the concept of individual differences, what they are, and how they affect the learning and teaching of adults. Pre- or Corequisite: PSYC 2003. Prerequisite: Departmental approval.

**HRDV4133 Theories and Principles of Group Dynamics in HRD (Sp, Fa)** This course uncovers various theories and principles explaining group behaviors and processes underlying facilitation of group adult learning in the workplace. It is designed to equip learners with knowledge and skills applicable to developing team performance for a competitive organizational advantage. Pre- or Corequisite: HRDV 3213 and HRDV 4113.

**HRDV4213 Strategies in Professional Development in HRD (Sp, Fa)** Students are encouraged to examine their own learning processes and professional development in terms of the theories and principles of how adults learn. Methods and strategies for self-development and change are discussed. Self-directed lifelong learning strategies that ensure continued growth for professional adult educators/human resource development practitioners will be discussed. Pre- or Corequisite: CHLP 1103 or TEED 1603 or CHLP 1002 (or 3 credit hours of a similar wellness, fitness or safety course) and HRDV 3213 and HRDV 4113.

**HRDV4233 Theories and Principles of Leadership in Human Resource Development (Sp, Fa)** This course provides an introduction to leadership principles and practices in the HRD area, and is intended as a foundation course for students practicing, or who plan to pursue a career in HRD. The emphasis is on identifying/developing HRD leadership skills and exploring various functions/attributes of leadership and their impact on HRD. Both theoretical and practical applications will be included. Pre- or Corequisite: HRDV 3213 and HRDV 4113.

**HRDV450V Experiential Learning (Sp, Su, Fa) (1-30)** This course is limited to persons qualifying for experiential credit to be applied to the Human Resource Development Concentration only. Credit is awarded for documented experiential or occupational learning based on a standardized format as suggested by the Council for the Advancement of Experiential Learning (CAEL). Credit for certain occupational training or professional certifications may also be earned using the American Council on Education (ACE) guidelines. Prerequisite: HRDV 3503. May be repeated for up to 30 hours of degree credit.

**HRDV4603 Applied HRD in Practice (Sp, Su)** The purpose of this course is to apply the theories and best practices studied in HRDV 3213, Introduction to Human Resource Development (HRD), to identified needs in an organization work setting. Completing this course satisfies one part of the General Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 3213. May be repeated for up to 6 hours of degree credit.

**HRDV4613 Applied Theory and Principles of Adult Education in HRD (Su)** In an actual business/industrial setting, the student will observe, participate and apply skills regarding adult learning principles and theory. The focus is on identifying and evaluating leaders in the field of adult education; identifying characteristics of adult learners/teachers and evaluating current issues in the field of adult education. □ Completing this course satisfies one part of the General Assessment of Student Academic Achievement in the HRDV Degree Program. □ Prerequisite: HRDV 4113.

**HRDV4623 Applied Theory and Principles of Communication in HRD Practice (Su, Fa)** In an actual work setting, the student will apply the theories, principles, concepts and skills studied in the prerequisite course. Completing this course satisfies one part of the Specific Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 3133.

**HRDV4633 Applied Skills in HRD Practice (Sp, Su)** In an actual business or industrial setting, the student will study, observe, participate and apply skills and strategies of "good training". The focus is on need for training, application of learning principles, writing instructional objectives and plans, designing active training methods, using visual aids, working with groups, and evaluating training. Completing this course satisfies one part of the General Assessment of Student Academic Achievement in the HRDV Degree Program. □ Prerequisite: HRDV 3113.

**HRDV4643 Applied Theory & Principles of Needs Assessment and Evaluation in HRD Practice (Irregular)** This course address the application of knowledge and acquisition of experience associated with needs assessment and evaluation

in human resource development with emphasis on workplace situations. Completing this course satisfies one part of the Specific Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 3123.

**HRDV4653 Applied Theories and Principles of Group Dynamics in HRD Practice (Sp, Su, Fa)** In an actual business/industrial setting, the student will apply the theories, principles, concepts and skills studied in the prerequisite course and encourage learners to apply these principles within the work setting as a means of advancing their own careers while assisting their organizations to achieve organizational goals, objectives and resulting competitive advantage. Completing this course satisfies one part of the Specific Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 4133.

**HRDV4663 Applied Theories and Principles of HRD Leadership in HRD Practice (Sp, Su)** This course is designed to guide students through an in depth process of identifying, analyzing, and synthesizing elements related to developing, articulating, and implementing an organizational vision, mission, and strategic plan. The course focuses students on exploring their own organization's strategic development plan. Completing this course satisfies one part of the General Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 4233

**HRDV4673 Applied Strategies of Professional Development in HRD Practice (Irregular)** This course is designed to enhance the student's ability to identify personal tendencies affecting team performance, promote the application of adult learning principles by encouraging self-directed learning, and increase ethical awareness in the student's profession. Students will apply concepts from HRDV 4213 Strategies in Professional Development to complete a personal behavioral assessment, develop an individualized personal development plan, and reflect on the role of ethics in their profession. Completing this course satisfies one part of the General Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 4213.

**HRDV4683 Applied Employment Law in HRD Practice (Irregular)** Students in this course shall apply theories and principles from the prerequisite HRDV 3403 course to identify and solve Employment Law compliance issues commonly faced by Human Resource Development professionals. Prerequisite: HRDV 3403.

**HRDV4693 Applied Strategies in HRD Practice (Su)** In an actual business/industrial setting, the student will study, observe, participate and apply strategies of "good training". The focus is on the identification, evaluation, and synthesis of planning and conducting training in the workplace. Completing this course satisfies one part of the Specific Assessment of Student Academic Achievement in the HRDV Degree Program. Completing this course satisfies one part of the Specific Assessment of Student Academic Achievement in the HRDV Degree Program. Prerequisite: HRDV 3113.

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#### Human Resource & Workforce Dev (HRWD)

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**HRWD5113 Foundations of Human Resource & Workforce Development (Sp)** An overview of human resource and workforce development (HRWD) in organizations. Focus on the integration of training and development, career development, and organization development. Topics include strategic planning for human resource and workforce development, needs assessment, program development, application of workplace learning theories, career development theories and methods, and application of organization learning theories.

**HRWD5123 Career Transitions (Fa)** This advanced level course is intended for career development professionals and/or subject-matter experts interested in improving their career development skills within a structured or unstructured learning environment. The emphasis in this course is on gaining career development techniques and planning formal and informal career development strategies for the individual or the organization.

**HRWD5133 HRWD Diversity Issues (Sp)** This course emphasis is on current trends and case studies of diversity in the workplace. Prerequisite: Graduate standing.

**HRWD5213 Organizational Analysis (Su)** This course introduces the analysis process in organizations. The instruction and activities will enable students to develop skills in conducting organizational needs analysis (OA) as a basis for performance improvement in the workplace.

**HRWD5223 Strategic Human Resource and Workforce Development Education (Fa)** A comprehensive examination of the issues, topics, principles, theories, philosophies and concepts facing tomorrow's HRD professionals. Includes



the transformation of strategic HRD; the role of strategic HRD leaders as change agents; the principles of strategic HRD; professional practice domains of strategic HRD; organizational learning, performance, and change; and analysis, design, and evaluation of HPI interventions. Students will identify practices for informing decisions related to the formation of strategic HRD planning and implementation efforts.

**HRWD5233 HRWD Employment, Legal, and Ethical Issues (Fa)** This course focuses on employment, legal and ethical issues within the workplace. Students will gain knowledge that should enable them to be effective in understanding current employment concerns, equal employment opportunity (EEO) laws, and ethical practices within the workplace and how these employment concerns, laws, and practices impact society.

**HRWD5313 Facilitating Learning in the Workplace (Sp)** Facilitation of learning and performance improvement in the workplace. Application of instructional methods, formal and informal learning strategies, coaching, team building, and formal and informal on-the-job learning tactics. Focus on facilitating individual and group learning to affect organizational change.

**HRWD5323 International HRWD (Fa)** Exploration of how globalization and culture affect the workplace and the human resource development profession. Difference between global HRD and HRD practiced in a single country. Impact of culture on every aspect of HRD implementation and practice. Examination of HRD practices in different regions of the world.

**HRWD5433 HRWD Capstone (Sp, Su, Fa)** This course is the final course for the degree in Human Resource and Workforce Development. Students will be assessed on their overall knowledge and understanding of the field. The focus of this course will be research and analysis of classic works and current trends. Pre- or Corequisite: 27 MED credit hours completed.

**HRWD571V Independent Study (Irregular) (1-3)** May be repeated for up to 3 hours of degree credit.

**HRWD572V Workshop (Irregular) (1-3)** Prerequisite: Advanced graduate standing. May be repeated for up to 3 hours of degree credit.

**HRWD573V Experiential Learning (Irregular) (1-18)** This course is designed for the student to attain paid or unpaid experiential development. May be repeated for up to 18 hours of degree credit.

**HRWD6313 Project and Program Evaluation (Even years, Sp)** This course is a doctoral level course designed as an introduction to project and program evaluation in human resource and workforce development. Emphasis is on (a) project design and development, (b) program development and improvement, and (c) the integration of evaluation with strategic planning and performance improvement.

**HRWD6323 Qualitative Research Design and Analysis (Even years, Sp)** This course is designed to introduce HRWD students to qualitative research design, data collection and data analysis. Course content includes data collection through interviews, field observation, records research, ethical issues associated with conducting research in organizational settings, and internal and external validity problems. Prerequisite: ESRM 5013 and ESRM 6403.

**HRWD6333 Quantitative Research Design and Analysis (Odd years, Fa)** This course provides HRWD students with the tools and abilities to design and implement an original research project using quantitative measures. Primary course elements are research design application, theoretical settings of research, and nesting research within an appropriate literature base. The course uses online technologies and on-campus learning experiences. Prerequisite: ESRM 5013 and ESRM 6403.

**HRWD6343 HRWD Dissertation Seminar (Even years, Fa)** This course addresses the principles and techniques underlying organizational research, both experimental and non-experimental. It covers the basic philosophy of science and research methods and gives attention to the practical problems of design, data collection sampling, and data analysis. Prerequisite: ESRM 5013, ESRM 6403, HRWD 6323, and HRWD 6333.

**HRWD6423 Practicum (Irregular)** Practicum is designed to allow doctoral students in workforce development education an opportunity to apply the theoretical knowledge, skills and abilities to training, teaching, or research projects. May be repeated for up to 6 hours of degree credit.

**HRWD6533 HRWD Ethical and Legal Issues (Fa)** Focuses on ethical and legal issues within the workplace and behavioral science research. Students gain knowledge that should enable them to be effective in understanding ethical and legal issues within their workplace and how they can impact society.

**HRWD6613 Learning and Teaching Theories (Sp)** Models and philosophies of important theorists in the field of teaching and learning.

**HRWD700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Humanities (HUMN)

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**HUMN1114H Honors Roots of Culture to 500 C.E. (Fa)** This course constitutes the first segment of a four-semester interdisciplinary study of the Egyptian Book of the Dead, the Torah, the Roman Colosseum, Hinduism, and Confucianism. Open to first-year Honors students by invitation only. Corequisite: Drill component.

**HUMN1124H Honors Equilibrium of Cultures 500-1600 (Sp)** This course constitutes the second segment of a four-semester sequence focusing on world cultures. Semester 2 may include the interdisciplinary study of Islam, early Byzantium, Gothic architecture, Heian Japan, and the ancient Maya. Open to first-year Honors students by invitation only. Corequisite: Drill component.

**HUMN2003 Introduction to Gender Studies (Sp)** This course explores cultural constructions of gender and sexuality using a variety of media, including literature, film, and architecture.

**HUMN2003H Honors Introduction to Gender Studies (Sp)** This course explores cultural constructions of gender and sexuality using a variety of media, including literature, film, and architecture.

**HUMN2013 Introduction to Buddhism (Fa)** Beginning with an analysis of the fundamental principles that underlie all Buddhist thought and practice, students will proceed through the major precepts that have historically distinguished the traditions of Southern and Northern Asia. Attention will also be given to Buddhism's spread through Europe and North America in the twentieth century.

**HUMN2114H Honors Birth of Modern Culture 1600-1900 (Fa)** This course constitutes the third segment of a four-semester sequence focusing on world cultures. Semester 3 may include the interdisciplinary study of Renaissance Venice, feudal Japan, Moghul India, Jefferson's Monticello, and Darwinism. Open to second-year Honors students by invitation only. Corequisite: Drill component.

**HUMN2124H Honors Twentieth Century Global Culture (Sp)** This course constitutes the fourth segment of a four-semester sequence focusing on world cultures. Semester 4 may include the interdisciplinary study of the Brooklyn Bridge, the Mexican Revolution, African literature, the Vietnam Memorial, and the atomic age. Open to second-year Honors students by invitation only. Corequisite: Lab component.

**HUMN2213 Introduction to World Religions (Sp)** A survey of the major religions, including--but not limited to--Hinduism, Buddhism, Judaism, Islam, and Christianity.

**HUMN3003 Religions of Asia (Sp)** This course explores the narrative, ritual, and communal practices of Hinduism, Jainism, Buddhism, Taoism, Confucianism, Shinto, Islam, and Sikhism.

**HUMN3163 On Death and Dying (Sp, Su, Fa)** Reviews the theory and humanistic importance of the concepts of death and dying in society. An experimental option and interdisciplinary faculty presenters will be part of the format. Prerequisite: Junior standing. (Same as SCWK 3163)

**HUMN3923H Honors Colloquium (Irregular)** Treats a special topic or issue offered as a part of the Honors Program. Prerequisite: Honors candidacy. May be repeated for credit.

**HUMN425V Colloquium (Irregular) (1-6)** An interdisciplinary, value-oriented discussion course. May be repeated for up to 6 hours of degree credit.

**HUMN425VH Honors Colloquium (Irregular) (1-6)** An interdisciplinary, value-oriented discussion course. May be repeated for up to 6 hours of degree credit.

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Interior Design (IDES)

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**IDES1003 Basic Course in the Arts: Interior Design Lecture (Su)** A general introduction to the field and the profession of interior design, as well as increasing the student's appreciation of the relationship between the enclosing architecture of the space and the interior environment.

**IDES1003H Basic Course in the Arts: Honors Interior Design Lecture (Sp, Fa)** A general introduction to the field and the profession of interior design, as well as increasing the student's appreciation of the relationship between the enclosing architecture of the space and the interior environment.

**IDES1011 Leadership By Design I (Fa)** Introduces time management, study strategies, promotes solutions for maintaining personal health and develops communication and leadership skills intended to benefit education, career and the community.

**IDES1021 Leadership by Design II (Sp)** Introduces time management, study strategies, promotes solutions for main-

taining personal health and develops communication and leadership skills intended to benefit education, career and the community.

**IDES1034 Studio 1: Design Exploration I (Fa)** Introduction to design language through two- and three-dimensional projects.

**IDES1044 Studio 2: Design Exploration II (Sp)** Ideation, representation, and space making. Prerequisite: IDES 1034.

**IDES2805 Studio 3: Basic Space Planning and Communication (Fa)** An introduction to interior space articulation and the creation of small scale spaces. Components of various presentation methods and formats. Overnight travel requires additional fees. Prerequisite: IDES 1044 and IDES 2853.

**IDES2815 Studio 4: Intermediate Space Planning and Design (Sp)** Studio activities with emphasis on conceptualization, design theory and applications, ideation, programming and computer application. Overnight travel required. Corequisite: IDES 3843. Prerequisite: IDES 2805 and IDES 2823 and WCOB 1120.

**IDES2823 Interior Design Materials and Resources (Irregular)** A study of materials and resources used in designing residential and contract interiors. CSI format utilized. Lecture 3 hours per week. Prerequisite: IDES 1044 and IDES 2853.

**IDES2823H Honors Interior Design Materials and Resources (Irregular)** A study of materials and resources used in designing residential and contract interiors. CSI format utilized. Lecture 3 hours per week. Corequisite: IDES 2805. Prerequisite: IDES 1044 and IDES 2853.

**IDES2853 Introduction to Textiles for Interior Designers (Sp)** Introduction to textile properties as they apply to interior applications, emphasis on interior serviceability and codes.

**IDES2853H Honors Textiles for Interiors (Sp)** Introduction to textile properties as they apply to interior applications, emphasis on interior serviceability and codes.

**IDES2883 History of Interiors (Irregular)** Study of historic interiors and furniture from antiquity through the present day. Identification of interior styles and furniture of these eras is emphasized.

**IDES2883H Honors History of Interiors (Irregular)** Study of historic interiors and furniture from antiquity through the present day. Identification of interior styles and furniture of these eras is emphasized.

**IDES3805 Studio 5: Design and Construction (Fa)** Emphasis on residential and commercial building systems and contract documents. Continued development of presentation skills including hand and computer-based techniques. Prerequisite: IDES 2815 and IDES 3843 and a satisfactory portfolio review.

**IDES3815 Studio 6: Large Scale Commercial Interiors (Sp)** Advanced studio problems involving larger-scale interior spaces for public use. Overnight field trip requires additional fees. Corequisite: IDES 4813 and IDES 4823. Prerequisite: IDES 3805.

**IDES3833 Building Systems (Fa)** A survey course of building systems that addresses the design implications of heating/air conditioning/ventilation, plumbing, power, data/voice/ and telecommunications, fire protection, security, and acoustical systems on building interiors. Performance characteristics and sustainable technologies will be addressed. This course will meet 4 times per semester on the scheduled day and time indicated in the schedule of classes. Schedule TBD by the instructor at the start of the semester. Corequisite: IDES 3805. Prerequisite: IDES 2815.

**IDES3833H Honors Building Systems (Fa)** A survey course of building systems that addresses the design implications of heating/air conditioning/ventilation, plumbing, power, data/voice/ and telecommunications, fire protection, security, and acoustical systems on building interiors. Performance characteristics and sustainable technologies will be addressed. This course will meet 4 times per semester on the scheduled day and time indicated in the schedule of classes. Schedule TBD by the instructor at the start of the semester. Corequisite: IDES 3805. Prerequisite: IDES 2815.

**IDES3841 Professional Development (Fa)** Development of portfolio and related materials allowing design students to present themselves successfully as candidates for employment or for graduate school. Prerequisite: Junior standing in the Interior Design Program. May be repeated for up to 3 hours of degree credit.

**IDES3843 Lighting and Related Building Systems (Irregular)** Exploration of interior design applications of lighting, electrical, and other building support systems. Prerequisite: IDES 2805.

**IDES3843H Honors Lighting and Related Building Systems (Irregular)** Exploration of interior design applications of lighting, electrical, and other building support systems. Prerequisite: IDES 2805.

**IDES465V Special Topics (Irregular) (1-6)** A focused study of

specialized topics in interior design. May be repeated for up to 6 hours of degree credit.

**IDES4805 Studio 7: Comprehensive Design Process I (Fa)** Proposal development for interior design studio problems. Emphasis on research and programming as they relate to comprehensive design solutions. Personal travel required for research related to specific project type. Prerequisite: IDES 3815 and IDES 4823.

**IDES4811 Internship for Interior Design (Su)** Summer supervised work experience and observation of operations/management procedures in approved design, government or service business. Prerequisite: IDES 3815 and IDES 4823.

**IDES4813 Human Factors in Interior Design (Sp)** Emphasis is given to human behavior as applied to interior design. Types of interior spaces, environmental effects on behavior, ergonomics, interior design needs of special groups, and human factors programs are studied. Lecture 3 hours per week. Corequisite: IDES 3815. Prerequisite: Completion of any two of the following: ANTH 1023, SOCI 2013, PSYC 2003, HESC 1403 or GEOG 1123.

**IDES4813H Honors Human Factors in Interior Design (Sp)** Emphasis is given to human behavior as applied to interior design. Types of interior spaces, environmental effects on behavior, ergonomics, interior design needs of special groups, and human factors programs are studied. Lecture 3 hours per week. Corequisite: IDES 2815. Prerequisite: Completion of any two of the following: ANTH 1023, SOCI 2013, PSYC 2003, HESC 1403 or GEOG 1123.

**IDES4815 Studio 8: Comprehensive Design Process II (Sp)** Comprehensive design studio synthesizing design skills, knowledge, and critical thinking skills developed in previous design studios, including ideation, programming, construction, and human factors. Prerequisite: IDES 4805.

**IDES4823 Professional Practice for Interior Design (Sp)** General procedures for operating and maintaining an interior design business. Business documentation, communication and computer application skills, professional responsibilities and ethics. Lecture 3 hours per week. Prerequisite: IDES 3805.

**IDES4823H Honors Professional Practice for Interior Design (Sp)** General procedures for operating and maintaining an interior design business. Business documentation, communication and computer application skills, professional responsibilities and ethics. Lecture 3 hours per week. Prerequisite: IDES 3805.

**IDES485V Design Tours (Irregular) (1-3)** Domestic and international study tours of a variety of design locations that contribute to the body of knowledge. Prerequisite: IDES 1044.

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Industrial Engineering (INEG)

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**INEG2102 Introduction to Industrial Engineering (Fa)** Survey of traditional industrial engineering problems with emphasis on computer-based solution techniques. Introduction to the Department of Industrial Engineering. Corequisite: Lab component.

**INEG2313 Applied Probability and Statistics for Engineers I (Sp, Fa)** Applications to engineering problems of probability theory, discrete and continuous random variables, descriptive statistics, single-population point and interval estimation, single-population hypothesis testing, goodness-of-fit testing, and contingency table testing. Corequisite: Drill component. Prerequisite: MATH 2564.

**INEG2313H Honors Applied Probability and Statistics for Engineers I (Sp, Fa)** Applications to engineering problems of probability theory, discrete and continuous random variables, descriptive statistics, single-population point and interval estimation, single-population hypothesis testing, goodness-of-fit testing, and contingency table testing. Corequisite: Drill component. Prerequisite: MATH 2564.

**INEG2333 Applied Probability and Statistics for Engineers II (Sp, Fa)** Applications to engineering problems of two-population point and interval estimation, two-population hypothesis testing, linear regression, correlation, design of experiments, analysis of variance, and nonparametric statistics. Introduction to statistical quality control. Prerequisite: INEG 2313.

**INEG2403 Industrial Cost Analysis (Sp)** Use of accounting information for planning and control with emphasis on the engineering viewpoint; introduction to general accounting procedures; principles of cost accounting and other aspects of production costs; budgeting, depreciation, taxes, distribution of profits, securities, sources of corporate capital, interpretation of financial statements, and other related topics. Laboratory required. Corequisite: Lab component.

**INEG2413 Engineering Economic Analysis (Sp, Fa)** Economic aspects of engineering, including current economic

problems and the treatment of estimates when evaluating alternative courses of action. Methods of selection and replacement of equipment and break-even points of operation; desirability of new processes or projects where asset life, rate of return on investment, and first, fixed, differential, marginal, and sunk costs must be considered. Corequisite: Drill component. Prerequisite: MATH 2554.

**INEG2513 Manufacturing Design (Fa)** This course introduces the concepts of manufacturing design, processes, and systems. Considering manufacturing design as an iterative decision-making process, this course focuses on the thought process, starting from defining the design problem to selecting appropriate materials and manufacturing processes as well as manufacturing systems. Corequisite: Lab component. Prerequisite: Sophomore standing.

**INEG3613 Introduction to Operations Research (Sp)** Introduction to modeling and analysis of deterministic operations design and planning problems using formal optimization algorithms and software. Identification and formulation of appropriate applications, linear programming, duality and sensitivity, network flows/transportation/assignment problems, shortest paths and CPM, integer linear programming. Prerequisite: CSCE 2004 and MATH 2574.

**INEG3623 Simulation (Fa)** The development and use of discrete-event simulation models for the analysis and design of systems found in manufacturing, distribution, and service contexts. Coverage includes conceptual modeling, model translation to computer form, statistical input models, random number generation and Monte Carlo methods, experimentation and statistical output analysis, and queuing analysis. Includes the use of modern computer simulation languages. Corequisite: Drill component. Pre or Corequisite: INEG 2333. Prerequisite: CSCE 2004.

**INEG3623H Honors Simulation (Fa)** The development and use of discrete-event simulation models for the analysis and design of systems found in manufacturing, distribution, and service contexts. Coverage includes conceptual modeling, model translation to computer form, statistical input models, random number generation and Monte Carlo methods, experimentation and statistical output analysis, and queuing analysis. Includes the use of modern computer simulation languages. Corequisite: INEG 2333 and drill component. Prerequisite: CSCE 2004.

**INEG3713 Methods and Standards (Sp, Fa)** Fundamental rules of motion economy; motion analysis by means of charts; diagrams; work place design; tool and equipment selection; operator selection; and job description and analysis. Fundamentals of time study; observed and synthetic times; use of standard data and time formula; leveling; rating; allowances; and computer program development of latest electronic time study equipment. Laboratory required. Corequisite: Lab component. Prerequisite: INEG 2313.

**INEG400VH Honors Thesis (Sp, Su, Fa) (1-3)** For Honors College students majoring in Industrial Engineering only. Prerequisite: Honors college students only.

**INEG410V Special Topics in Industrial Engineering (Irregular) (1-3)** Consideration of current industrial engineering topics not covered in other courses. Prerequisite: Senior standing. May be repeated for up to 3 hours of degree credit.

**INEG410VH Honors Special Topics in Industrial Engineering (Irregular) (1-3)** Consideration of current industrial engineering topics not covered in other courses. Prerequisite: senior standing. May be repeated for up to 3 hours of degree credit.

**INEG411V Individual Study in Industrial Engineering (Sp, Su, Fa) (1-3)** Individual study and research on a topic mutually agreeable to the student and a faculty member.

**INEG411VH Honors Individual Study in Industrial Engineering (Sp, Su, Fa) (1-3)** Individual study and research on a topic mutually agreeable to the student and a faculty member.

**INEG4223 Occupational Safety and Health Standards (Irregular)** Survey of existing and proposed standards by examining fundamental physical, economic, and legal bases. Performance vs. specific standards. Enforceability and data collection. National consensus and promulgation process. Includes a computer-based design project. Prerequisite: INEG 2313.

**INEG4223H Honors Occupational Safety and Health Standards (Irregular)** Survey of existing and proposed standards by examining fundamental physical, economic, and legal bases. Performance vs. specific standards. Enforceability and data collection. National consensus and promulgation process. Includes a computer-based design project. Prerequisite: INEG 2313.

**INEG4323 Quality Engineering and Management (Irregular)** Provides the student with complete coverage of the func-

tional area of "Quality Assurance" ranging from the need for such a function, how it works, techniques utilized, and managerial approaches for insuring its effectiveness. Prerequisite: Senior standing.

**INEG4343 Cognitive Ergonomics (Irregular)** Studies of human cognition in work settings in order to enhance performance of cognitive tasks through an understanding of cognitive processes (e.g., attention, perception errors, decision making, workload) required of operators in modern industries. Emphasis lies on how to (re)design human-machine interfaces and cognitive artifacts so that human well-being and system performance are optimized in work environments. Prerequisite: CSCE 2004

**INEG4383 Risk Analysis for Transportation and Logistics Systems (Irregular)** Fundamentals of modeling risk, analyzing risk, and managing risk in a variety of industrial and government decision-making settings. Risk measurement and model building, uncertainty quantification, and multi-objective trade-offs. Prerequisite: INEG 2313 and INEG 4553.

**INEG4423 Advanced Engineering Economy (Irregular)** Preparation of feasibility studies, including cost estimation, risk and uncertainty, sensitivity analysis and decision making. Effects of taxes, depreciation and financing costs on cash flows. Prerequisite: INEG 2413.

**INEG4423H Honors Advanced Engineering Economy (Irregular)** Preparation of feasibility studies, including cost estimation, risk and uncertainty, sensitivity analysis and decision making. Effects of taxes, depreciation and financing costs on cash flows. Prerequisite: INEG 2413.

**INEG4433 Systems Engineering and Management (Fa)** Overview of the fundamental concepts underlying the management of engineering. Reviews the engineering decision process within the life cycle. Examines implementation of basic management functions in technical organizations and development of strategy tools within a complex organization. Prerequisite: INEG 2403

**INEG4433H Honors Systems Engineering and Management (Fa)** Overview of the fundamental concepts underlying the management of engineering. Reviews the engineering decision process within the life cycle. Examines implementation of basic management functions in technical organizations and development of strategy tools within a complex organization. Prerequisite: INEG 2403

**INEG4443 Project Management (Irregular)** Analysis of the strategic level of project management including planning, organizing, and staffing for successful project execution. Professional creativity, motivation, leadership, and ethics are also explored. At the tactical level, project selection, control, and systems management are analyzed. Systems development and decision support tools for project management are studied. Prerequisite: Senior standing.

**INEG4443H Honors Project Management (Irregular)** Analysis of the strategic level of project management including planning, organizing, and staffing for successful project execution. Professional creativity, motivation, leadership, and ethics are also explored. At the tactical level, project selection, control, and systems management are analyzed. Systems development and decision support tools for project management are studied. Prerequisite: Senior standing.

**INEG4453 Productivity Improvement (Irregular)** Analysis of common productivity problems. Development of skills required to diagnose problems; measure productivity; develop improvement strategies; and provide for the implementation and maintenance of productivity measurement and improvement systems. Prerequisite: Senior standing.

**INEG4533 Application of Machine Vision (Sp)** Automated machine vision applied to assembly and inspection tasks traditionally performed by human operators; development of application by acquiring image, processing image data, analyzing image and transmitting results; application analysis, selection and economics. Laboratory required. Corequisite: Lab component. Prerequisite: Senior standing.

**INEG4543 Facility Logistics (Irregular)** The design and analysis of efficient logistics systems at the facility level, with an emphasis on distribution facilities. Unit load, break bulk, crossdock and order fulfillment centers and their component systems and software. Automated and manual systems. Corequisite: Lab component. Prerequisite: INEG 2413 and INEG 3613.

**INEG4553 Production Planning and Control (Fa)** Strategy and competition, forecasting, aggregate planning, inventory control subject to known demand, inventory control subject to uncertain demand, supply chain management, push and pull production control systems, and operations scheduling. Pre or

Corequisite: INEG 3613. Prerequisite: INEG 2313.

**INEG4563 Application of Robotics (Fa)** Industrial robotics, programming and applications; tooling and interfacing with peripheral equipment; sensor technology; machine vision; application analysis; selection and justification; research; economics; and human interface. Laboratory required. Corequisite: Lab component. Prerequisite: Senior standing.

**INEG4583 Renewable Energy: Green Power Sources (Sp)** Current developments in renewable energy from a green power source where electricity, heating and fuel supply can be obtained other than typical energy sources. Technical and economical feasibilities and economic analyses of renewable energy considered for use in residential, small businesses, and industrial complexes. Prerequisite: Senior standing.

**INEG4593 Manufacturing Systems (Irregular)** This course is designed to highlight the major topics in manufacturing systems. Different manufacturing models and metrics are emphasized. This course also introduces classification, general terminology, technical aspects, economics, and analysis of manufacturing systems. Corequisite: Lab component. Prerequisite: INEG 2513 or graduate standing.

**INEG4633 Transportation Logistics (Irregular)** Quantitative aspects of transportation and logistics involving analysis and optimization. Topics include: facility location analysis, network design, network flow and transportation modeling, vehicle routing, fleet sizing, driver assignment, and supply chain issues (logistics demand, role of inventory in the network, role of technology, etc.). Prerequisite: INEG 2333 and INEG 3613.

**INEG4683 Decision Support in Industrial Engineering (Sp)** Reinforcing important computer programming methods using industrial engineering-based applications. Students will utilize Microsoft Excel and Visual Basic for Applications to develop custom solutions to challenging industrial engineering problems. Emphasis on computational proficiency and computing productivity in a spreadsheet-based setting. Corequisite: Drill component. Prerequisite: CSCE 2004 and INEG 2313.

**INEG4723 Ergonomics (Sp, Fa)** The capabilities and limitations of humans are addressed in the context of the person's interaction with machines and the environment. Topics of discussion include anthropometric considerations in equipment design, human sensory and physiological capabilities in the work environment, selection and training of workers, and the design of controls and displays. Corequisite: Lab component. Prerequisite: INEG 2333 and INEG 3713.

**INEG4733 Industrial Ergonomics (Irregular)** Gives background and experience in measurement and evaluation of human performance as it pertains to the working environment. The physical, physiological and psychological capabilities of the tasks they are to perform. Laboratory projects required. Prerequisite: INEG 4723 and INEG 2333.

**INEG4833 Introduction to Database Concepts for Industrial Engineers (Irregular)** An introduction to the basic principles of database modeling and technologies for industrial engineers. Coverage includes analyzing user requirements, representing data using conceptual modeling techniques (e.g. UML, ERD), converting conceptual models to relational implementations via database design methodologies, extracting data via structured query language processing, and understanding the role of database technology in industrial engineering application areas such as inventory systems, manufacturing control, etc. The application of a desktop database application such as Access will be emphasized. Prerequisite: CSCE 2004.

**INEG4904 Industrial Engineering Design (Sp, Fa)** Comprehensive design problem for an industrial enterprise; integration of preceding courses through development of physical systems and organizational characteristics, financial aspects, product analysis, equipment selection, production layout, distribution systems, and overall economic analysis. Students must be in last long semester of degree program. Corequisite: Lab component. Pre- or Corequisite: INEG 4433. Prerequisite: INEG 2413, INEG 2513, INEG 3613, INEG 3713 and INEG 3623.

**INEG5123 Industrial Engineering in the Service Sector (Irregular)** Review of the development of industrial engineering into the service sector, e.g., health care systems, banking, municipal services, utilities, and postal service. Emphasizes those principles and methodologies applicable to the solutions of problems within the service industries. Prerequisite: Graduate standing.

**INEG513V Master's Research Project and Report (Sp, Su, Fa) (1-6)** Required course for students electing the report option.

**INEG514V Special Topics in Industrial Engineering (Irregular) (1-3)** Consideration of current industrial engineering topics not covered in other courses. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**INEG515V Individual Study in Industrial Engineering (Sp, Su, Fa) (1-3)** Opportunity for individual study of advanced subjects related to a graduate industrial engineering program to suit individual requirements. Prerequisite: Graduate standing.

**INEG5243 Automated Manufacturing (Irregular)** Introduction to manufacturing processes and concurrent engineering in the electronics industry. Survey of electronics components and products and the processes of fabrication and assembly. Principles of design, productivity, quality, and economics. Emphasis on manufacturability.

**INEG5313 Engineering Applications of Probability Theory and Stochastic Processes (Fa)** Basic probability theory; random variables and stochastic processes; distribution of sums, products, and quotients of random variables, with application to engineering; normal and Poisson processes; engineering applications of Markov chains, ergodic theorem, and applications. Prerequisite: INEG 2313 and MATH 2574.

**INEG5323 Reliability (Irregular)** Reliability and maintenance techniques including probability modeling, statistical analysis, testing and improvement. Emphasis on engineering applications and computer analysis methods. Prerequisite: INEG 2313 or equivalent.

**INEG5333 Design of Industrial Experiments (Irregular)** Statistical analysis as applied to problems and experiments in engineering and industrial research; experiment design and analysis; probability; and response surface analysis. Prerequisite: INEG 3333 or equivalent.

**INEG5343 Advanced Quality Control Methods (Irregular)** Acceptance sampling by attributes; single, double, sequential, and multiple sampling plans; sampling plans; sampling plans of Department of Defense; acceptance sampling by variables; Bayesian acceptance sampling; rectifying inspection for lot-by-lot sampling; control charts; special devices; and procedures. Prerequisite: INEG 2313.

**INEG5363 Generalized Linear Models (Irregular)** Introduce the generalized linear model (GLM), inference, likelihood and diagnostics. Apply log linear and logistic models. Develop techniques for growth curves, and longitudinal and survival data. Cover spatial and normal linear models, and dynamic GLM for dependent data.

**INEG5373 Repairable Systems Modeling (Irregular)** Applications of probability, statistics, simulation and optimization to problems related to 1) modeling the performance of repairable equipment; 2) designing optimal inspection and maintenance policies for repairable equipment; and 3) optimizing the allocation of maintenance resources.

**INEG5383 Risk Analysis for Transportation and Logistics Systems (Irregular)** Fundamentals of modeling risk, analyzing risk, and managing risk in a variety of industrial and government decision-making settings. Risk measurement and model building, uncertainty quantification, and multi-objective trade-offs. Credit cannot be earned for both INEG 4383 and INEG 5383.

**INEG5393 Applied Regression Analysis for Engineers (Irregular)** Present concepts and applications to introduce statistical tools for discovering relationships among variables. Focus on fitting and checking linear and nonlinear regression models. Practical tools for engineers.

**INEG5433 Cost Estimation Models (Irregular)** Overview of cost estimation techniques and methodologies applied to manufacturing and service organizations. Accomplished through detailed analysis of the cost estimation development process and various cost estimation models. Topics include data collection and management, learning curves, activity based costing, detailed and parametric estimation models, and handling risk and uncertainty. Prerequisite: INEG 3333. (Same as OMTG 5433)

**INEG5443 Decision Models (Irregular)** Focus on quantitative and qualitative decision models and techniques for technical and managerial problems. Emphasis on application and interpretation of results. Topics include decision trees, influence diagrams, weighting methods, value of information, Analytic Hierarchy Process, Bayes Theorem, Monte Carlo simulation, utility theory, risk analysis, group decision making and expert systems. Prerequisite: INEG 2313. (Same as OMTG 5443)

**INEG5523 Topics in Automated Systems (Irregular)** To understand current developments in applications of flexible automation to industrial processes. Robotics, machine vision and other sensors, human machine interface, AML/2 and V+ programming languages.

**INEG5533 Transportation Logistics (Irregular)** Topics in transportation logistics of interest to engineers: routing and location analysis, fleet sizing, logistics facilities design, applications of Geographic Information Systems (GIS) and Global Positioning System (GPS) technologies to transportation systems modeling and analysis. Prerequisite: INEG 5613.

**INEG5543 Distribution Center Design & Operations (Irregular)** To introduce the student to the field of facility logistics, as applied to distribution centers (DCs). The fundamental areas of facility design and operations (material handling systems) will be covered. Prerequisite: INEG 5613

**INEG5613 Optimization Theory I (Fa)** Basic solutions and bases in linear equations, matrix version of simplex tableau, duality and primal dual relationships, complementary slackness, revised simplex, interior point algorithms and improving search strategies. Prerequisite: Graduate standing.

**INEG5623 Analysis of Inventory Systems (Irregular)** Elements of production and inventory control, economic lot size models, price breaks models using Lagrangian method, deterministic dynamic inventory model, probabilistic one-period and multi-period models, zero and positive lead time models, and continuous review models. Prerequisite: INEG 5313.

**INEG5643 Optimization Theory II (Irregular)** Classical optimization theory, Lagrangian and Jacobian methods, Kuhn-Tucker theory and constraint qualification, duality in nonlinear problems; separable programming, quadratic programming, geometric programming, stochastic programming, steepest ascent method, convex combinations method, SUMT, Fibonacci search, and golden section method. Prerequisite: INEG 5613.

**INEG5653 Modeling and Analysis of Semiconductor Manufacturing (Irregular)** Introduction to front end of semiconductor manufacturing process, wafer processing. Topics include an introduction to wafer processing, factory and equipment capacity modeling, automated material handling, simulation, cost modeling, and production scheduling. Prerequisite: INEG 2313.

**INEG5663 Analysis of Queuing Systems (Irregular)** Poisson axioms, pure birth and death model, queue disciplines (M/M/1 and (M/M/c) models, machine servicing model, Pollazek-Khintchine formula, priority queues, and queues in series. Markovian analysis of (GI/M/K) (M/G/1) models, and bulk queues. Reneging, balking, and jockeying phenomena. Transient behavior. Prerequisite: INEG 5313.

**INEG5683 Nonlinear Programming (Irregular)** An introduction to the theory and methodology of nonlinear programming. Focus on engineering and management science applications of nonlinear optimization. Both single and multi-variable as well as unconstrained and constrained problems are addressed.

**INEG5693 Heuristic Optimization (Irregular)** Theory and applications of methodological approaches explicitly addressed to heuristic or approximate optimization of integer and combinatorial models. Prerequisite: INEG 5613.

**INEG5803 Simulation (Irregular)** The development and use of discrete-event simulation models for the analysis and design of systems found in manufacturing, distribution, and service contexts. Coverage includes conceptual modeling, model translation to computer form, statistical input models, random number generation and Monte Carlo methods, experimentation and statistical output analysis, and queuing analysis. Includes the use of modern computer simulation languages.

**INEG5813 Introduction to Simulation (Irregular)** Development and use of discrete-event simulation models for the analysis and design of systems found in manufacturing, distribution, and service contexts. Coverage includes conceptual modeling, model translation to computer form, statistical input models, random number generation and Monte Carlo methods, experimentation and statistical output analysis, and queuing analysis. For off-campus, distance education students only.

**INEG5823 Systems Simulation I (Irregular)** Random number generation, random variate generation, timekeeping in simulations, discrete event modeling, construction of digital simulation models, statistical analysis of simulation results, and analysis of simulation experiments utilizing a computer programming language. Prerequisite: INEG 3623 or INEG 5803 or equivalent.

**INEG5843 Scheduling and Sequencing I (Irregular)** An introduction to constructive algorithms and various operations research approaches for solving sequencing and scheduling problems. The NP-completeness of most scheduling problems leads to a discussion of computational complexity, the use of heuristic solution methods, and the development of worst case bounds. Prerequisite: INEG 3613 and computer programming proficiency.

**INEG600V Master's Thesis (Sp, Su, Fa) (1-9)**

**INEG6613 Operations Research Applications (Irregular)** Investigation of literature case studies; use of mathematical models to solve practical problems; data collection and solution implementation. Students work in teams on actual problems observed in industry and government. Prerequisite: INEG 4623, INEG 5313 and INEG 5613.

**INEG6823 Systems Simulation II (Irregular)** Advanced

topics in computer simulation including experimental design, simulation optimization, variance reduction, and statistical output analysis techniques applied to discrete event simulation. Prerequisite: INEG 5823.

#### INEG700V Doctoral Dissertation (Sp, Su, Fa) (1-18)

##### International Relations (IREL)

**IREL2813 Introduction to International Relations (Sp, Fa)** Introduction to the international system, theories of international behavior, political economy, conflict and peacemaking, the third world, international law and organizations, and the nature of the post-Cold War world. (Same as PLSC 2813)

**IREL300V Internship in International Relations (Su) (1-6)** Internship in international relations-related agency or organization, arranged by the student and/or faculty member, under the guidance of a faculty member. May be repeated for up to 6 hours of degree credit.

**IREL399VH Honors Thesis (Sp, Su, Fa) (1-6)** To be used for completing an International Relations Honors Thesis. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**IREL4003 International Relations Seminar (Fa)** The capstone course in international relations involves intensive study of major global trends and issues. Students choose a research project culminating in a senior thesis to meet the College writing requirement. Prerequisite: FIIR 2813 or PLSC 2813.

**IREL406V Independent Study in International Relations (Irregular) (1-6)** Independent study in international relations. Arranged in agreement and under the guidance of a faculty member. May be repeated for up to 6 hours of degree credit.

##### Information Systems (ISYS)

**ISYS2263 Introduction to Information Systems (Sp, Fa)** This course presents the fundamental concepts used in developing information systems. It provides a framework for students to use throughout their software development coursework. Also includes management of information systems concepts. This course requires extensive use of computer systems. Prerequisite: WCOB 1023 and MATH 2053 each with a grade of C or better.

**ISYS3293 Systems Analysis and Design (Sp, Fa)** Practice and application of one structured analysis methodology; development of structured analysis specification; exposure to other methodologies; quality assurance and walkthroughs; survey of real systems and their components. Prerequisite: ISYS 2263 or CSCE 2014 with a grade of "C" or better.

**ISYS3393 Business Application Development Fundamentals (Sp)** Principles of design and development of windows and web applications using cutting edge visual development tools included in Visual Studio. The programming language will be Visual Basic and its use in Windows applications and in conjunction with active server pages and XML for web applications. Prerequisite: ISYS 2263 or CSCE 2014 with a grade of "C" or better.

**ISYS4003H Honors Information Systems Colloquium (Fa)** Explores events, concepts and/or new developments in the field of Computer Information Systems and Quantitative Analysis. Prerequisite: Senior standing.

**ISYS4233 Seminar in ERP Development (Sp)** ERP administration and system development practices. Advanced system support issues related to Enterprise Resource Planning systems that are used in global organizations. Basic ABAP programming. In addition, students will learn how to provide basic systems administration support of the operating system, database, and application systems software levels of ERP systems. Pre- or Corequisite: WCOB 4223 with a grade of "C" or better.

**ISYS4243 Current Topics in Computer Information (Irregular)** Intensive investigation of selected developments in computer information systems hardware, software, and organization having current impact on computer information systems design and application. Offering an extension of lower-level CIS courses through individual student research and faculty team-teaching of advanced topics. Topical selection made with each course offering. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**ISYS4283 Business Database Systems (Fa)** Introduces student to centralized information system design and implementation for business applications. In-depth study of logical systems modeling; physical file management; and software requirements. Pre- or Corequisite: ISYS 3393. Prerequisite: ISYS 3293 with a grade of "C" or better.

**ISYS4293 Business Intelligence (Sp)** Business intelligence focuses on creating, developing and storing information and

knowledge from internal and external sources to better support business decisions. We will consider techniques from machine learning, data mining, and information retrieval to extract useful knowledge from data, which could be used for business intelligence, personalization or user profiling. Prerequisite: WCOB 1033 with a grade of "C" or better.

**ISYS4363 Business Project Development (Sp)** Review of fundamentals of application processing systems design and development; implementation of such a system by class. Pre- or Corequisite: ISYS 4283. Prerequisite: ISYS 3393 with a grade of "C" or better.

**ISYS4373 Application Development with Java (Fa)** This course covers object-oriented programming concepts and illustrates them via an appropriate object-oriented programming language. Students will be exposed to the design of software objects, creation of software objects, and the use of objects in constructing an information system. Prerequisite: ISYS 3293.

**ISYS4453 Introduction to Enterprise Servers (Fa)** The focus of this course is to expose students to working with large scale mainframe computer systems. Mainframe computers are the heart of large company's transaction processing systems. This course provides the opportunity for students to gain valuable insight into computing in a mainframe operating environment. Prerequisite: ISYS 2263 or CSCE 2014 with a grade of "C" or better.

**ISYS4463 Enterprise Transaction Systems (Sp)** Being able to accurately capture and store business transactions is an important processing function in many businesses. For many large companies with high volume processing, the tools of choice for transaction processing are CICS/Cobol/DB2. This course provides students with the necessary understanding and skills to work in this type environment. Prerequisite: ISYS 2263 or CSCE 2014 or ISYS 4453 with a grade of "C" or better.

**ISYS450V Independent Study (Sp, Fa) (1-3)** Permits students on individual basis to explore selected topics in data processing and/or Quantitative Analysis.

**ISYS511V IT Toolkit & Skills Seminar (Irregular) (1-3)** Seminar in Information Systems solutions and concepts (such as applications development, VB.NET, analysis of problems and design of solutions via application systems, etc.) designed for students entering the MIS program--may not be used for MIS degree credit. Prerequisite: MIS Director approval. May be repeated for up to 3 hours of degree credit.

**ISYS5133 E Business Development (Sp)** This course explores various e-business development technologies and then utilizes the technologies for developing a relatively realistic business-to-consumer (B2C) e-business site. Students will also learn about Business to Business (B2B) strategies, market exchanges, XML and XML Web services applications. Simple XML Web services will also be created. Prerequisite: ISYS 5110 (or equivalent).

**ISYS5203 Experimental Design (Fa)** ANOVA, experimental design, introduction to basis of statistics. Prerequisite: Graduate standing and WCOB 1033 or equivalent.

**ISYS5233 Seminar in ERP Development (Irregular)** ERP administration and system development practices. Advanced system support issues related to Enterprise Resource Planning systems that are used in global organizations. Basic ABAP programming. In addition, students will learn how to provide basic systems administration support of the operating system, database, and application systems software levels of ERP systems. Pre- or Corequisite: WCOB 5223. Prerequisite: ISYS 5110 (or equivalent) and WCOB 5213. May be repeated for up to 6 hours of degree credit.

**ISYS535V Information Technology Internship Experience (Sp, Su, Fa) (1-6)** This course allows a student to experience an internship within a business and benefit from the applied IT experience. The internship must focus on IT applications/problems and be supervised by a faculty member as well as a member of the firm. Pre- or corequisite: MIS Director approval is required. May be repeated for up to 9 hours of degree credit.

**ISYS5363 Business Analytics (Sp)** This course in managerial business analytics provides future managers with the key concepts of decision modeling and information technology management concepts. Students will learn to utilize real time operational business data, as well as quickly process and effectively leverage information. In addition, students will exercise strategic IT deployment skills for supply chain and marketing processes as well as develop strong decision modeling abilities.

**ISYS5423 Seminar in Systems Development (Fa)** Advanced study of structured systems development. Emphasis on strategies and techniques of structured analysis and structured design for producing logical systems specifications and for deriving physical systems designs. Coverage of methodologies for dealing with complexity in the development of information

systems. Prerequisite: ISYS 5110 (or equivalent) and ISYS 3293 (or equivalent).

**ISYS5433 Enterprise Systems (Sp)** Enterprise Systems comprises the entire class of information technology and systems that support the mission of the company including decision support and business processes. This managerial enterprise systems course focuses on strategic issues of information technology. Students study the various elements and integration of an organization's business processes; as a result, students gain an understanding and working knowledge of systems used to support these business processes and their use in decision making. In addition, students will study concepts and develop skills needed to utilize decision-centric business intelligence and knowledge management applications.

**ISYS5453 Introduction to Enterprise Servers (Fa)** The focus of this course is to expose students to working with large scale mainframe computer systems. Mainframe computers are the heart of large company's transaction processing systems. This course provides the opportunity for students to gain valuable insight into computing in a mainframe operating environment. Prerequisite: ISYS 5110 or equivalent.

**ISYS5463 Enterprise Transaction Systems (Sp)** Being able to accurately capture and store business transactions is an important processing function in many businesses. For many large companies with high volume processing, the tools of choice for transaction processing are CICS/Cobol/DB2. This course provides students with the necessary understanding and skills to work in this type environment. Pre- or Corequisite: ISYS 5453 (or equivalent) or MIS Director approval. Prerequisite: ISYS 5110 (or equivalent).

**ISYS5503 Decision Support Systems (Sp)** An analysis of the highest level of information support which serves the manager-user. A study of systems providing quantitative-based information derived from one or more databases within and/or external to the organization and used to aid upper-level management in the decision making process. The evaluation and application of tools in problem solving and decision making. Prerequisite: ISYS 5110 (or equivalent).

**ISYS5613 Business Applications of Nonparametric Techniques (Sp)** (First offered Summer 2002, Formerly CISQ 5613) Consideration of business and economic research related to sampling and experimental design, testing of hypothesis, and using nonparametric tests. Prerequisite: ISYS 5203 or equivalent.

**ISYS5623 Multivariate Analysis (Sp)** Principal component analysis, regression analyses. Prerequisite: ISYS 5203.

**ISYS5713 Seminar in IS Topics (Irregular)** Intensive seminar in selected information systems topics. Topical selection made with each course offering. Prerequisite: ISYS 511V or MIS Director approval. May be repeated for up to 9 hours of degree credit.

**ISYS5723 Advanced Multivariate Analysis (Irregular)** Factor analysis and other advanced techniques. Prerequisite: ISYS 5623.

**ISYS5833 Data Management Systems (Fa)** Investigation and application of advanced database concepts include database administration, database technology, and selection and acquisition of database management systems. Data modeling and system development in a database environment. Pre- or Corequisite: ISYS 5423. Prerequisite: ISYS 5110 (or equivalent).

**ISYS5843 Seminar in Business Intelligence and Knowledge Management (Fa)** Business intelligence focuses on assessing and creating information and knowledge from internal and external sources to support business decision making process. In this seminar, data mining and information retrieval techniques will be used to extract useful knowledge from data, which could be used for business intelligence, and knowledge management. Prerequisite: ISYS 5503 or equivalent and ISYS 5833 or equivalent.

**ISYS5933 Global Information Systems Seminar (Su)** This course is designed to provide an updated, comprehensive and rigorous treatment of the emerging global IT fields. It summarizes current experiences, offers managerial insights, and incorporates foundational perspectives and examines significant issues from global perspectives. Prerequisite: Graduate standing and MIS Director approval.

**ISYS5943 Management of Information Technology Seminar (Sp)** Presented in a way that allows you to play an active role in the design, use, and management of information technology. Using IT to transform the organization, as competitive strategy, and creating new relationship with other firms is included. Prerequisite: ISYS 5423 and ISYS 5833.

**ISYS601V Graduate Colloquium (Sp, Fa) (1-6)** Presentation and critique of research papers and proposals.

**ISYS6133 Survey of IS Research (Fa)** This is an introductory

seminar in information systems research for doctoral students. Its objective is to introduce participants to major streams of IS research and discuss many of the important roles and responsibilities of an IS researcher. Also, this course will play the important role of introducing participants to the research of the current IS faculty.

**ISYS6233 IS Research Projects (Irregular)** The students will understand the ideas underlying a scientific contribution; understand the practical challenges in designing and executing a study; Design and execute a study; Write an empirical journal article.

**ISYS6333 Individual-level Research in IS (Irregular)** This course aims to expose students to individual-level research in IS. It provides a window into major streams of individual-level research in IS and reference disciplines. May be repeated for up to 18 hours of degree credit.

**ISYS636V Special Problems (Irregular) (1-6)** Independent reading and research under supervision of senior staff member. May be repeated for up to 6 hours of degree credit.

**ISYS6423 Structural Equation Modeling (Irregular)** Structural equation modeling using current tools, such as AMOS.

**ISYS6433 Team-level Research in IS (Irregular)** This course aims to expose students to team-level research in IS and reference disciplines.

**ISYS6533 Macro- and Meso-level IS Research (Irregular)** This course aims to expose students to research at the macro- and meso-levels. For example, it could provide a window into major streams of organizational-level research in IS and reference disciplines. Topics could also include: change management, ERP research models, implementation, applications, and successes/failures, and ERP simulation models. Other topics that fall within the purview of the course are: large-scale technology and process innovations in organizations--e.g., software development process innovations and RFID will be examined at various levels (e.g., organizational).

**ISYS6633 Systems Development (Irregular)** The course provides an in-depth study of systems development as an area of research, understanding of the theoretical and conceptual foundations, insight into the current state of the research area, utilizes both IS and reference discipline literature as appropriate, guidance for conducting research projects and producing publishable research, an opportunity to work on cutting-edge research.

**ISYS6733 Emerging Topics (Irregular)** Various emerging topics, such as RFID applications and RFID supply chain, ethical decision models, behavioral modeling, piracy and privacy issues, and virtual worlds.

**ISYS6833 Theory Development (Irregular)** To acquire theory development and writing skills, to understand challenges in developing and writing theory sections of papers, and to discuss approaches to writing good empirical journal articles. This course is suited for all social sciences students and is particularly appropriate for students conducting behavioral research in the business disciplines.

**ISYS700V Doctoral Dissertations (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Italian (ITAL)

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**ITAL1003 Elementary Italian I (Fa)**

**ITAL1013 Elementary Italian II (Sp)** Elementary courses stress correct pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**ITAL2003 Intermediate Italian I (Fa)** Intermediate courses lead to greater facility in spoken language and to more advanced reading skills.

**ITAL2013 Intermediate Italian II (Sp)** Continued development of basic speaking comprehension, and writing skills and intensive development of reading skills.

**ITAL3003 Italian Conversation (Fa)** Three hours per week of guided conversation practice for the post-intermediate student. Prerequisite: ITAL 2013.

**ITAL3013 Introduction to Literature (Sp)** Development of reading skills and introduction to literary analysis. Prerequisite: ITAL 2013 or equivalent. May be repeated for up to 3 hours of degree credit.

**ITAL4003 Advanced Italian Conversation (Fa)** Conversation practice for advanced undergraduates. Intended to refine language comprehension while providing in-depth understanding of Italian life and culture. Prerequisite: ITAL 3003 and ITAL 3013.

**ITAL475V Special Investigations (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

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Japanese (JAPN)

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**JAPN1003 Elementary Japanese I (Fa)**

**JAPN1013 Elementary Japanese II (Sp)** Elementary courses stress correct pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**JAPN2003 Intermediate Japanese I (Fa)** Intermediate courses lead to greater facility in spoken language and to more advanced reading skills.

**JAPN2013 Intermediate Japanese II (Sp)** Continued development of basic reading comprehension and writing skills and intensive development of reading skills. Prerequisite: JAPN 2003 or equivalent.

**JAPN2013H Honors Intermediate Japanese II (Sp)** Continued development of basic reading comprehension and writing skills and intensive development of reading skills. Prerequisite: JAPN 2003 or equivalent.

**JAPN2022 Intermediate Conversation I (Irregular)** Supplemental to 2003. Provides 2 hours of guided conversation per week with the objective of building the listening/speaking skills.

**JAPN2032 Intermediate Conversation II (Sp, Fa)** Supplemental to 2013. Provides 2 hours of guided conversation per week with the objective of building the listening/speaking skills.

**JAPN2116 Intensive Intermediate Japanese (Irregular)** Equivalent to JAPN 2013. Emphasizes intensive oral/aural drills and reading/speaking exercises and intensive grammar drills. Prerequisite: JAPN 1013 or equivalent.

**JAPN3003 Advanced Japanese I (Irregular)** Introduces more complex forms and structures of the language as well as more Kanji (Chinese Characters) aiming at the improvement of all the skills: speaking, listening, writing and reading. Prerequisite: JAPN 2013.

**JAPN3003H Honors Advanced Japanese I (Irregular)** Introduces more complex forms and structures of the language as well as more Kanji (Chinese Characters) aiming at the improvement of all the skills: speaking, listening, writing and reading. Prerequisite: JAPN 2013.

**JAPN3013 Advanced Japanese II (Irregular)** Continuation of JAPN 3003 with more complex forms and structures of the language as well as more Kanji (Chinese Characters) aiming at the improvement of all the skills: speaking, listening, writing and reading. Prerequisite: JAPN 3003.

**JAPN3013H Honors Advanced Japanese II (Irregular)** Continuation of JAPN 3003 with more complex forms and structures of the language as well as more Kanji (Chinese Characters) aiming at the improvement of all the skills: speaking, listening, writing and reading. Prerequisite: JAPN 3003.

**JAPN3033 Advanced Japanese Conversation (Sp)** Conversational practice for advanced learners of Japanese. Designed primarily for students who intend to use Japanese in business and other formal settings. Honorific and humble expressions will be emphasized. Prerequisite: JAPN 2013.

**JAPN3033H Honors Advanced Japanese Conversation (Fa)** Conversational practice for advanced learners of Japanese. Designed primarily for students who intend to use Japanese in business and other formal settings. Honorific and humble expressions will be emphasized. Prerequisite: JAPN 2013.

**JAPN3103 Advanced Reading in Japanese (Fa)** Designed to build vocabulary and to strengthen students' Japanese reading skills through extensive practice with authentic materials such as readings of on-line newspapers, advertisements, Web pages, and excerpts from Japanese Haiku poetry and literature. Prerequisite: JAPN 3013 or JAPN 3116, or equivalent Japanese proficiency.

**JAPN3103H Honors Advanced Reading in Japanese (Fa)** Designed to build vocabulary and to strengthen students' Japanese reading skills through extensive practice with authentic materials such as readings of on-line newspapers, advertisements, Web pages, and excerpts from Japanese Haiku poetry and literature. Prerequisite: JAPN 3013 or JAPN 3116, or equivalent Japanese proficiency.

**JAPN3116 Intensive Advanced Japanese (Fa)** This course aims to improve students' Japanese proficiency further in all skill areas through intensive practice. Prerequisite: JAPN 2013 and JAPN 2032, or equivalent Japanese proficiency.

**JAPN3116H Honors Intensive Advanced Japanese (Fa)** This course aims to improve students' Japanese proficiency further in all skill areas through intensive practice. Prerequisite: JAPN 2013 and JAPN 2032, or equivalent Japanese proficiency.

**JAPN3983 Special Studies (Irregular)** May be offered in a subject not specifically covered by courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**JAPN3983H Honors Special Studies (Irregular)** May be offered in a subject not specifically covered by courses other-

wise listed. May be repeated for up to 6 hours of degree credit.

**JAPN4033 Oral Communication & Composition in Japanese (Fa)** Designed to strengthen Japanese language skills in oral communication and writing. Consists of conversational activities, presentations and debates, and composition in settings such as business, school, and everyday life. Prerequisite: JAPN 3013 or JAPN 3116, or equivalent Japanese proficiency.

**JAPN4033H Honors Oral Communication & Composition in Japanese (Fa)** Designed to strengthen Japanese language skills in oral communication and writing. Consists of conversational activities, presentations and debates, and composition in settings such as business, school, and everyday life. Prerequisite: JAPN 3013 or JAPN 3116, or equivalent Japanese proficiency.

**JAPN4213 Japanese Culture (Irregular)** Insight into Japanese civilization and culture with special emphasis on the areas such as social life and environment, education, religion and customs, and visual and performing arts. This course also discusses western influence on Japanese society, culture and language and how traditional and modern values are manifested in Japanese society. Prerequisite: JAPN 2013. May be repeated for up to 6 hours of degree credit.

**JAPN4313 Language and Society of Japan (Fa)** The primary objective of this course is to investigate the way the Japanese language reflects the beliefs and custom of the Japanese people as a social group. For comparison purposes, this course makes reference to studies in American language and culture. Proficiency in Japanese not required. Prerequisite: Junior standing.

**JAPN4313H Honors Language and Society of Japan (Fa)** The primary objective of this course is to investigate the way the Japanese language reflects the beliefs and custom of the Japanese people as a social group. For comparison purposes, this course makes reference to studies in American language and culture. Proficiency in Japanese not required. Prerequisite: Junior standing.

**JAPN4333 Business Writing in Japanese (Sp)** This course aims to familiarize the students with formats, vocabulary, and situationally specific expressions in Japanese business correspondence. Prerequisite: JAPN 2013 or equivalent Japanese proficiency.

**JAPN4333H Honors Business Writing in Japanese (Sp)** This course aims to familiarize the students with formats, vocabulary, and situationally specific expressions in Japanese business correspondence. Prerequisite: JAPN 2013 or equivalent Japanese proficiency.

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Journalism (JOUR)

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**JOUR1023 Media and Society (Sp, Fa)** A survey of mass media (newspaper, radio, TV, magazine, advertising, public relations, photography, etc.) which stresses their importance in today's society and introduces the student to the various areas in journalism. Recommended for students considering journalism as a major. Prerequisite: Journalism major or department consent.

**JOUR1033 Fundamentals of Journalism (Sp, Su, Fa)** Introduces students to the skills of observation, critical thinking and concise writing required in all aspects of journalism, as well as to the technology needed in upper-level courses. Practice using references for grammar and journalistic style. A prerequisite to JOUR 2013, 2033, 2063 and 4143. Corequisite: Lab component. Prerequisite: Journalism major or department consent.

**JOUR2013 News Reporting I (Sp, Fa)** Intensive training in the methods of gathering and writing news. Lecture 2 hours, laboratory 2 hours per week. Prerequisite: JOUR 1023 and JOUR 1033, each with a grade of C or better.

**JOUR2013H Honors News Reporting I (Sp, Fa)** Intensive training in the methods of gathering and writing news. Lecture 2 hours, laboratory 2 hours per week. Prerequisite: JOUR 1023 and JOUR 1033.

**JOUR2031L Broadcast News Reporting I Laboratory (Sp, Fa)** Provides experience in basic broadcast news reporting techniques. Laboratory 3 hours per week. Corequisite: JOUR 2032. Prerequisite: JOUR 1033 with a grade of C or better.

**JOUR2032 Broadcast News Reporting I (Sp, Fa)** Intensive training in the methods of gathering and writing broadcast news. Lecture 2 hours per week. Corequisite: JOUR 2031L. Prerequisite: Sophomore standing and JOUR 1033 with a grade of C or better.

**JOUR2063 Media Technology (Su, Fa)** Introduction to computer skills required in journalism; focus is training in the major computer software used in the profession. Prerequisite: JOUR 1023 and JOUR 1033.

**JOUR2331L Photojournalism I Laboratory (Fa)** Photojour-

nalism 1 Lab involves the transfer of images from a digital camera to a computer, and involves the use of image editing and enhancing software as well as layout and design software. Corequisite: JOUR 2332.

**JOUR2332 Photo Journalism I (Fa)** Beginning course in the fundamentals of photography, including digital photography, composition, file transfer and management, image enhancement, and layout and design. Corequisite: JOUR 2331L.

**JOUR2453 Introduction to Sports Television Production I (Fa)** Introduction to the specialized field of sports television production. Focuses on multi-camera, single-camera and studio production. Studio lab and field work outside of regularly scheduled class time required. Prerequisite: JOUR 2032/2031L or instructor consent.

**JOUR3013 Editing (Sp, Fa)** Theories and practices in newspaper editing, copyreading, headline writing, page layout and the gathering and publication of written and pictorial information. Prerequisite: JOUR 1023 and JOUR 2013.

**JOUR3023 News Reporting II (Sp, Fa)** Continuation of JOUR 2013. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: JOUR 2013.

**JOUR3071L Broadcast News Reporting II Laboratory (Sp, Fa)** Continuation of JOUR 2031L. Including advanced skills in broadcast news techniques. Corequisite: JOUR 3072. Prerequisite: JOUR 2032 and JOUR 2031L.

**JOUR3072 Broadcast News Reporting II (Sp, Fa)** Continuation of JOUR 2032. Including advanced methods of gathering and writing broadcast news. Corequisite: JOUR 3071L. Prerequisite: JOUR 2032 and JOUR 2031L.

**JOUR3083 Photojournalism II (Sp)** Study of news and feature photography. Includes planning and shooting photographs for newspapers and magazines, and instills in the student photojournalistic techniques, and ethical considerations of photographing for publication. Includes producing multimedia presentations and working with audio as well as still images. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: JOUR 2332 and JOUR 2331L.

**JOUR3093 Presentation Design for Journalism, Advertising and Public Relations (Sp)** Covers presenting stories, campaigns and other ideas via traditional and new media. Covers web and paper presentations using leading design software.

**JOUR3123 Feature Writing (Sp, Fa)** Study of non-fiction newspaper and magazine feature articles with emphasis on locating subjects, and on writing techniques and practice in article writing. Prerequisite: JOUR 2013.

**JOUR3133 Editorial Writing (Irregular)** Study of the opinion function of the news media. Includes editorial writing, the newspaper editorial/opinion columns, letters from readers, and broadcast commentary. Prerequisite: JOUR 2013 (or JOUR 2032) and junior standing.

**JOUR3163 Sports Journalism (Fa)** Emphasis on techniques and principles of coverage of sports and sports-related subjects on and off the field, and on the relationship between sports and the mass media.

**JOUR3263 African Americans in Film (Irregular)** A survey of the history of images of African Americans in film, especially as these images are examined in the context of stereotypical renditions and/or realistic representations of African American experiences. Issues of African American history, culture, and socio-political context will be addressed in the analyses of these films. Prerequisite: ENGL 1023 and advanced standing. (Same as AAST 3263, COMM 3263, ENGL 3263)

**JOUR3453 Sports Television Production II (Irregular)** Advanced production techniques in the specialized field of sports television production. Focuses on multi-camera, single-camera and studio production. Studio lab and field work outside of regularly scheduled class time required. Prerequisite: JOUR 2453 or instructor consent.

**JOUR3633 Media Law (Sp, Fa)** Constitutional guarantees, statutory laws and court cases applicable to mass communications. Prerequisite: Junior standing.

**JOUR3723 Advertising Principles (Sp, Fa)** Introductory course to the broad field of advertising. The course includes a study of the role of advertising in modern society with emphasis being given to the extent and manner of use of advertising in newspapers, magazines, radio, television, and other media. Prerequisite: Junior standing and 2.5 overall grade point average.

**JOUR3733 Covering the Courts (Sp)** Explores the mechanics of covering trials and other aspects of legal affairs reporting. Prerequisite: JOUR 3633.

**JOUR3743 Public Relations Principles (Sp, Fa)** Study of theory, methods, and ethics of public relations in modern society, business, and communications. Influencing opinion through acceptable performance and 2-way communication.

Recommended for students in many fields. Prerequisite: Junior standing and 2.5 overall grade point average.

**JOUR3923H Honors Colloquium (Sp, Fa)** Covers a special topic or issue, offered as a part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in journalism). May be repeated for credit.

**JOUR401V Advanced Journalistic Practices (Sp, Fa) (1-4)** Study of advanced journalistic practices and methods, individual or group projects. Prerequisite: Junior standing and 10 hours of journalism and a 2.5 cumulative grade average.

**JOUR402V Internship in Journalism (Sp, Su, Fa) (1-3)** Credit for practical experience gained through a journalistic internship. Report required on significant aspect of internship experience. Prerequisite: JOUR major and junior standing and 10 hours JOUR and 2.50 cumulative grade point average. May be repeated for up to 3 hours of degree credit.

**JOUR4033 Advanced Radio News Reporting (Sp)** Intensive training in the production of in-depth, public radio style news stories. Prerequisite: JOUR 2032 and JOUR 2031L

**JOUR4043 Government and the Media (Fa)** Focuses on the links between mass media and government and the increasingly significant role of media in politics and government. Examines the power, responsibility, and performance of the press and public officials/government agencies in their relationship with each other. Prerequisite: Junior standing.

**JOUR405V Specialized Journalism Seminar (Irregular) (1-3)** Primary purpose of course is to enlarge the journalistic skills of students interested in advanced forms of mass communication. Students undertake projects related to particular aspects or problems of journalism. Content varies. May be repeated for up to 12 hours of degree credit.

**JOUR4063 Computer-Assisted Publishing (Irregular)** In-depth, hands-on exploration of computer hardware and software in the design and production of media messages. Examination of developing media technologies and the computer's influence on design and conceptualization.

**JOUR4143 Public Relations Writing (Sp, Fa)** Instructional and writing practice to develop the professional-level writing skills required of public relations practitioners. Emphasizes different approaches required for different audiences and media. Prerequisite: JOUR 1033 with a grade of C or better, JOUR 3723 and JOUR 3743, each with a grade of B or better; overall GPA of 2.5 or higher; Journalism major in the AD/PR sequence; and senior status - minimum of 90 hours completed.

**JOUR4233 School Publications (Irregular)** Primarily for students intending to teach journalism or to supervise publications in high schools. Prerequisite: Advanced standing.

**JOUR4333 Ethics in Journalism (Irregular)** Critical examination of specific ethical problems confronting professionals in all areas of mass communications. Reading and writing assignments are aimed at familiarizing students with the nature of the mass media and their social responsibilities. Prerequisite: Junior standing.

**JOUR4413 Broadcast Advertising and Sales (Fa)** The creation of advertising campaigns for the broadcast media and techniques involved in the presentation of these campaigns to prospective media buyers. Emphasis is also placed on the gathering and use of rating systems for broadcasting. Prerequisite: JOUR 3723.

**JOUR4423 Creative Strategy and Execution (Sp, Fa)** The creation of advertising copy and layout for the mass media with emphasis on strategy, the written message, and the physical appearance for the advertisement. Includes laboratory component. Prerequisite: JOUR 1033 with a grade of C or better, and JOUR 3723 and JOUR 3743, each with grade of B or better; overall GPA of 2.5 or higher; Journalism major in the AD/PR sequence, and senior status minimum of 90 hours completed.

**JOUR443V Event Promotion and Execution (Sp) (1-3)** Practicum for students to plan, design, promote and execute several Journalism Days events, to include the Roy Reed Lecture, a scholarship reception, a job fair, Senior Salute and a fundraiser. Prerequisite: JOUR 3723 and JOUR 3743.

**JOUR4453 Media Planning & Strategy (Sp, Fa)** Includes the study of media characteristics, market research, media strategies, media analysis, media-market measurements and the development of media plans. Emphasis is placed on the analysis of major mass media strategies, tactics, and planning. Prerequisite: JOUR 1033 with a grade of C or better, and JOUR 3723 and JOUR 3743, each with a grade of B or better; overall GPA of 2.5 or higher; Journalism major in the AD/PR Sequence; and senior status-minimum of 90 hours completed.

**JOUR4463 Campaigns (Sp, Su, Fa)** Applying advertising principles and techniques to preparation of a complete campaign; determining agency responsibilities, marketing objectives and research, media mix, and creative strategy. Emphasis also given to campaign presentation delivery, utilizing audio

and visual techniques. Prerequisite: A grade of B or better in both JOUR 3723 and JOUR 3743.

**JOUR4503 Magazine Writing (Sp)** This intensive writing and reporting course is for students with proven feature-writing skills and an interest in the human-interest stories found in such leading magazines as The New Yorker, Esquire, Harper's, the Atlantic, and others. Students will compose magazine-length nonfiction stories on timely subjects under deadline. Stories are submitted for contests and publication, when possible. Prerequisite: JOUR 3123.

**JOUR4553 Magazine Editing and Production I (Sp)** Instruction with lab work in editing and producing various types of magazines. Course includes magazine design, selecting and editing stories and photographs, laying out the story and photo pages, and other mechanical processes. Lecture 2 hours, laboratory 2 hours per week.

**JOUR4863 Television News Reporting I (Sp, Fa)** Continuation of JOUR 3072 and JOUR 3071L. Includes the specialized knowledge and skills needed in field reporting, anchoring, writing, and producing news for commercial television. Lab component arranged. Corequisite: Lab component. Prerequisite: JOUR 3072 and JOUR 3071L.

**JOUR4873 Television News Reporting II (Sp, Fa)** Continuation of JOUR 4863. Laboratory component arranged. Prerequisite: JOUR 4863.

**JOUR4883 Advanced Television News Production (Irregular)** Continuation of JOUR 4873. Students prepare and present television newscasts for air. Laboratory component arranged. Corequisite: Lab component. Prerequisite: JOUR 4873.

**JOUR4903 Community Journalism (Sp)** This three-hour course will blend student reporting and editing skills with instruction on how regional newspapers select and present news to a local audience. This course will instruct students in deciding news stories for regional readers, how those stories can best be written and displayed. The semester goal is to publish a paper. Prerequisite: Junior standing.

**JOUR4923 History of the Black Press (Even years, Sp)** Covers the historic context of contributions and innovations to U.S. newspapers by African Americans. Also investigates the role of the black press from its beginnings in 1827 through the civil rights movement. Prerequisite: Junior standing. (Same as AAST 4923)

**JOUR4981 Journalism Writing Requirement (Sp, Su, Fa)** Directed study in conceptualizing, researching, and writing a major paper to meet the college writing requirement; includes presentations and discussions on current issues in journalism news and strategic communication. Students must make a C in order to satisfy the college writing requirement. Prerequisite: 90 hours.

**JOUR498VH Honors Journalism Writing Requirement (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**JOUR5003 Advanced Reporting (Irregular)** Stresses public affairs coverage, interpretive, investigative, and analytic journalism, involving research, work with documents, public records, and budgets and specialized reporting.

**JOUR5033 Critical and Opinion Writing and Commentary (Irregular)** Experience in writing and analyzing columns, editorials, criticism, and other forms of opinion and commentary in the media and in examining the media's role as a forum for the opinion and commentary and its impact and influence.

**JOUR5043 Research Methods in Journalism (Sp)** Research methods of utility in journalism. Emphasis on survey research, electronic data base searching, and traditional library research. Prerequisite: Graduate standing or honors program standing.

**JOUR5063 Issues in Advertising and Public Relations (Fa)** Seminar course involving the critical examination of the major cultural, social, political, economic, ethical, and persuasion theories and/or issues relevant to advertising and public relations affecting individuals, organizations, societies. Prerequisite: Graduate standing.

**JOUR5073 Propaganda and Public Opinion (Irregular)** Examines and analyzes the means of influencing and measuring public opinion, with an emphasis on survey research and polling.

**JOUR5183 International Mass Communications (Irregular)** Examination of national media systems, issues in international communications, the role of the media in coverage of international affairs, and the impact of new technologies on mass communications.

**JOUR5193 Professional Journalism Seminar (Irregular)** Examination of complex problems encountered by professional journalists with focus on research and analysis of the role of journalism in major social, economic, and political developments. May be repeated for up to 6 hours of degree credit.

**JOUR5233 Media and Public Policy (Irregular)** Focuses on the interaction between media, politics, government, and public policy, particularly on the impact and influence of the media on the public policy agenda.

**JOUR5313 Literature of Journalism (Irregular)** A study of superior works of non-fiction journalism, past and present. Includes authors from Daniel Defoe to John McPhee.

**JOUR5323 Documentary Production I (Fa)** In-depth study of documentary film as non-fiction, long form journalism. Covers subject, funding, research and development, pre-production planning, field production, talent, music, post production, promotion, broadcast and distribution. Required trip to Hot Springs Documentary Film Festival.

**JOUR5333 Documentary Production II (Sp)** A continuation of JOUR 5323, Documentary Production I. Students photograph, write, and edit a documentary begun in the fall semester. Prerequisite: JOUR 5323.

**JOUR5923 History of the Black Press (Even years, Sp)** Covers the historic context of contributions and innovations to U.S. newspapers by African Americans. Also investigates the role of the black press from its beginnings in 1827 through the civil rights movement.

**JOUR600V Master's Thesis (Sp, Su, Fa) (1-6)** Required of all M.A. journalism students.

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#### Kinesiology (KINS)

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**KINS2223 Motor Development (Sp, Su, Fa)** An overview of contemporary motor development and movement theory, developmental hierarchies, and physiological aspects of development throughout the lifespan.

**KINS2393 Prevention and Care of Athletic Injuries (Irregular)** Introduction to the prevention and care of athletic related injuries. Includes athletic injury recognition and management. Prerequisite: BIOL 2443 and BIOL 2441L.

**KINS2733 Seminar in Exercise Science (Sp)** This class will cover special topics for the Exercise Science students in preparation for entry into the profession. In addition to specific topics, students will prepare their resumes and make a formal presentation.

**KINS3153 Exercise Physiology (Su, Fa)** Examination of effects of exercise on the physiology of the systems of the body. The exploration includes effects during, immediately after, and as long term results of work and exercise. Prerequisite: BIOL 2213/2211L and CHEM 1123/1121L.

**KINS3153H Honors Exercise Physiology (Sp, Su, Fa)** Examination of effects of exercise on the physiology of the systems of the body. The exploration includes effects during, immediately after, and as long term results of work and exercise. Prerequisite: BIOL 2213/BIOL 2211L and CHEM 1123/1121L.

**KINS3163 Exercise Physiology: Theory and Application (Sp, Fa)** Examination of the changes during childhood and adolescence of physiological responses to exercise. The exploration includes the study of the maturation of the body's functional capacities as it relates to exercise. Designed for Physical Education Teacher Education majors. Prerequisite: BIOL 2443 and BIOL 2441L and KINS 2223; for K-12 or P-12 physical education majors only.

**KINS3163H Honors Exercise Physiology: Theory and Application (Sp, Fa)** Examination of the changes during childhood and adolescence of physiological responses to exercise. The exploration includes the study of the maturation of the body's functional capacities as it relates to exercise. Designed for Physical Education Teacher Education majors. Prerequisite: BIOL 2443 and BIOL 2441L and KINS 2223; for K-12 physical education majors only.

**KINS3353 Mechanics of Human Movement (Sp, Su, Fa)** An introduction to basic analysis of motor skills. No credit given toward major in Zoology. Prerequisite: BIOL 2443 and BIOL 2441L, KINSBS major or by instructor consent.

**KINS3353H Honors Mechanics of Human Movement (Sp, Su, Fa)** An introduction to basic analysis of motor skills. No credit given toward major in Zoology. Prerequisite: BIOL 2443 and BIOL 2441L, KINSBS major or by instructor consent.

**KINS3373 Philosophical/Sociocultural Impact on Kinesiology (Sp, Su, Fa)** An investigation of the philosophical and sociocultural impact on Kinesiology.

**KINS3533 Laboratory Techniques (Sp, Fa)** Practical experience in testing physical fitness in both the laboratory and non-laboratory settings. Prerequisite: KINS 3153.

**KINS3533H Honors Lab Techniques (Sp, Fa)** Practical experience in testing physical fitness in both the laboratory and non-laboratory settings. Prerequisite: BIOL 2443 and BIOL 2441L, KINSBS major or by instructor consent.

**KINS405V Independent Study (Sp, Su, Fa) (1-3)** Provides students an opportunity to pursue special study of research

problems. May be repeated for up to 12 hours of degree credit.

**KINS405VH Honors Independent Study (Sp, Su, Fa) (1-6)** Provides students an opportunity to pursue special study of research problems. May be repeated for up to 12 hours of degree credit.

**KINS4323 Analytical Basis of Movement Science (Sp)** Study of the practical applications of biomechanical and physiological principles. Prerequisite: KINS 3353 and KINS 3533 and PHYS 2013/2011L and CHEM 2613/2611L or CHEM 3603/3601L

**KINS4413 Organization, Management, and Marketing Skills for the Kinesiology Professional (Sp, Fa)** Organizational policies, management principles, and marketing skills for the Kinesiology professional.

**KINS4773 Performance and Drugs (Sp)** The pharmacological and physiological effects of ergogenic aids upon the athlete and performance coupled with the ethical and moralistic viewpoints of drug taking. Practical laboratory experiences are provided with pertinent statistical surveys of athletes; their drug taking habits and relevant psychological impact on performance. Prerequisite: KINS 3153.

**KINS4833 Exercise Applications for Special Populations (Fa)** The study of the effects of exercise, exercise training, and other stressors in special groups. A detailed study of the biomechanical and physiological effects of exercise on the elderly, the diabetic, the post-coronary, and the individual with functional limitations. Prerequisite: KINS 3353 and KINS 3533.

**KINS4833H Honors Exercise Applications for Special Populations (Fa)** The study of the effects of exercise, exercise training, and other stressors in special groups. A detailed study of the biomechanical and physiological effects of exercise on the elderly, the diabetic, the post-coronary, and the individual with functional limitations. Prerequisite: KINS 3353 and KINS 3533.

**KINS4903 Internship in Exercise Science (Sp, Fa)** Provides opportunities for students in Exercise Science to gain experience in clinics, hospitals, fitness centers, athletic training facilities or related settings. Enrollment is limited to students in exercise science having taken KINS 3353 and KINS 3533. Prerequisite: KINS 3353 and KINS 3533 and COMM 1313. May be repeated for up to 12 hours of degree credit.

**KINS5323 Biomechanics I (Fa)** Intended to serve as an introduction to biomechanics and focuses on scientific principles involved in understanding and analyzing human motion.

**KINS5333 Instrumentation in Biomechanics (Irregular)** The application of knowledge and skills necessary for data collection for sports analysis. Provides valuable information on instrumentation used specifically in biomechanics. Prerequisite: KINS 5323.

**KINS5423 Assessment and Prescriptive Programming in Adapted KINS (Odd years, Sp)** Instruction in the assessment, prescription, and use of instruction methods, materials, and equipment relevant to specific handicapping conditions in the adapted physical education setting.

**KINS5493 Practicum in Adapted Physical Education (Irregular)** Deals with the application of skills, knowledge and concepts necessary for planning, organizing and conducting adapted physical education programs through supervised field experiences.

**KINS5513 Physiology Exercise I (Fa)** A study of the foundation literature in exercise physiology. Emphasis is placed on the muscular, cardiovascular, and respiratory systems.

**KINS5523 Muscle Metabolism in Exercise (Sp)** A study of the metabolic changes that occur in muscle as a result of exercise, exercise training, and other stressors. Prerequisite: KINS 5513 or equivalent.

**KINS5533 Cardiac Rehabilitation Program (Even years, Sp)** An examination of the concepts, design, and implementation of cardiac rehabilitation programs. Emphasis on exercise programs but reference to nutrition, psychology, and other lifestyle interventions.

**KINS5543 Cardiovascular Function in Exercise (Fa)** Study of the effects of exercise training and other stressors on the cardiovascular system. Detailed study of the components of the cardiovascular system and the responses and adaptations of those components to selected stimuli. Prerequisite: KINS 5513 or equivalent.

**KINS5593 Practicum in Laboratory Instrumentation (Su, Fa)** Practical experience in testing physical fitness utilizing laboratory equipment. Objective is to quantify physiological parameters, leading to the individualized exercise prescription.

**KINS5613 Physical Dimensions of Aging (Odd years, Sp)** This course will focus on the physiological changes with healthy aging, pathophysiology of age-related diseases, testing issues, exercise interventions, and the psychosocial aspects of aging. Prerequisite: KINS 5513.

**KINS5643 Motor Learning (Sp)** Concepts of motor learning and control are presented. Attention is given to an analysis of the literature in movement control, motor behavior, and motor learning.

**KINS574V Internship (Sp) (1-6)** May be repeated for up to 6 hours of degree credit.

**KINS5753 Sport Psychology (Su)** Investigation of historical and contemporary research in sport psychology. Prerequisite: HKRD 5353.

**KINS5773 Performance and Drugs (Sp)** The pharmacological and physiological effects of ergogenic aids upon the athlete and performance coupled with the ethical and moralistic viewpoints of drug taking. Practical laboratory experiences are provided with pertinent statistical surveys of athletes; their drug taking habits and relevant psychological impact on performance. Prerequisite: BIOL 2213 and BIOL 2211L or equivalent.

**KINS589V Independent Research (Sp, Su, Fa) (1-3)** Development, implementation, and completion of basic or applied research project. Prerequisite: M.S. degree program in exercise and movement sciences and HKRD 5353 and EDFD 5393.

**KINS600V Master's Thesis (Sp, Su, Fa) (1-6)**

**KINS605V Independent Study (Sp, Su, Fa) (1-3)** Provides students with an opportunity to pursue special study of educational problems. May be repeated for up to 3 hours of degree credit.

**KINS6323 Biomechanics II (Odd years, Sp)** Analysis of human movement with emphasis on sports skills by application of principles of anatomy, kinesiology, and cinematographical analysis. Prerequisite: KINS 5323.

**KINS6343 Physiology of Exercise II (Even years, Su)** Detailed study of the body systems affected by exercise, the functions of these systems during exercise, the effects of age, sex, body type, and nutrition on capacity for exercise, the techniques of assessing work capacity, and a critical analysis of research literature in this area.

**KINS674V Internship (Irregular) (1-3)** May be repeated for up to 3 hours of degree credit.

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#### Landscape Architecture (LARC)

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**LARC1003 Basic Course in the Arts: The American Landscape (Sp, Fa)** Mankind's changing attitudes toward urban and rural outdoor spaces and their aesthetic and cultural values. The origins of the environmental/conservation movement and the development of an American land ethic. Appreciation of the relationship of the natural and historic landscape to the arts and the aesthetic importance of open space.

**LARC1011 Leadership by Design I (Fa)** Introduces time management, study strategies, promotes solutions for maintaining personal health, and develops communication and leadership skills intended to benefit education, career, and the community.

**LARC1021 Leadership By Design II (Sp)** Introduces time management, study strategies, promotes solutions for maintaining personal health, and develops communication and leadership skills intended to benefit education, career, and the community. Continuation of LARC 1011.

**LARC1211 Introduction to Landscape Architecture I (Fa)** This course is an interdisciplinary introduction to basic principles of design, the natural landscape, urbanism and the public realm. Lecture is one hour per week. Corequisite: LARC 1315.

**LARC1221 Introduction to Landscape Architecture II (Sp)** Theoretical, formal, and constructive principles and their impact in the design discipline, modernism and after. Introduction to the intellectual and philosophical foundations of landscape architecture. Lecture 1 hour per week. Prerequisite: LARC 1211 and LARC 1315. Corequisite: LARC 1325.

**LARC1315 Landscape Architecture Design I (Fa)** Theory and craft of seeing, drawing, and model-building to record and communicate a design. Basic design principles with architectural and natural geometries are introduced and employed. Studio and lecture. Corequisite: LARC 1211.

**LARC1325 Landscape Architecture Design II (Sp)** Basic concepts of spatial, visual and experiential analysis are used in the investigation and evaluation of designed landscapes. Introduction to three-dimensional spatial organization systems and supporting principles. Continued drawing exercises and analysis graphics leading to design conceptualization. Studio and lecture. Corequisite: LARC 1221. Prerequisite: LARC 1315 and LARC 1211.

**LARC2113 Design Communications I (Fa)** Introduces basic graphic techniques fundamental to the communication of landscape design and landscape architecture. Emphasis on effective and efficient communication using free-hand and

digital tools and techniques most frequently utilized in landscape architecture. Limitations and advantages are identified, and shared principles in both hand and computer graphics are emphasized.

**LARC2123 Design Communications II (Sp)** Builds upon LARC 2113 by introducing advanced graphic techniques increasingly utilized in the communication of landscape design and planning, and in professional practice. Focus is on software required for sophisticated renderings and visualizations, and to manage and interpret landscape data to the regional level.

**LARC2336 Landscape Architecture Design III (Fa)** Introduction to design process(es) which responds to site and context. Reinforcement of design principles and organization systems applied to small scale design projects. Studio and lecture. Prerequisite: LARC 1221 and LARC 1325.

**LARC2346 Landscape Architecture Design IV (Sp)** (Formerly LARC 3345) Expansion of abilities to analyze existing conditions of site and develop methods for interpreting and synthesizing information and perceptions into spatial design proposals. Emphasis on design form and the use of meaning and landscape narrative applied to increased scale projects within a larger or more complex context. Studio and lecture. Prerequisite: LARC 2336 and LARC 3413.

**LARC2346H Honors Landscape Architecture Design IV (Sp)** (Formerly LARC 3345) Expansion of abilities to analyze existing conditions of site and develop methods for interpreting and synthesizing information and perceptions into spatial design proposals. Emphasis on design form and the use of meaning and landscape narrative applied to increased scale projects within a larger or more complex context. Studio and lecture. Prerequisite: LARC 2336 and LARC 3413 and Honors candidacy.

**LARC2714 Landscape Architecture Construction I (Sp)** (Grading) Introduction to landscape architectural construction with an emphasis on grading, earthwork computations, and technical drawing skills. Introduction to roadway alignment, the land survey system, and construction documents. Lecture and laboratory.

**LARC302V Special Studies (Irregular) (1-6)** Individual or group study and practicum and travel involving landscape design, history, and environmental analysis. May be repeated for up to 6 hours of degree credit.

**LARC302VH Honors Special Studies (Irregular) (1-6)** Individual or group study and practicum and travel involving landscape design, history and environmental analysis. Prerequisite: Honors candidacy.

**LARC303V Special Projects (Irregular) (1-6)** Design implementation, study, practicum, and preparation of working drawings. May be repeated for credit.

**LARC303VH Honors Special Projects (Irregular) (1-6)** Design implementation, study, practicum, and preparation of working drawings. Prerequisite: Honors candidacy.

**LARC3356 Landscape Architecture Design V (Fa)** (Formerly LARC 3355) Investigation of social behavior as applied to program and design that serves human needs. Projects reflect increased scope, scale, and resolution with a detailed design component. Studio and lecture. Prerequisite: LARC 2346 and LARC 2714; and acceptance into the professional program.

**LARC3356H Honors Landscape Architecture Design V (Fa)** (Formerly LARC 3355) Investigation of social behavior as applied to program and design that serves human needs. Projects reflect increased scope, scale, and resolution with a detailed design component. Studio and lecture. Prerequisite: LARC 2346 and LARC 2714; honors candidacy and acceptance into the professional program.

**LARC3366 Landscape Architecture Design VI (Sp)** (Formerly LARC 4365) Investigation of ecological determinism, historic and contemporary planning, and sustainable design as distinct approaches to landscape architecture. Studio and lecture. Prerequisite: LARC 3356.

**LARC3366H Honors Landscape Architecture Design VI (Sp)** Investigation of ecological determinism, historic and contemporary planning, and sustainable design as distinct approaches to landscape architecture. Studio and lecture. Prerequisite: LARC 3356 and Honors candidacy.

**LARC3413 History of Landscape Architecture (Fa)** Analysis of the interaction between existing landscapes and human cultural development as reflected in the meaning and organization of landscape designs at community and project scales from the neolithic period to the mid-nineteenth century.

**LARC3413H Honors History of Landscape Architecture (Fa)** Analysis of the interaction between existing landscapes and human cultural development as reflected in the meaning and organization of landscape designs at community and project scales from the neolithic period to the mid-nineteenth

century. Prerequisite: Honors candidacy.

**LARC3724 Landscape Construction II (Fa)** Introduction to landscape architectural materials and methods of construction and assembly. Emphasis on material properties and how those properties affect the materials use in the landscape and interactions with other materials. Introduction to dimensioning and layout systems and parking requirements with increased complexity of construction documents. Lecture and laboratory.

**LARC3724H Honors Landscape Construction II (Fa)** Introduction to landscape architectural materials and methods of construction and assembly. Emphasis on material properties and how those properties affect the materials use in the landscape and interactions with other materials. Introduction to dimensioning and layout systems and parking requirements with increased complexity of construction documents. Lecture and laboratory. Prerequisite: Honors candidacy.

**LARC3734 Landscape Architecture Construction III (Sp)** (Structures) Introduction into the design and fabrication methods of structures in the landscape. Emphasis on statics in calculating sizes and selection of materials for free-standing and retaining walls, and wooden structures. Advanced technical drawing component and computer integration of drawing production. Lecture and laboratory. Prerequisite: LARC 3723.

**LARC3734H Honors Landscape Architecture Construction III (Sp)** (Structures) Introduction into the design and fabrication methods of structures in the landscape. Emphasis on statics in calculating sizes and selection of materials for free-standing and retaining walls, and wooden structures. Advanced technical drawing component and computer integration of drawing production. Lecture and laboratory. Prerequisite: LARC 3723 and Honors candidacy.

**LARC3914 Planting Design I (Fa)** Introduction to small scale projects involving use of plant materials in relation to other landscape elements, formulation of a vocabulary of plant materials and preparation of integrated planting plans and applicable specifications. Includes laboratory. Prerequisite: HORT 3103.

**LARC3914H Honors Planting Design I (Fa)** Introduction to small scale projects involving use of plant materials in relation to other landscape elements, formulation of a vocabulary of plant materials and preparation of integrated planting plans and applicable specifications. Includes laboratory. Prerequisite: HORT 3103 and Honors candidacy.

**LARC3933 Cultural Landscape Studies (Su)** The examination of landscape forms, and their historic and evolutionary development. Includes study of cultural, political, and site context influences. Required field trip component of study abroad. Prerequisite: LARC 3413 and LARC 3821.

**LARC402V Special Studies (Irregular) (1-6)** Individual or group study and practicum involving landscape design, planning and management, history and environmental analysis. May be repeated for up to 6 hours of degree credit.

**LARC402VH Honors Special Studies (Irregular) (1-6)** Individual or group study and practicum involving landscape design, planning and management, history and environmental analysis. May be repeated for up to 6 hours of degree credit.

**LARC4033 Theory (Fa)** Introduction to seminal theories in landscape architecture, environmental design and planning. Readings and case studies will be utilized to explore interaction and connection across a range of disciplinary theoretical intersections. Prerequisite: LARC 3413 and LARC 4413 or instructor consent.

**LARC4033H Honors Theory (Fa)** Introduction to seminal theories in landscape architecture, environmental design and planning. Readings and case studies will be utilized to explore interaction and connection across a range of disciplinary theoretical intersections. Prerequisite: LARC 3413 and LARC 4413 or instructor consent.

**LARC4123 Urban Form Studies (Su)** The examination of urban, village, and suburban form and its influencing forces. Includes study of cultural forces, technological developments, and physical shape, scale, and materials that define urban areas. Required field trip component of study abroad. Prerequisite: LARC 3413 and LARC 3821.

**LARC4376 Landscape Architecture Design VII (Fa)** (Formerly LARC 4375) Synthesis of all previous course work; an introduction to the theory and practice of larger scale planning with an emphasis on design of systems in urbanizing environments. Studio and lecture. Prerequisite: LARC 3366 and LARC 4413.

**LARC4376H Honors Landscape Architecture Design VII (Fa)** Synthesis of all previous course work; an introduction to the theory and practice of larger scale planning with an emphasis on design of systems in urbanizing environments. Studio and lecture. Prerequisite: LARC 3366 and LARC 4413 and Honors candidacy.

**LARC4381 Senior Project Preparation (Sp)** Definition and planning of personally selected senior demonstration project. Requires full documentation of topical research, program development, site data collection, site analysis, and site project base maps. Studio and lecture. Prerequisite: LARC 4376

**LARC4381H Honors Senior Project Preparation (Sp)** Definition and planning of personally selected senior demonstration project. Requires full documentation of topical research, program development, site data collection, site analysis, and site project base maps. Studio and lecture. Prerequisite: LARC 4376 and Honors candidacy.

**LARC4413 Contemporary Landscape Architecture (Sp)** Critical study and analysis of landscape architecture from mid-nineteenth century to the present. Emphasis on the philosophical and design theories that have influenced the form of gardens, parks, and cities.

**LARC4413H Honors Contemporary Landscape Architecture (Sp)** Critical study and analysis of landscape architecture from mid-nineteenth century to the present. Emphasis on the philosophical and design theories that have influenced the form of gardens, parks, and cities. Prerequisite: Honors candidacy.

**LARC4714 Landscape Architecture Construction IV (Fa)** (Systems) Introduction to systems of landscape architectural construction including stormwater management, lighting, irrigation, water features, and erosion control. Emphasis on an advanced grading and landform manipulation skills, and stormwater system design and calculations. Significant integration of computer generated drawings. Lecture and laboratory. Prerequisite: LARC 2714.

**LARC4714H Honors Landscape Architecture Construction IV (Fa)** (Systems) Introduction to systems of landscape architectural construction including stormwater management, lighting, irrigation, water features, and erosion control. Emphasis on an advanced grading and landform manipulation skills, and stormwater system design and calculations. Significant integration of computer generated drawings. Lecture and laboratory. Prerequisite: LARC 2714 and Honors candidacy.

**LARC5043 Landscape Architecture Seminar (Irregular)** The role of the landscape architect in contemporary society; how this is affected by technological change and awareness of ecological problems. Group discussions, individual research projects, and guest lectures. Prerequisite: Fourth-year standing.

**LARC5053 Historic Landscape Preservation (Irregular)** Survey of historic preservation as a profession and the emerging cultural landscape preservation movement. Introduction to preservation principles as described by the Secretary of the Interiors Standards and Guidelines. Analysis of case studies will reinforce basic philosophies and introduce preservation approaches. Prerequisite: LARC 3413 and LARC 4413.

**LARC5053H Honors Historic Landscape Preservation (Irregular)** Survey of historic preservation as a profession and the emerging cultural landscape preservation movement. Introduction to preservation principles as described by the Secretary of the Interiors Standards and Guidelines. Analysis of case studies will reinforce basic philosophies and introduce preservation approaches. Prerequisite: LARC 3413 and LARC 4413 and Honors candidacy.

**LARC5063 Alternative Stormwater Management (Irregular)** Introduction to the role of alternative stormwater management techniques toward a more sustainable development to include constructed wetlands, bioswales, rain water harvesting, green roofs, and other stormwater reduction techniques. Emphasis on multidisciplinary team approach to problem solving. This course is open to non-majors and includes both lecture and laboratory time.

**LARC5386 Landscape Architecture Design VIII (Sp)** Investigation of the relationship between development, stewardship and land use of the regional scale. Natural resource systems, public policies, regional economics, and social contexts inform environmental land use planning and design decisions. Geographic information systems (GIS) used as an analysis tool. Lecture and GIS lab. Prerequisite: LARC 4376 or instructor approval.

**LARC5386H Honors Landscape Architecture Design VIII (Sp)** Investigation of the relationship between development, stewardship and land use of the regional scale. Natural resource systems, public policies, regional economics, and social contexts inform environmental land use planning and design decisions. Geographic information systems (GIS) used as an analysis tool. Lecture and GIS lab.. Prerequisite: LARC 4376 and Honors candidacy.

**LARC5396 Landscape Architecture Design IX (Senior Demonstration Project) (Fa)** Advanced design studio with an emphasis on individual or team research and design reso-



lution. Includes all aspects of design process: inventory, programming, graphic documentation, formal oral presentation, and a written report. Prerequisite: LARC 5386.

**LARC5396H Honors Landscape Architecture Design IX (Senior Demonstration Project) (Fa)** Advanced design studio with an emphasis on individual or team research and design resolution. Includes all aspects of design process: inventory, programming, graphic documentation, formal oral presentation, and a written report. Prerequisite: LARC 5386.

**LARC5613 Landscape Architectural Practice and Project Manual (Sp)** Professional responsibilities and related aspects of landscape architecture practice: ethics; office organization; client, contractor and landscape architect relationships; legal issues, contracts and documents; regulations; review of bidding and contractual documents.

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Latin Amer. and Latino Studies (LAST)

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**LAST2013 Latin American Studies (Fa)** This course provides an interdisciplinary introduction to Latin America. Drawing on Latin American literature, history, sociology, and political science, the course examines the broad forces that have shaped the region. (Same as ANTH 2013)

**LAST399VH Honors Thesis (Sp, Fa) (1-6)** Prerequisite: Junior standing.

**LAST4003 Latin American Studies Colloquium (Sp)** An interdepartmental colloquium with an annual change in subject of investigation, required of all Latin American studies majors. Prerequisite: Sophomore standing for Latin American studies majors and honors students. May be repeated for up to 6 hours of degree credit.

**LAST4003H Honors Latin American Studies Colloquium (Sp)** An interdepartmental colloquium with an annual change in subject of investigation, required of all Latin American studies majors. Prerequisite: sophomore standing for Latin American studies majors and honors students. May be repeated for up to 6 hours of degree credit.

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Latin (LATN)

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**LATN1003 Elementary Latin I (Fa)** The rudiments of classical Latin, with concentration on grammar, vocabulary, and syntax. Short selections from ancient authors lead to basic reading ability.

**LATN1013 Elementary Latin II (Sp)** A continuation of the rudiments of classical Latin, with concentration on grammar, vocabulary, and syntax. Short selections from ancient authors lead to basic reading ability.

**LATN2003 Petronius' Satyricon (Fa)** Development of reading skills through selections from Satyricon, and an introduction to imperial history and culture through critical study of the novel in translation. Prerequisite: LATN 1013 or equivalent.

**LATN2013 Catullus (Sp)** Development of reading skills through selections from Catullus' poems, and an introduction to the culture and history of the late republic through critical study of Catullus in translation and secondary works. Prerequisite: LATN 2003 or equivalent.

**LATN3003 Virgil and Ovid (Fa)** Selections from the Aeneid and/or the Metamorphoses, and an introduction to Roman literary history through the critical study of these works in translation. Prerequisite: LATN 2013 or equivalent.

**LATN3013 Caesar (Sp)** Selected readings from Caesar's commentaries on Gallic or Civil Wars, and an overview of Republican political and military history through the critical study of the commentaries in translation and secondary works. Prerequisite: LATN 3003 or equivalent.

**LATN3063 Intensive Elementary Latin Reading (Su)** Overview of Latin grammar, vocabulary and syntax, leading to reading prose texts. For undergraduates who want short, intensive introduction to Latin and graduate students working towards reading proficiency. Successful completion fulfills graduate student research reading proficiency requirement. LATN 3063 alone cannot fulfill the Foreign Language requirement in Fulbright College. No credit for this course and LATN 1003 and/or 1013.

**LATN4003 Roman History (Irregular)** Selections from Sallust, Livy, Tacitus, or Suetonius. An overview of Roman historiography through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent.

**LATN4013 Roman Satire (Irregular)** Selections from the satires of Horace, Juvenal, Persius, or Seneca. An overview of Roman humor and the genre of satire through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent.

**LATN4023 Roman Didactic Epic (Irregular)** Selections from Virgil's Georgics, Lucretius' De Rerum Natura, or Manilius' As-

tronomica. An overview of Roman philosophical poetry through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent.

**LATN4033 Roman Drama (Irregular)** Selections from Plautus, Terence, or Seneca. An overview of Roman theater through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent.

**LATN4043 Roman Elegy (Irregular)** Selections from Propertius, Tibullus, or Ovid. An overview of the genre through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent.

**LATN4063 Roman Pastoral and Lyric (Irregular)** Selections from Catullus, Virgil's Eclogues, Horace's Odes, or Calpurnius Siculus. An overview of the two genres through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent. May be repeated for up to 6 hours of degree credit.

**LATN4073 Roman Novel (Irregular)** Selections from Petronius or Apuleius. An overview of the genre through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent.

**LATN4083 Roman Oratory (Irregular)** Selections from the orations and theoretical works of Cicero, Seneca the Elder, or Quintilian. An overview of the genre through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent. May be repeated for up to 6 hours of degree credit.

**LATN4093 Roman Philosophy (Irregular)** Selections from the philosophical works of Cicero or Seneca. An overview of Roman philosophy through the critical study of complete works in translation and secondary works. Prerequisite: LATN 3013 or equivalent. May be repeated for up to 6 hours of degree credit.

**LATN475V Special Investigations (Irregular) (1-6)** May be repeated for credit.

**LATN5633 Medieval Latin (Irregular)** Selections from medieval writers from the 4th to the 17th century. Prerequisite: LATN 3003 or equivalent.

**LATN575V Special Investigations (Irregular) (1-6)** May be repeated for credit.

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Law (LAWW)

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**LAWW400V Entertainment Law (Irregular) (1-6)** Examines the legal principles and relationships of the entertainment industry, with a primary emphasis on the music industry; provides an introduction to the practice of entertainment law and the negotiation of entertainment contracts; highlights a variety of legal and practical issues that arise when representing clients in the entertainment industry.

**LAWW4012 Legal Research & Writing II (Sp)** An introduction to the persuasive writing for trial and appellate courts. Emphasis will be placed on intermediate library research techniques and basic legal research using computers. Students will also engage in brief-writing and appellate argumentation.

**LAWW4013 Legal Research & Writing I (Fa)** An introduction to the special problems posed by the legal analysis and the expression of the results of that process. The primary emphasis will be on basic legal analysis techniques, basic legal writing skills, and proper citation form. Students will complete a series of writing assignments.

**LAWW4023 Contracts I (Sp, Su, Fa)** Formation and enforcement by litigation and commercial arbitration of commercial and family agreements. Mutual assent or consideration; third-party beneficiaries; assignments; joint obligation; performance; anticipatory breach; discharge of contractual duties; and the Statute of Frauds.

**LAWW4033 Contracts II (Sp, Su, Fa)** Contract interpretation and enforcement, remedies for breach, including anticipatory breach, justifications for breach, third party beneficiaries, assignment and delegation. Prerequisite: LAWW 4023

**LAWW4053 Property I (Sp, Su, Fa)** Emphasis is on real property. Basic concepts are covered, including property rights in lost and found articles (general property concepts), types and historical origins of estates, and other interests in land. Property transfer techniques, such as gifts, leases (landlord and tenant) and the sale of land are also considered. Land transfer techniques, including the land sale contract, the deed, the recording system, and methods of real property title assurance are discussed. Certain aspects of land use controls explored briefly.

**LAWW406V Upper Level Writing (Sp, Su, Fa) (1-3)** Second year students must take at least one 2 or 3-hour course in upper level research and writing which has been certified by the faculty as an Upper Level Writing course. The course, which is constructed around a special topic or specific area of the law,

focuses on writing or drafting. Writing component accounts for at least 2/3 of the final grade. Prerequisite: LAWW 4013 and LAWW 4012. May be repeated for up to 10 hours of degree credit.

**LAWW4073 Criminal Law (Sp, Su, Fa)** Deals with the questions of what conduct society punishes through a criminal code and of the appropriate punishment for the forbidden conduct. In this context the course includes an analysis of the theories of punishment, the definitions of various crimes, the defenses available to one charged with criminal conduct, and the limitations placed by the Constitution on governmental power in the criminal law area. Throughout the course, special emphasis is placed on the appropriate role of the legislature and the courts, and the problem faced by them in devising and administering a criminal code.

**LAWW4103 Civil Procedure I (Sp, Su, Fa)** Study of the process of civil litigations from such preliminary matters as court selection and jurisdiction to appeal and collateral attack of final judgments. Some attempt is made to cover the antecedents of modern procedure; where appropriate, suggestions for reform are developed in class discussion. Emphasis is on the Federal Rules of Civil Procedures and on code pleading and common law procedure used in state court systems.

**LAWW4144 Torts (Sp, Su, Fa)**

**LAWW4153 Property II (Sp, Su, Fa)** Emphasis is on real property. Basic concepts are covered, including property rights in lost and found articles (general property concepts), types and historical origins of estates, and other interests in land. Property transfer techniques, such as gifts, leases (landlord and tenant), and the sale of land are also considered. Land transfer techniques, including the land sale contract, the deed, the recording system, and methods of real property title assurance are discussed. Certain aspects of land use controls are explored briefly.

**LAWW4173 Criminal Procedure (Sp, Su, Fa)** Concerned with the legal steps through which a criminal proceeding passes, commencing with the initial investigation of a crime and concluding with the release of the defendant. Does not deal exclusively with constitutional problems, although considerable time is spent on them. Recent Supreme Court decisions receive special emphasis. Criminal Procedure does not deal with criminal tactics or with many of the special problems relating to the introduction of evidence at the trial.

**LAWW4203 Civil Procedure II (Sp, Su, Fa)** Study of the process of civil litigations from such preliminary matters as court selection and jurisdiction to appeal and collateral attack of final judgments. Some attempt is given to cover the antecedents of modern procedure; and where appropriate, suggestions for reform are developed in class discussion. Emphasis is on the Federal Rules of Civil Procedure and on code pleading and common law procedure used in state court systems.

**LAWW4442 Law & Accounting (Irregular)** Study of basic accounting principles and their importance to attorneys engaged in business related activities. Topics covered include the fundamental accounting equation, the nature of accrual accounting, understanding financial statements, and accounting for assets and liabilities. Also a review of basic principles associated with financial statement analysis and valuation principles. Intended for students with little or no business training, and may not be taken for credit by students who have previously earned 6 or more hours of undergraduate or graduate credit in accounting courses.

**LAWW4993 Pre-Trial Practice (Sp, Su, Fa)** Develops fundamental lawyer's skills using role-play in simulation exercises that are videotaped and critiqued. Focuses on development of case theory, fact gathering, use of discovery tools, and case planning. Prerequisite: Successful completion of Civil Procedure I, Civil Procedure II, and Criminal Procedure.

**LAWW500V Special Topics (Irregular) (1-18)** Included under this heading will be a variety of variable credit law courses taught by law faculty on topics that are not included elsewhere in the curriculum. May be repeated for up to 18 hours of degree credit.

**LAWW5013 Professional Responsibility (Irregular)** Role of the lawyer as counselor, advocate, and public servant; obligation to society of the individual lawyer and the profession as a whole; ethical problems of the profession; representation of the unpopular cause and the desirable client, lawyers' obligation to law reform; lawyer and the press; the lawyer in public service; the aspects of law office management.

**LAWW5023 Business Organizations (Sp, Su, Fa)** Course is constructed around different forms of business organizations, with emphasis on agency and partnership law, and corporation law.

**LAWW5023 Remedies (Irregular)** Covers equity (jurisdiction and powers of courts of equity, injunctions, including adequacy

of legal remedies, balancing of equities, interests protected, and defenses), damages (compensatory, exemplary, and nominal damages; direct and consequential damages; mitigation; special application in contract and tort actions) and restitution (relief afforded by the judicial process, to prevent unjust attention of benefits).

**LAWW5024 Remedies (Irregular)** Covers equity (jurisdiction and powers of courts of equity, injunctions, including adequacy of legal remedies, balancing of equities, interests protected, and defenses), damages (compensatory, exemplary, and nominal damages; direct and consequential damages; mitigation; special application in contract and tort actions) and restitution (relief afforded by the judicial process, to prevent unjust retention of benefits).

**LAWW5063 Education Law (Irregular)** Study of law as it applies to public education in America, including the theory of compulsory education, constitutional rights of students and teachers, school financing, equal opportunity in education.

**LAWW5073 Domestic Relations (Irregular)** Devoted primarily to the problems generated by family relationships. There is a large section on formation and dissolution of marriage. Substantial time is also given to paternity and legitimacy, obligations toward and of children, custody, adoption, guardianship, general property law as it is affected by family relationships, and divorce and custody in the federal system (focusing primarily on enforceability of decrees in one state by courts sitting in another state).

**LAWW5083 First Amendment (Irregular)** An intensive examination of the legal issues arising under the First Amendment to the United States Constitution, with an emphasis on basic free speech doctrines and the dilemmas posed by interplay between the free exercise and establishment clauses. Prerequisite: LAWW 5114.

**LAWW5093 Solo Practice Planning (Irregular)** Combines elements of professional responsibility and law practice management. This course will satisfy the skills requirement.

**LAWW510V Law: Study Abroad (Su) (1-6)** Open to law students studying abroad in officially sanctioned programs.

**LAWW5114 Constitutional Law (Irregular)** An introduction to the basic principles of constitutional law and to current constitutional doctrines and problems. The primary focus will be on the structure of the federal system and on the rights of individuals under the Due Process and Equal Protection clauses of the Fifth and Fourteenth Amendments.

**LAWW5133 Real Estate Transactions (Sp, Su, Fa)** Focuses on real estate transfer, real estate finance and real estate development. Issues relating to the sale of land and conveyances of real property, mortgages and the planning, financing, constructing and marketing of modern real estate developments are treated.

**LAWW5163 Administrative Law (Sp, Su, Fa)** Course is constructed around Federal materials, but with some state references. Considers the origin and constitutional basis for the administrative process; executive and legislative controls with particular emphasis upon the judicial "control" of the administrative process (delegations, procedural and substantive due process, judicial assistance and enforcement and review of administrative decisions).

**LAWW5173 Insurance (Sp, Su, Fa)** A study of casualty, fire, and life insurance. Major areas include the duty to defend; duty to settle within policy limits; the definition of what is covered under the policy; insurance marketing; insurable interests; the measure of recovery; disputes between insurers; defenses such as fraud, concealment, and non-cooperation; and government regulation of insurance.

**LAWW5183 Drafting Legal Documents (Irregular)** This course will study and practice the principles applicable to drafting of non-litigation documents, such as contracts, wills, and legislation. These include organization and categorization of information, definitions, testing of substantive provisions for completeness and consequences, and choices and precision of language.

**LAWW5203 Discrimination in Employment (Irregular)** An examination of federal constitutional, statutory, and administrative restrictions that prohibit or limit employers, unions and employment agencies from discriminating on the basis of race, sex, religion, age, national origin and color. In addition to the substantive scope of federal law, emphasis given to enforcement procedures and remedies.

**LAWW5213 Business Planning (Irregular)** Synthesis of legal principles dealing with taxation and form of business organizations to provide guidance in choosing form and operating business entities.

**LAWW5223 Negotiations (Irregular)** This course provides students with instruction in, and methods for planning and evaluating their work in, negotiating on behalf of clients. In ad-

dition to teaching the theory attached to these skills, the course provides students with practice in these areas through the use of simulated negotiations exercises. While the focus is on negotiations, the aspects of the course relating to planning for negotiations will also help students develop client interviewing and counseling skills.

**LAWW5233 Interviewing and Counseling (Irregular)** Course provides instruction in practical aspects of client representation such as drafting, interviewing, counseling, fact gathering, negotiation, and advocacy, and in analytical processes for applying those skills in ethical fashion. In addition to teaching theory attached to skills, the course provides students with practice in these areas through the use of simulated client problems. Course satisfies skills requirement.

**LAWW5243 Business and Commercial Torts (Irregular)** Course will explore the legal relationship between competition and intangible property. Covers the spectrum of private remedies for competitive wrongs. Course will examine laws relating to such business and commercial torts as unfair competition, misappropriation of trade secrets, trademark infringement, false advertising, etc. Course is designed for students planning to practice in the areas of commercial, corporate, business or intellectual property law.

**LAWW5303 International and Domestic Sales and Leasing (Sp, Su, Fa)** Study of Articles 2 and 2A of the Uniform Commercial Code and the United Nations Convention on Contracts for the International Sale of Goods<sup>2</sup>

**LAWW5313 Negotiable Instruments (Sp, Su, Fa)** Study of Articles 3 and 4 of the Uniform Commercial Code dealing with negotiable instruments.

**LAWW533V Election Law (Irregular) (1-3)**

**LAWW5363 Securities Regulation (Irregular)** Regulation of issuance of and trading in stocks, bonds and other security by federal and state agencies, with particular reference to the SEC. Not offered every year. Prerequisite: LAWW 4294.

**LAWW550V Wills, Trusts, and Estates (Irregular) (1-4)** This is the study of the traditional areas of wills and trusts (intestate and testate succession). The trusts area includes both the private trust and the charitable trust. Taxation problems are not covered in depth but are instead reserved for the Federal Estate & Gift Taxation course.

**LAWW5513 Labor Law (Irregular)** The right to organize; organization of labor unions; strikes; picketing; boycotts; collective bargaining; collective labor agreements and their enforcement; unfair labor practices by employers and by unions; the union member and his union; state labor relations legislation; the National Labor Relations Act and the Labor Management Relations Act. Not offered every year.

**LAWW5994 Debtor-Creditor Relations (Sp, Su, Fa)** Study of Article 9 of the Uniform Commercial Code and of the remedies of unsecured creditors.

**LAWW6013 Alternative Dispute Resolution (Sp, Su, Fa)** Deals with the alternative to formal litigation for resolving various types of disputes. The alternatives considered include negotiation, mediation and conciliation, arbitration, "rent-a-judge," and other special procedures. Areas of application include contract and tort disputes, community problems, labor relations, and medical practice controversies. This course will satisfy the skills requirement.

**LAWW602V Independent Legal Research (Sp, Su, Fa) (1-3)** Independent legal research conducted under the supervision of faculty members. Ordinarily a student may not accumulate more than two semester hours of credit for Independent Legal Research. This cumulative maximum may be exceeded only by special permission of the dean, who in exceptional circumstances may approve a cumulative maximum credit of three semester hours of credit for Independent Legal Research.

**LAWW603V Federal Courts (Irregular) (1-3)** Focus is on essential aspects of federal court procedure, the scope and limits of federal judicial power, and the underlying principles of federalism and separation of powers. Topics will include federal court jurisdiction, the power of Congress to limit that jurisdiction, Supreme Court review of state court judgments, and abstention and justiciability doctrines.

**LAWW6042 Children and the Law (Irregular)** Topics include children as legal persons, including minors' right to expression under the First Amendment and their participation in decision-making in legal contexts; children's rights and school authority, including constitutional issues in school discipline and religious expression; foster care; termination of parental rights; and adoption.

**LAWW6063 Advanced Evidence (Sp, Su, Fa)** Deals with the use of expert witnesses, forensic sciences and scientific evidence, organization of proof, burden of proof, presumptions, and the law of privileges.

**LAWW607V Conflict of Laws (Sp, Su, Fa) (2-3)** Study of the

legal principles involved in problems which have connections with two or more states requiring a choice of law, choice of law in federal courts, and jurisdiction in multi-state situations.

**LAWW6083 Arkansas Civil Practice (Irregular)** This course builds on the basic understanding of civil procedure to create a detailed examination of civil procedure in Arkansas trial and appellate courts. Topics include: the Arkansas rules of civil and appellate procedure; the judiciary provisions of the Arkansas Constitution; state statutes dealing with jurisdiction and venue; the right to trial by jury following the merger of law and equity; and the enforcement of judgments. Differences between Arkansas and federal civil practice are also explored. Prerequisite: Civil Procedure I and II.

**LAWW6093 Basic Evidence (Sp, Su, Fa)** Study of the rules of evidence under which trials are conducted; the methods by which items of evidence and admitted or excluded; relevancy, real evidence, testimonial proof, and hearsay and its exceptions.

**LAWW6103 Jurisprudence (Sp, Su, Fa)** Studies of the ideas and methods of law, regardless of particular questions that might be resolved by the law.

**LAWW611V Moot Court (Sp, Su, Fa) (1-3)**

**LAWW6133 Antitrust Law (Irregular)** Federal anti-trust laws and their relationship to concentrations of economic power in the contexts of monopoly mergers, price fixing, economic boycotts and discrimination, re-sale price maintenance, dealer franchises, and exclusive dealing. Comparative analysis of free enterprise market and government regulated industries. Recommended for second- and third-year students interested in business practice or government service, as well as social welfare, or students with an interest in the subject.

**LAWW6143 Oil and Gas (Sp, Su, Fa)** Study of the law of oil and gas with emphasis on the interests that may be created in oil and gas, the rights of the landowner, provisions in the oil and gas lease, the rights of assignees, and legislation dealing with production and conservation.

**LAWW614V Board of Advocates Credit (Sp, Su, Fa) (1-6)** Members of the Board of Advocates may receive ungraded academic credit, to be awarded in the spring semester of the member's third year in law school, upon completion of duties for the fall and spring semesters.

**LAWW6152 Elder Law Seminar (Irregular)** In-depth treatment of selected problems of elderly persons in seminar format.

**LAWW616V Law Review Credit (Sp, Su, Fa) (1-4)**

**LAWW6182 Advanced Torts: Dignitary and Economic Harm (Irregular)** Course will cover defamation, the rights of privacy (including information privacy) and publicity, harm to family relationships, malicious prosecution and interference with common law civil rights.

**LAWW618V Journal of Food Law & Policy Credit (Sp) (1-5)** Students receive credit for completion of duties on the Law School's publication of The Journal of Food Law & Policy.

**LAWW6192 Workers' Compensation (Sp, Su, Fa)** Study of state legislation providing remedies for workers injured in the course of their employment. Not offered every year.

**LAWW6193 Social Legislation (Sp, Su, Fa)** Examination of the various statutes (exclusive of the employment discrimination laws) governing the rights and responsibilities of employees and employers, including unemployment legislation, COBRA, EPPA, ERISA, FLSA, OSHA, USERRA, and WARN.

**LAWW6203 Trial Advocacy (Sp, Su, Fa)** An introduction to actual trial work and trial techniques through simulated exercises and the conduct of a mock trial. This course will satisfy the skills requirement.

**LAWW6213 Product Liability (Sp, Su, Fa)** An intensive study of the area including a review of the theories of liability; the concepts of product and defect; potential defendants; defenses; problems of proof and causation.

**LAWW6223 Oil & Gas Regulation and Agreements (Irregular)** This course is intended as a companion or follow-up course to the basic Oil and Gas course, and Oil & Gas is a pre-requisite to this course. The casebook will be the same as the book used in the basic Oil and Gas course. The emphasis of Oil & Gas Regulation and Agreements is on Well Spacing Regulations, including the administrative rules governing the location and spacing of both vertical and horizontal wells, the creation of the Drilling Unit, including the role of the Joint Operating Agreement (JOA), and voluntary pooling and forced integration. Interaction between state regulation and the parties' obligations under provisions of an oil and gas lease including the effect of unitized production upon Oil and Gas lease terms such as entitlement to payment of the proceeds of production is also considered. The guiding approach to the class is to provide the student with familiarity and understanding of the law that is involved in the real-world drilling, completing, and sell-

ing production from oil and gas operations, including today's unconventional plays, such as the Fayetteville Shale Play in Central Arkansas. Prerequisite or Corequisite: LAWW 6143.

**LAWW6233 Federal Income Tax of Individuals (Sp, Su, Fa)** Fundamentals of the federal income taxation of individuals. Topics covered include gross income, deductions, assignments of income, basis, taxation of property transactions, and tax accounting.

**LAWW6243 Federal Estate and Gift Taxation (Sp, Su, Fa)** Fundamentals of the federal estate and gift transfer tax system. Topics covered include the determination of gifts for tax purposes, amounts included in decedents' gross estates, valuation, deductions and credits.

**LAWW6253 Federal Income Taxation of Business Entities (Sp, Su, Fa)** Focus on tax issues in business formation, operation, distributions, and liquidations. Prerequisite: LAWW 6233

**LAWW6262 Estate Planning (Sp, Su, Fa)** Study of the role of lawyers (including ethical considerations) in fact gathering and analysis of data; testamentary and nonprobate transfers; planning for incapacity; Medicaid, income tax, and transfer tax considerations in small and large estates; gift techniques; planning for the surviving spouse; revocable and irrevocable trusts; life insurance; disposition of business interests; and post-mortem tax planning. Unless waived by the instructor, prerequisite for taking the course shall be the successful completion of either Decedents' Estates or Federal Estate and Gift Taxation.

**LAWW629V Advanced Corporations (Irregular) (1-4)** Classical corporations law. Formation of corporations, duties and powers of corporate management, corporate control, shareholder rights, shares, dividends, derivative suits, fundamental changes and dissolution.

**LAWW6303 WTO, NAFTA, and EU Law (Irregular)** The problem of doing business abroad considered from the standpoint of the regulations of foreign trade and direct investment.

**LAWW632V Poverty Law: Theory and Practice (Irregular) (1-6)** History of anti-poverty programs, the constitutional requirements for such programs. Legal and administrative characteristics of major American income-maintenance programs. Topics include the structure of programs, discretion, the protections of clients, social reform groups, and welfare reform. Prerequisite: LAWW 5114.

**LAWW633V Intellectual Property (Irregular) (2-3)** This course involves an introductory survey of topics in intellectual property, including copyright, trademark, patent, and unfair competition issues. If time permits, the course may also cover certain aspects of e-commerce.

**LAWW6343 Conflict Resolution (Irregular)** Explores methods utilized in the legal profession for resolving disputes. Students develop skills by participating in simulation exercises designed to identify and apply processes. Class readings/discussion on theory and practice will be followed by student simulations. Designed for second and third year law students.

**LAWW635V Journal of Islamic Law and Culture Credit (Irregular) (1-4)** The Journal of Islamic Law & Culture is intended to encourage scholarship and dialogue that fosters a deeper understanding of the law and public policy of Islamic religion and culture, particularly as it intersects with Western law and society, including the legal and social communities of the US. The Journal is published semiannually by Routledge Press, in collaboration among the UA School of Law and the UA King Fahd Center for Middle Eastern and Islamic Studies.

**LAWW6364 Legal Clinic: Immigration (Irregular)** Immigration Clinic will provide opportunities for students preparing for a career in immigration law or general practice by developing skills that are critical in legal practice through an experiential learning model. Working under the supervision of a clinical faculty member, students will represent sectors of the immigrant population for graded credit. Criminal Procedure and Professional Responsibility are prerequisites, as well as the completion of at least forty-eight credit hours prior to enrollment. Prerequisite: LAWW 4143, 5013.

**LAWW6373 Legal Clinic (Federal Practice) (Sp, Su, Fa)** Students receive clinical legal experiences in federal courts and before federal administrative agencies. Although the particular experiences vary, Chapter 7 (no asset) bankruptcies and farm foreclosures are often emphasized.

**LAWW6383 General Practice Clinic (Su)** (First Offered Summer 2002) Students will integrate, extend, and refine their legal knowledge and lawyering skills through representation of clients in civil cases pending before Arkansas Circuit and Chancery Courts, federal bankruptcy or administrative cases pending before the U.S. Bankruptcy Court and Administrative Law Judges, and prosecution of criminal misdemeanor cases. Students are responsible for all aspects of representation including interviewing, counseling, negotiation, pleading and discovery practice, and trial advocacy. This course offers students

a practice experience similar to that experienced by many lawyers practicing in small to medium sized firms in Arkansas and other states in the region. Prerequisite: Unless waived by the instructor, a cumulative GPA of 2.00; successful completion of 48 semester hours of offerings, including LAWW 4103, LAWW 4203, LAWW 4173, LAWW 6093, and LAWW 5013; and qualifying for Rule XV practice.

**LAWW6393 Legal Clinic (Transactional) (Irregular)** Students receive clinical legal experience counseling and representing non-profit organizations serving Northwest Arkansas in a wide range of non-litigation business law matters. Services include startup, incorporation, obtaining federal and state tax exemptions, change of business form, purchase and lease of real and personal property, employment and labor law issues, and general contract negotiation, drafting and execution. In addition, students prepare and participate as presenters in a workshop on matters of general interest to non-profit organizations. Legal Clinic Faculty supervise and review the student attorney's work, and provide personal feedback to the individual student attorneys. Prerequisite: Qualification for Rule XV practice.

**LAWW6403 Land Use (Sp, Su, Fa)** Covers public land use controls such as zoning, subdivision regulations, and eminent domain (including private property rights, takings, and inverse condemnation). Heavy emphasis is placed on planning at state and local levels.

**LAWW6433 Legal Clinic: Innocence Project (Irregular)** This clinic works in conjunction with the Innocence Project, Arkansas to provide pro bono representation to individuals committed to the Arkansas Department of Corrections where available evidence establishes proof of the client's actual innocence. Students are responsible for all aspects of the representation including: case review, investigation, development of lay and expert testimony, pleading, briefing, discovery, and assistance in court proceedings. The Innocence Project, Arkansas is an Arkansas non-profit corporation. Students must be Rule XV eligible and have taken Trial Advocacy. The Innocence Project Clinic is a 3 credit course. May be repeated for credit.

**LAWW6443 Legal History (Sp, Su, Fa)** Investigation of English and American legal institutions and doctrines. Emphasis on early American (colonial) and 19th Century developments in the law.

**LAWW6453 American Legal History (Irregular)** An examination of major themes in American legal history, with an emphasis on the origins and meaning of the United States Constitution. Various topics will be explored in the light of the original understandings, developments over time, and current interpretations by the courts and the body politic.

**LAWW6473 Legal Clinic (Criminal Prosecution) (Sp)** Students in this course will have the opportunity to extend and refine their lawyering skills, knowledge of substantive law, and mastery of criminal procedure through prosecution of misdemeanor crimes on behalf of the State in Municipal Court. Students are fully responsible for the cases assigned to them. Their responsibilities include assessing the charges and investigation of law enforcement, interviewing witnesses, conducting discovery, evaluating cases for an agreed upon resolution, negotiating with defense counsel and pro se defendants, responding to suppression and other defense motions, trial preparation, and trying cases to the court. The preparation and performance of student attorneys is supervised by clinic faculty who provide personal feedback to the individual students. Prerequisite: Unless waived by the instructor, prerequisites for taking the course shall be a cumulative grade point average of 2.00; the successful completion of 48 semester hours of offerings, including Civil Procedure I, Civil Procedure II, Criminal Law, Criminal Procedure, Evidence, and Professional Responsibility; and qualifying for Rule XV practice.

**LAWW648V Special Topics (Skills) (Sp, Su, Fa) (1-3)** Special Topics (Skills) is a course where "class names" allow for a menu of course titles that provide substantial instruction in professional skills related to the responsibilities which lawyers are called upon to meet such as trial and appellate advocacy, alternative methods of dispute resolution, counseling, interviewing, negotiating, problem solving, factual investigation, organization and management of legal work, drafting, and analytical processes for applying those skills in ethical fashion. Prerequisite: all first-year courses. May be repeated for up to 15 hours of degree credit.

**LAWW6513 Immigration Law and Policy (Sp, Su, Fa)** Study of immigration and nationality, including exclusion and deportation; political asylum and refugee status; visa allocation and distribution; labor certification; and naturalization and citizenship. It is recommended that Administrative Law be taken first. **LAWW6523 Employment Law (Sp, Su, Fa)** An overview of the law governing various aspects of the employment rela-

tionship, both statutory and common law. Covers the establishment and parameters of employment, the security of the worker, employer's rights, and terminations.

**LAWW654V Public Service Externship (Sp, Su, Fa) (2-3)** A public service externship is a pro-bono position involving exposure to real world situations, involving some aspect of public service, where a lawyer's expertise and insights will be called for and can be observed. Normally, placements in private law firms or for-profit corporations would not qualify. The usual expectation is that a public service externship should last an entire semester (15 weeks during the spring and fall, and 12 weeks during the summer). For a two-credit externship, the average work load must be no less than 8 hours per week in the fall and spring, or 10 hours per week in the summer. For a three-credit externship, the average work load would be no less than 12 hours per week in the fall and spring, or 15 hours per week in the summer. Prerequisite: Faculty recommendation.

**LAWW6613 Bankruptcy (Sp, Su, Fa)** Study of insolvency law, with particular emphasis on federal bankruptcy law.

**LAWW6623 Sentencing and Post-Conviction Remedies (Sp, Su, Fa)** Law, theory, and practice of sentencing and post-conviction remedies.

**LAWW6633 Criminal Procedure II (Irregular)** This course focuses on prosecuting crime. Principal topics include: the prosecutor's decision to charge, the role of defense counsel, initial appearance, bail and pretrial release, grand juries and preliminary hearings, discovery, guilty pleas and plea bargaining, speedy trial, double jeopardy, trials and pretrial motions, sentencing and post-conviction remedies. Prerequisite: LAWW 4173.

**LAWW6713 Judicial Externship (Sp, Su, Fa)** Judicial Externship is an elective externship for second and third year students. Externs shall report to and be under direct supervision of a judge of the federal district court, the bankruptcy court, or a circuit court approved by the externship coordinator. Extern's duties may be determined by the supervising judge and may include work on assigned cases, research, preparation of memoranda, and consultation with full-time law clerks.

**LAWW6722 Terrorism, National Security and Human Rights (Irregular)** International law issues relating to protection of human rights. Research papers will satisfy upper-level writing requirement.

**LAWW6723 Juvenile Justice Externship (Irregular)** Juvenile Justice Externship is an elective externship for third year law students. Prerequisites for participating are: successful completion of the Criminal Defense Clinic or the General Practice Clinic; certification under Rule XV of the Arkansas Rules Governing Admission to the Bar; and the advance approval of the faculty member assigned to supervise the externship.

**LAWW6812 Legislative Externship (Irregular)** Elective externship for third year students. Available only to a student who has successfully completed 48 hours of law credit and has earned a grade of C or higher in Professional Responsibility. Students must disclose whether they have been subject of any prior honor code proceeding which resulted in imposition of any penalty. Extern shall report to and be supervised by either a chief of staff or deputy chief of staff. Duties shall be determined by the field supervisor. Duties may include observation of and assistance in day-to-day operations, special projects, work with federal or state agencies, communications with constituents and other duties as assigned. Prerequisite: 48 hours law credit and grade of C or higher in Professional Responsibility.

**LAWW6814 Corporate Counsel Externship (Irregular)** Externs work with a supervising attorney in a corporate counsel's office. In Fall and Spring semesters each extern works 16 hours per week (average minimum), and in Summer the extern shall work at least 20 hours per week during the 12-week term; keeps a journal, and meets at least 3 times with the faculty supervisor. Prerequisite: LAWW 4294, LAWW 5013 and approval of the faculty supervisor; Recommended: LAWW 6293. **LAWW6822 Patent Law (Sp, Su, Fa)** Study of the patent system of the United States, including conditions for a valid patent, procedures of the patent office, and litigation relating to patents. Not offered every year.

**LAWW6903 ADR in the Workplace (Irregular)** Explores the practical as well as the legal problems presented by the use of alternative dispute resolution to resolve employment disputes. The primary focus will be on the enforcement of collective bargaining agreements and individual employment contracts through arbitration, and the use of arbitration to resolve statutory issues such as claims of employment discrimination. There also will be some consideration of other forms of ADR such as mediation, fact-finding, and peer-review systems. Course satisfies the skills requirement.

**LAWW6913 Environmental Law (Sp, Su, Fa)** Devoted primarily to the legal problems related to the environment. Included is consideration of environmental impact in public and private decision making.

**LAWW6923 Legal Clinic (Civil Practice) (Sp, Su, Fa)** Students develop skills by working with actual clients in nearby civil courts. Students interview clients, counsel them, negotiate and litigate. The Legal Clinic faculty supervise and review the students' work, and provide personal feedback to individual students. Prerequisite: Cum GPA of 2.00, successful completion of 48 semester hours, including Civil Procedure I and II, Criminal Procedure, Evidence, and Professional Responsibility, and qualifying for Rule XV practice.

**LAWW6943 Public International Law (Sp, Su, Fa)** Principles of international law involving relations among government. The function of international tribunals and organizations.

**LAWW6963 Legal Clinic (Criminal Defense) (Sp, Su, Fa)** Students develop skills by representing actual clients charged with misdemeanors in Washington County and nearby counties and clients charged with felonies and misdemeanors in Washington County Juvenile Court. Students interview clients, counsel them, negotiate, and litigate. The Legal Clinic faculty supervise and review the students' work, and provide personal feedback to individual students.

**LAWW6973 Advanced Clinic (Irregular)** Advanced Clinic is designed to allow students to gain more in depth experience in either the Civil, Transactional and General Practice Clinics. Students who have successfully completed the Civil or Transactional may elect to take the Advanced Clinic for an additional 3 credits during a subsequent semester. Students enrolled in the General Practice Clinic may elect to take the course for an additional 3 credits during the same summer session in which they are enrolled. Students may take only one Advanced Clinic.

**LAWW7012 Juvenile Justice Seminar (Sp, Su, Fa)** Examines procedural and substantive law in the context of the distinctive goals, structure, and procedure of the Juvenile Court. Special attention is given to alternative ways of dealing with two categories of juveniles, i.e., status offenders who are within the jurisdiction of the court although not accused of criminal conduct, and youthful offenders who commit serious crimes.

**LAWW7053 Externship: Federal Public Defender (Irregular)** Externship is an elective externship for third year law students for three semester hours of ungraded credit. Duties shall be determined by the supervising attorney and may include work on assigned cases, appearances, preparation of research memoranda, preparation of trial motions, consultation with other employees of the Office of the Federal Public Defender and other projects as assigned. Each extern works an average of 12 hours minimum per week during the fall or spring semesters or 15 hours per week during the summer semester, keeps a journal and meets at least 3 times with the faculty supervisor.

**LAWW706V Sports Law (Irregular) (2-3)** The major topics covered include significant contract issues, tort liability involving participants, institutions, physicians and equipment manufacturers, criminal liability, drug testing, constitutional and related issues dealing with sports associations and Title 9 and gender equity issues. Other relevant topics may also be covered if possible.

**LAWW7072 Advanced Mediation Clinic (Irregular)** Students will co-mediate civil cases referred by Courts and agencies. Students will work with experienced mediators and the mediation clinic supervisor, who will review their performances on an individual basis. Students may produce educational programs for various groups. Class discussions will focus on current mediation issues and problems. Pre-requisite: Mediation in Practice.

**LAWW7073 Mediation in Practice (Irregular)** This three-credit course will train students to mediate disputes assigned to the Northwest Arkansas Dependency-Neglect/Families In Need of Services Mediation Project by the juvenile court. In the first five weeks of the semester, students will be introduced to basic mediation theory, procedures, and ethical constraints; communication techniques; juvenile law; and operation of the child welfare system in Arkansas. This training will include lectures, discussion, and simulation exercises. In the remaining weeks of the semester, students will receive additional information and simulation practice, and they will also observe and participate in the mediation of actual cases assigned to the Project.

**LAWW7243 Health Law (Sp, Su, Fa)** An examination of the role of the law in determining access to and regulation of the quality of services provided by the health care industry.

**LAWW7342 Law and the Internet (Irregular)** This is a survey course. Students will study laws associated with doing busi-

ness over the internet. A partial list of topics to be covered is: jurisdiction, trademarks, copyrights, patents, contracting, taxation, privacy, obscenity, defamation, and criminal law. The course is highly interactive. In addition to lectures, students will participate in case discussions and presentations.

**LAWW760V Bankruptcy - Business Reorganizations (Irregular) (2-3)** Examines the rules and tactics governing the reorganization of a struggling business or farm under Chapter 11 of the Bankruptcy Code. Students will reorganize a hypothetical failing business as a part of the course.

**LAWW7612 Advanced Consumer Bankruptcy (Sp, Su, Fa)** Study of recent developments in the law of bankruptcy as it applies to consumer and non-consumer transactions. Prerequisite: LAWV 6602.

**LAWW7662 American Indian Law (Sp, Su, Fa)** Study of the domestic federal law of the United States as it applies to Native Americans and their tribes. The general concept of tribal self-determination is the unifying theme of the course. Particular topics include tribal sovereignty and government; American Indian civil rights; administration of justice on and off the reservation; American Indian land claims; land, hunting, and fishing rights; water rights; American Indian health, education, and welfare; Bureau of Indian Affairs; state taxation; individual and tribal treaty rights; federal Indian policy; and zoning and environmental controls.

**LAWW770V Master's Thesis in Agricultural Law (Sp, Su, Fa) (1-4)** Research in a specialized area of agricultural law and development of a scholarly paper containing the results of this research.

**LAWW771V Independent Research in Agricultural Law (Sp, Su, Fa) (1-2)** Independent research in agricultural law conducted under the supervision of a faculty member.

**LAWW7753 Agriculture and the Environment (Sp, Su, Fa)** Study of the application of environmental law to agricultural operations. Topics include soil erosion, takings, pesticide law, the Clean Water Act, the Clear Air Act, common law nuisance, drainage, wildlife, and endangered species.

**LAWW7763 Agricultural Finance and Credit (Sp, Su, Fa)** Study of the legal issues surrounding the financing of agricultural operations, including credit availability, agricultural security issues under the Uniform Commercial Code, and debt restructuring opportunities. Special focus is on lending options offered by the Farm Service Agency and the Farm Credit System.

**LAWW7773 Water Law (Sp, Su, Fa)** Study of real property principles governing ownership rights in water and the federal and state statutes controlling the use of water.

**LAWW7782 Agricultural Labor Law (Sp, Su, Fa)** Study of the federal laws that govern the employment of agricultural workers, including wage and hour provisions, laws impacting migrant and seasonal farm workers, immigration issues, occupational safety and health, and child labor laws.

**LAWW7802 Comparative Law Seminar (Sp, Su, Fa)** A study of selected foreign legal systems with a focus on the basic differences between those legal institutions and the Anglo-American common law system.

**LAWW7862 Food Law (Irregular)** An examination of the network of laws that govern food safety and food labeling and a discussion of the efficacy of this network - is it working properly and are consumers well served by it? The course materials will be based on statutory and regulatory law, judicial decisions, and a series of policy readings. Current issues in the news, e.g., mad cow disease, the spinach e-coli outbreak, and the organic standards will be considered in our discussion.

**LAWW791V Government Regulation of Agriculture (Sp, Su, Fa) (1-3)**

Mathematics (MATH)

**MATH0003 Beginning and Intermediate Algebra (Sp, Su, Fa)** For students who have inadequate preparation for taking MATH 1203. Credit earned in this course may not be applied to the total required for a degree. Corequisite: Lab component.

**MATH1203 College Algebra (Sp, Su, Fa)** Topics include the solution and application of linear and quadratic equations and inequalities; functions, graphs, and theory of equations; matrix solutions of systems of equations and basic properties of matrices. Credit will be allowed for only one of MATH 1203 and MATH 1284C. Prerequisite: MATH 0003 with a grade of C or better, or a score of at least 80% on the University of Arkansas Preparedness for Algebra Exam, or a score of at least 23 on the math component of the ACT exam, or a score of at least 540 on the math component of the SAT. (Same as MATH 1203C, MATH 1204)

**MATH1203C College Algebra (Sp, Su, Fa)** Same as MATH 1203 except taught with a corequisite drill component. Credit

will be allowed for only one of MATH 1203 and MATH 1284C. Corequisite: Drill component. Prerequisite: MATH 0003 with a grade of C or better, or a score of at least 80% on the University of Arkansas Preparedness for Algebra Exam, or a score of at least 23 on the math component of the ACT exam, or a score of at least 540 on the math component of the SAT. (Same as MATH 1203, MATH 1204)

**MATH1204 College Algebra with Review (Sp, Su, Fa)** Same as MATH 1203 with additional support, increased class time, additional review, and computerized lab component. Only one of MATH 1203, MATH 1204, AND MATH 1284C may be counted for degree credit. Prerequisite: MATH 0003 with a grade of C or better, or a score of at least 70% on the University of Arkansas Preparedness for Algebra Exam, or a score of at least 19 on the math component of the ACT exam, or a score of at least 460 on the math component of the SAT. (Same as MATH 1203, MATH 1203C)

**MATH1213 Plane Trigonometry (Sp, Su, Fa)** Basic topics in trigonometry including identities, formulas, and polar coordinate system. Credit will be allowed for only one of either MATH 1213 or MATH 1284C. Corequisite: Lab component. Prerequisite: MATH 1203 or MATH 1204 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT.

**MATH1284C Precalculus Mathematics (Sp, Su, Fa)** Topics in algebra and trigonometry. To be taken by students who expect to take MATH 2554. Prerequisite: MATH 1203 or MATH 1204 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT.

**MATH2031M Honors Mathematical Thought Lab (Sp, Fa)** Supplemental honors laboratory for Math 2033, Mathematical Thought. Pre- or Corequisite: MATH 2033. Prerequisite: Honors standing or departmental consent.

**MATH2033 Mathematical Thought (Sp, Su, Fa)** This course introduces students to a variety of topics in modern mathematics. Topics vary and can include graph theory, game theory, voting systems, foundations of logic, cardinality, discrete geometry combinatorics, geometry of surfaces, topology and symmetry. Prerequisite: MATH 1203 or MATH 1204 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT.

**MATH2043 Survey of Calculus (Sp, Su, Fa)** Selected topics in elementary calculus and analytic geometry for students in business, agriculture, and social sciences. Credit will be allowed for only one of MATH 2043 and MATH 2554. Prerequisite: MATH 1203 or MATH 1204 or MATH 1213 or MATH 1284C or MATH 2053 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT. (Same as MATH 2043C)

**MATH2043C Survey of Calculus (Sp, Su, Fa)** Selected topics in elementary calculus and analytic geometry for students in business, agriculture, and social sciences. Credit will be allowed for only one of MATH 2043 and MATH 2554. Corequisite: Drill component. Prerequisite: MATH 1203 or MATH 1204 or MATH 1213 or MATH 1284C or MATH 2053 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT. (Same as MATH 2043)

**MATH2053 Finite Mathematics (Sp, Su, Fa)** Selected topics in probability and statistics, review of algebraic matrices, and graphic analysis of linear programming for students in business, agriculture, and social sciences. Prerequisite: MATH 1203 or MATH 1204 or MATH 1213 or MATH 1284C or MATH 2043 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT. (Same as MATH 2053C)

**MATH2053C Finite Mathematics (Sp, Fa)** Selected topics in probability and statistics, review of algebraic matrices, and graphic analysis of linear programming for students in business, agriculture, and social sciences. Taught with a two-day-per-week lecture and one-day-per-week drill. Corequisite: Drill component. Prerequisite: MATH 1203 or MATH 1204 or MATH 1213 or MATH 1284C or MATH 2043 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math

component of the ACT exam, or a score of at least 600 on the math component of the SAT. (Same as MATH 2053)

**MATH2183 Mathematical Reasoning in a Quantitative World (Sp, Fa)** Mathematical and statistical reasoning are required in contexts of growing complexity and sophistication. The purpose of this course is to cause students to possess the power and habit of mind to search out quantitative information, critique it, reflect upon it, and apply it in their public, personal and professional lives. Prerequisite: MATH 1203 or MATH 1204 with a grade of C or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT.

**MATH2213 Survey of Mathematical Structures I (Sp, Su, Fa)** Sets and logic, systems of numerations, number systems and operations, and elementary number theory. Prerequisite: A grade of C or better in any of Math 1203, Math 1204, Math 1213, Math 1284C, Math 2033, Math 2043, Math 2053, Math 2183 or Math 2554.

**MATH2223 Survey of Mathematical Structures II (Sp, Su, Fa)** Geometry and measurement, and statistics and probability. Prerequisite: A grade of C or better in any of Math 1203, Math 1204, Math 1213, Math 1284, Math 2033, Math 2043, Math 2053, Math 2183 or Math 2554.

**MATH2554 Calculus I (Sp, Su, Fa)** Derivative of functions of one variable, applications of the derivative, introduction of the integral, and applications. Credit will be allowed for only one of MATH 2554 and MATH 2043. Prerequisite: MATH 1213 with a grade of C or better, or Math 1284C with a grade of C or better, or a score of at least 80% on the University of Arkansas Preparedness for Calculus Exam, or a score of at least 30 on the math component of the ACT exam, or a score of at least 680 on the math component of the SAT, or a score of at least 3 on the Calculus AB Advanced Placement Exam. (Same as MATH 2554C)

**MATH2554H Honors Calculus I (Sp, Su)** Topics in analytic geometry and calculus presented in a rigorous manner suitable for an honors student. Students may not receive credit for both MATH 2043 and MATH 2554. Prerequisite: Honors standing or departmental consent; and a score of at least 30 on the math component of the ACT exam, or a score of at least 680 on the math component of the SAT exam.

**MATH2554C Calculus I (Sp, Su, Fa)** Derivative of functions of one variable, applications of the derivative, introduction of the integral, and applications. Credit will be allowed for only one of MATH 2554 and MATH 2043. Corequisite: Drill component. Prerequisite: MATH 1213 with a grade of C or better, or Math 1284C with a grade of C or better, or a score of at least 80% on the University of Arkansas Preparedness for Calculus Exam, or a score of at least 30 on the math component of the ACT exam, or a score of at least 680 on the math component of the SAT, or a score of at least 3 on the Calculus AB Advanced Placement Exam. (Same as MATH 2554)

**MATH2564 Calculus II (Sp, Su, Fa)** Integral calculus of one variable and infinite series. Prerequisite: MATH 2554 with a grade of C or better. (Same as MATH 2564C)

**MATH2564H Honors Calculus II (Sp)** Integral calculus of one variable and infinite series. Prerequisite: MATH 2554 with a grade of A, or MATH 2554H with a grade of A or B, or a score of 5 on the AP AB Calculus Exam.

**MATH2564C Calculus II (Sp, Su, Fa)** Integral calculus of one variable and infinite series. Three hours of lecture and two hours of drill (recitation) per week. Corequisite: Drill component. Prerequisite: MATH 2554 with a grade of C or better. (Same as MATH 2564)

**MATH2574 Calculus III (Sp, Su, Fa)** Differential and integral calculus of several variables, and vector calculus. Prerequisite: MATH 2564 with a grade of C or better. (Same as MATH 2574C)

**MATH2574H Honors Calculus III (Sp, Su, Fa)** Differential and integral calculus of several variables, and vector calculus. Prerequisite: MATH 2564 with a grade of A, or MATH 2564H with a grade of A or B, or a score of 5 on the AP BC Calculus exam.

**MATH2574C Calculus III (Sp, Su, Fa)** Differential and integral calculus of several variables, and vector calculus. Three hours of lecture and two hours of drill (recitation) per week. Corequisite: Drill component. Prerequisite: MATH 2564 with a grade of C or better. (Same as MATH 2574)

**MATH2584 Differential Equations and Laplace Transform (Sp, Su, Fa)** First and second order ordinary differential equations, the Laplace transform, and matrix systems of ordinary differential equations. Prerequisite: MATH 2564 with a grade of C or better. (Same as CVEG 3133, MATH 2584C)

**MATH2584C Differential Equations and Laplace Transform (Sp, Su, Fa)** First and second order ordinary differential equa-

tions, the Laplace transform, and matrix systems of ordinary differential equations. Three hours of lecture and two hours of drill (recitation) per week. Corequisite: Drill component. Prerequisite: MATH 2564 with a grade C or better. (Same as CVEG 3133, MATH 2584)

**MATH2603 Discrete Mathematics (Sp, Su, Fa)** Introductory study of sets, relations, logic, proofs, algorithms, counting methods, graph theory, trees, and Boolean algebras. Prerequisite: MATH 2554 with a grade of C or better or the equivalent. (Same as MATH 2603C)

**MATH2603C Discrete Mathematics (Sp, Su, Fa)** Introductory study of sets, relations, logic, proofs, algorithms, counting methods, graph theory, trees, and Boolean algebras. Corequisite: Drill component. Prerequisite: MATH 2554 with a grade of C or better or the equivalent. (Same as MATH 2603)

**MATH2701 Survey of Higher Math (Sp)** This course overviews the landscape of higher mathematics, touching on many of the themes of modern mathematics: proof, logic, cardinality, analysis, modeling, abstract algebra, number theory, topology and geometry. Pre- or Corequisite: MATH 2564.

**MATH2803 Introduction to Mathematical Proof (Sp, Fa)** Introduction to methods of mathematical proof, with applications. Pre or corequisite: MATH 2564

**MATH3083 Linear Algebra (Sp, Su, Fa)** Systems of linear equations, vector spaces, linear transformations, matrices, and determinants. Only one of MATH 3083 and MATH 3093 will count for credit. Prerequisite: MATH 2554 or MATH 2043, with a grade of C or better.

**MATH3093 Abstract Linear Algebra (Sp, Fa)** A proof-based course on vector spaces, linear transformations, matrices, determinants, eigenspaces and eigenvalues, with applications. Recommended for mathematics majors. Only one of Math 3083 and Math 3093 may be counted for credit. Pre- or Corequisite: MATH 2803. Prerequisite: MATH 2564 with a C or better.

**MATH3103 Combinatorial and Discrete Mathematics (Sp)** Basic combinatorial techniques including the study of networks, generating functions, principles of inclusion/ exclusion, Zn, Hamming coding theory, graph theory, and block designs. Prerequisite: MATH 2603.

**MATH3113 Introduction to Abstract Algebra I (Sp, Fa)** Introduction to algebraic structures with emphasis on rigorous justification of results. Prerequisite: MATH 2603 with a grade of C or better; and MATH 3083 or MATH 3093 with a grade of C or better.

**MATH3133 History of Mathematics (Irregular)** Prerequisite: MATH 2603 and MATH 2554, both with a grade of C or better.

**MATH3203 Number Theory (Irregular)** Topics in elementary number theory. Prerequisite: MATH 2554 and MATH 2603 with a grade of C or better.

**MATH3423 Advanced Applied Mathematics (Sp, Su, Fa)** Matrices, Fourier analysis, and partial differential equations. Prerequisite: MATH 2584 with a grade of C or better.

**MATH3513 Elementary Analysis (Sp, Fa)** A first rigorous course in analysis. The formal basis of the real number system, sequences and series, the Bolzano-Weierstrass Theorem, limits and continuity, the Intermediate Value Theorem, Rolle's Theorem, differentiation, the Mean Value Theorem and its consequences, Taylor's Theorem, L'Hopital's rules, convexity, Riemann integration, the Fundamental Theorem of Calculus. Prerequisite: A grade of C or better in each of MATH 2554, MATH 2564, MATH 2574, MATH 3083 or MATH 3093, and MATH 2803.

**MATH3773 Foundations of Geometry I (Fa)** Axiomatic method; Euclidean geometry; non-Euclidean geometry. Prerequisite: MATH 2554, and MATH 2603 or MATH 2803, each with a grade of C or better.

**MATH3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in mathematics). May be repeated for credit.

**MATH399VH Honors Mathematics Course (Sp, Su, Fa) (1-6)** Prerequisite: Departmental consent. May be repeated for up to 12 hours of degree credit.

**MATH400V Directed Readings (Sp, Su, Fa) (1-6)** Prerequisite: Departmental consent.

**MATH404V Classroom Practices in Mathematics (Sp, Fa) (1-3)** The pedagogy of curricular materials in mathematics acquired through participation in the classroom as an apprentice teacher. Non-major elective credit only. Prerequisite: MATH 2574 and departmental approval.

**MATH4103 Finite Dimensional Vector Spaces (Irregular)** Linear functionals, matrix representation of linear transformations, scalar product, and spectral representation of linear transformations. Prerequisite: MATH 3083.

**MATH4113 Introduction to Abstract Algebra II (Fa)** Topics in

abstract algebra including finite abelian groups, linear groups, factorization in commutative rings, quadratic field extensions, Gaussian integers, Wedderburn's theorem, and multilinear algebra. Prerequisite: MATH 3113.

**MATH4153 Mathematical Modeling (Irregular)** Mathematical techniques for formulating, analyzing, and criticizing deterministic models taken from the biological, social, and physical sciences. Techniques include graphical methods, stability, optimization, and phase plane analysis. Prerequisite: MATH 2584.

**MATH4163 Dynamic Models in Biology (Irregular)** Mathematical and computational techniques for developing, executing, and analyzing dynamic models arising in the biological sciences. Both discrete and continuous time models are studied. Applications include population dynamics, cellular dynamics, and the spread of infectious diseases. Prerequisite: MATH 2554. (Same as BIOL 4163)

**MATH4253 Symbolic Logic I (Fa)** Rigorous analyses of the concepts of proof, consistency, equivalence, validity, implication, and truth. Full coverage of truth-functional logic and quantification theory (predicate calculus). Discussion of the nature and limits of mechanical procedures (algorithms) for proving theorems in logic and mathematics. Informal accounts of the basic facts about infinite sets. Prerequisite: MATH 2603 or PHIL 2203. (Same as PHIL 4253)

**MATH4353 Numerical Linear Algebra (Sp)** Numerical methods for problems of linear algebra, including the solution of very large systems, eigenvalues, and eigenvectors. Prerequisite: MATH 3083.

**MATH4363 Numerical Analysis (Fa)** General iterative techniques, error analysis, root finding, interpolation, approximation, numerical integration, and numerical solution of differential equations. Prerequisite: MATH 2584.

**MATH4443 Complex Variable for Application (Fa)** Complex analysis, series, and conformal mapping. Additional applications for graduate credit. Prerequisite: MATH 2603 or MATH 2803, and MATH 2584.

**MATH4503 Differential Geometry and Vector Calculus (Irregular)** Topics include: Vector differential and integral calculus, Stokes' Theorem in 3-space, classical differential geometry in 3-space (curves, surfaces), differential forms, general Stokes' Theorem, applications to hydrodynamics, and electromagnetism. Prerequisite: MATH 2574.

**MATH4513 Advanced Calculus I (Fa)** The real and complex number systems, basic set theory and topology, sequences and series, continuity, differentiation, and Taylor's theorem. Emphasis is placed on careful mathematical reasoning. Prerequisite: MATH 2574 and MATH 3083 or MATH 3093.

**MATH4523 Advanced Calculus II (Sp)** The Riemann-Stieltjes integral, uniform convergence of functions, Fourier series, implicit function theorem, Jacobians, and derivatives of higher order. Prerequisite: MATH 4513.

**MATH4933 Mathematics Major Seminar (Sp)** Weekly seminars on topics of historical or cross-disciplinary interest, designed to address students' mathematical knowledge, problem-solving and communication skills, in which student presentations play a part. Also serves as a forum for sharing information about career opportunities and preparation for employment. Prerequisite: Senior standing and a mathematics major, or departmental consent.

**MATH498V Senior Thesis (Sp, Su, Fa) (1-6)**

**MATH499V Research Topics in Mathematics (Irregular) (1-3)** Current research interests in mathematics, at an advanced undergraduate or beginning graduate level. Prerequisite: Departmental consent. May be repeated for up to 12 hours of degree credit.

**MATH499VH Honors Research Topics in Mathematics (Irregular) (1-3)** Current research interests in mathematics, at an advanced undergraduate or beginning graduate level. Prerequisite: Departmental consent. May be repeated for up to 12 hours of degree credit.

**MATH5001 Connections to School Mathematics (Irregular)** This course is a supplement to any graduate course in statistics, algebra, analysis, or geometry. The purpose is to connect the content of the graduate course to school mathematics. Prerequisite: Departmental consent. May be repeated for up to 6 hours of degree credit.

**MATH5013 Abstract Algebra with Connections to School Mathematics (Irregular)** Basic structures of abstract algebra (rings, fields, groups, modules and vector spaces) with emphasis on rings and fields as generalizations of the ring of integers and field of rational numbers. Degree credit will not be awarded for both MATH 4113 (or MATH 5123) plus MATH 5001 and for MATH 5013. Prerequisite: Graduate standing or departmental consent.

**MATH5023 Geometry with Connections to School Mathematics (Odd years, Fa)** School geometry from an advanced

perspective including conformity to the Common Core State Standards for Mathematics. Study will include historical developments and geometry based on transformations of two- and three-dimensional space. Prerequisite: Graduate standing.

**MATH5033 Advanced Calculus with Connections to School Mathematics Teaching (Irregular)** Rigorous development of the real numbers, continuity, differentiation, and integration. Degree credit will not be awarded for both MATH 4513 (or MATH 5503) plus MATH 5001 and for MATH 5033. Prerequisite: Departmental consent.

**MATH504V Special Topics for Teachers (Irregular) (1-6)** Current topics in mathematics of interest to secondary school teachers. Prerequisite: Graduate standing or departmental consent. May be repeated for credit.

**MATH5053 Probability & Statistics with Connections to School Mathematics (Sp)** An advanced perspective of probability and statistics as contained in the high school mathematics curriculum with connections to other components of school mathematics. The content is guided by the content of the high school probability and statistics of the Common Core State Standards for Mathematics. Prerequisite: Graduate standing.

**MATH507V Professional Development for Secondary Mathematics Teaching (Irregular) (1-3)** Validated participation in professional development mathematics workshops or institutes sanctioned by national or international educational organizations such as the College Board, International Baccalaureate Program, and the National Board for Professional Teaching Standards. Prerequisite: Enrollment in Secondary Mathematics Teaching, MA degree program or departmental consent. May be repeated for up to 6 hours of degree credit.

**MATH510V Mathematical Seminar (Sp, Fa) (1-3)** Members of the faculty and advanced students meet for presentation and discussion of topics. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

**MATH5123 Algebra I (Fa)** What the beginning graduate student should know about algebra: groups, rings, fields, modules, algebras, categories, homological algebra, and Galois Theory. Prerequisite: MATH 3113, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5133 Algebra II (Sp)** Continuation of 5123. Prerequisite: MATH 5123, and graduate standing in mathematics or statistics.

**MATH5303 Ordinary Differential Equations (Fa)** Existence, uniqueness, stability, qualitative behavior, and numerical solutions. Prerequisite: MATH 2584 and MATH 4513, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5313 Partial Differential Equations (Sp)** Classification, boundary value problems, applications, and numerical solutions. Prerequisite: MATH 3423 and MATH 4513, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5363 Scientific Computation and Numerical Methods (Fa)** An introduction to numerical methods used in solving various problems in engineering and the sciences. May not earn credit for this course and MATH 4353 or MATH 4363. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent. (Same as PHYS 5363)

**MATH5453 Functional Analysis I (Odd years, Sp)** Banach Spaces, Hilbert Spaces, operator theory, compact operators, dual spaces and adjoints, spectral theory, Hahn-Banach, open mapping and closed graph theorems, uniform boundedness principle, weak topologies. Prerequisite: MATH 5513, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5503 Theory of Functions of a Real Variable I (Fa)** Real number system, Lebesgue measure, Lebesgue integral, convergence theorems, differentiation of monotone functions, absolute continuity and the fundamental theorem of calculus  $L^p$  spaces, Holder and Minkowski inequalities, and bounded linear functionals on the  $L^p$  spaces. Prerequisite: MATH 4523, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5513 Theory of Functions of a Real Variable II (Sp)** Measure and integration on abstract measure spaces, signed measures, Hahn decomposition, Radon-Nikodym theorem, Lebesgue decomposition, measures on algebras and their extensions, product measures, and Fubini's theorem. Prerequisite: MATH 5503, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5523 Theory of Functions of a Complex Variable I (Fa)** Complex numbers, analytic functions, power series, complex integration, Cauchy's Theorem and integral formula, maximum principle, singularities, Laurent series, and Mobius maps. Prerequisite: MATH 4513.

**MATH5533 Theory of Functions of a Complex Variable II (Sp)** Riemann Mapping Theorem, analytic continuation, harmonic functions, and entire functions. Prerequisite: MATH

5523, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5703 Foundations of Topology (Fa)** Metric and general topological spaces, separation axioms, Urysohn's lemma, Tietze extension theorem, connectedness, compactness, and the Tychonoff theorem. Prerequisite: MATH 4513, and graduate standing in mathematics or statistics, or departmental consent.

**MATH5713 Algebraic Topology (Fa)** Homotopy, singular and relative homology, excision theorem, the Mayer-Vietoris sequence, Betti numbers, and the Euler characteristic. Prerequisite: MATH 5703, and graduate standing in mathematics or statistics, or departmental consent.

**MATH610V Directed Readings (Irregular) (1-6)** Prerequisite: Departmental consent.

**MATH619V Topics in Algebra (Sp, Su, Fa) (1-6)** Current research interests in algebra. May be repeated for credit. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

**MATH659V Topics in Analysis (Sp, Su, Fa) (1-6)** Current research interests in analysis. May be repeated for credit. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

**MATH679V Topics in Topology (Sp, Su, Fa) (1-6)** Current research interest in topology. May be repeated for credit. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

**MATH700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Doctoral candidacy in mathematics.

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Master of Business Admin (MBAD)

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**MBAD511V Corporate Financial Management (Sp) (2-3)** Financial analysis, planning and control; decision making and modeling for financial managers; and financial policies for management.

**MBAD512V Accounting Decisions and Control (Su) (2-3)** Preparation and utilization of financial information for internal management purposes: planning and special decisions, cost determination, performance evaluation, and controls.

**MBAD513V Information Technology and Decision Making (Fa) (2-3)** Utilization of information, quantitative techniques, and computer application in decision making and problem solving for managers.

**MBAD521V Leading High Performance Organizations (Irregular) (2-3)** Managing in a global workforce, including human resource issues, motivation, performance evaluation, quality concepts, transformational leadership, and selection/recruitment/development of employees.

**MBAD522V Managing Ideas, Products, and Services (Irregular) (2-3)** Product management, market research, marketing communications, retailing and distribution, consumer behavior, and social and ethical implications of marketing.

**MBAD523V Economics of Management and Strategy (Irregular) (2-3)** Information economics and applied game theory.

**MBAD5241 Ethical Decision Making (Fa)** Business Ethics will address business ethics issues from a personal, professional, and organizational perspective. We will cover basic ethical decision-making frameworks to help inform students' personal moral frameworks, ethical issues that are most relevant to managers of modern organizations, and the role of business in society

**MBAD535V MBA Internship (Su) (1-3)** This course allows a student to experience an internship within a business and benefit from the applied experience. The internship may be designed to offer a wide range of business experiences. The internship must be supervised by a faculty member as well as a member of the firm. MBA Director approval required. May be repeated for up to 3 hours of degree credit.

**MBAD536V Study Abroad-Special Problems (Su) (1-3)** Provides MBA students with the opportunity to explore a business problem in depth under the guidance of a graduate faculty member. MBA Director approval required. May be repeated for credit.

**MBAD5413 Partnering Project (Irregular)** A large-scale, real world, 10 week project involving hands-on work addressing issues faced by managers in partnering firms. Corequisite: Instructor consent. Prerequisite: MGMT 5323.

**MBAD5433 Capstone Project (Su)** A large-scale project integrating various business topics. Prerequisite: MGMT 5313.

**MBAD5511 Professional Development -- Special Topics In Business (Sp, Fa)** A concentrated emphasis on one business topic. Corequisite: MBAD 5212, MBAD 5122 and MBAD 5232. Prerequisite: MBAD 5023. May be repeated for up to 5 hours of degree credit.

**MBAD5602 Introduction to the Value Chain (Fa)** An introduction to the value chain concept, the underlying framework of the Managerial MBA program. Topics include the primary value chain activities of inbound logistics, operations, outbound logistics, marketing and sales, and service, as well as the support activities of procurement, technology development, human resource management and firm infrastructure.

**MBAD5613 Financial Accounting (Fa)** This course covers the preparation and use of financial statements of publicly held corporations in the United States. Topics include the theory and rules used in financial statement preparation, a comparison of United States rules to International Accounting Standards, the analysis of financial statements to provide inter-company and industry comparisons and information about the financial statements of non-profit and governmental organizations.

**MBAD5773 China Business Law, Regulations, and Ethics (Irregular)** Business law in China that is relevant to managers; Chinese regulations particularly relevant to consumer products and retail; business ethics in China.

**MBAD591V Capstone Project Definition (Irregular) (1-3)** Identification of business processes for capstone project, including: estimation of the size of the opportunity, identification of key decisions, and proposal write up.

**MBAD592V Capstone Project Plan (Irregular) (1-3)** Second estimation of the size of the project benefit, identification of how the current process operates, assumptions identified, literature investigated, performance metrics, and Gantt chart for project.

**MBAD593V Capstone Project Management (Irregular) (1-3)** Management of the project, including frequent updates, milestone accomplishment, strategies to overcome challenges, and creation of an implementation plan.

**MBAD594V Capstone Project Final Deliverables (Irregular) (1-3)** Write up of entire capstone project, presentation of project, estimates of value, implementation plan, performance metrics, and change management plan.

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Mechanical Engineering (MEEG)

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**MEEG2003 Statics (Sp, Su, Fa)** Equilibrium and resultants of force systems in a plane and in space; analysis of structures, friction, centroids, moments of inertia, and virtual work method. Methods of analysis are emphasized. Corequisite: Drill component. Pre- or Corequisite: MATH 2574. Prerequisite: PHYS 2054.

**MEEG2013 Dynamics (Sp, Su, Fa)** Kinematics and kinetics of particle and of rigid bodies; work and energy; impulse and momentum, and special topics. Corequisite: Drill component. Prerequisite: MEEG 2003 or (CVEG 2014 and MATH 2574).

**MEEG2100 Computer-aided Design Competency (Sp, Fa)** Students entering the Mechanical Engineering Department are expected to possess basic competency in computer-aided design. Students need to pass a competency test. Deficiencies may be remedied through self-paced, computer-based instruction. Prerequisite: GNEG 1121 or GNEG 1121H or GNEG 1103.

**MEEG2103 Introduction to Machine Analysis (Sp, Su)** Introduction to kinematics and kinetics of mechanisms, static and dynamic forces, gears and cam design and analysis. Recitation three hours per week and drill one hour per week. Corequisite: Drill component. Pre- or Corequisite: MEEG 2013. Prerequisite: PHYS 2074 and MEEG 2100.

**MEEG2303 Introduction to Materials (Sp, Fa)** A study of chemical, physical, and electrical properties of materials using fundamental atomistic approach. The materials of interest are: metals, polymers, ceramics, and composites. The interactive relationship between structure, properties, and processing of materials will be emphasized. For various engineering applications. Corequisite: Drill component. Prerequisite: MATH 2554, PHYS 2054 and CHEM 1103.

**MEEG2403 Thermodynamics (Sp, Su, Fa)** A study of the 1st and 2nd laws of thermodynamics. Availability of energy, properties of liquids, gases, and vapors; nonflow and flow processes. Recitation 3 hours, drill 2 hours per week. Corequisite: Drill component. Prerequisite: PHYS 2054 and MATH 2564.

**MEEG2703 Computer Methods in Mechanical Engineering (Sp, Su)** Use of computers and programming for solving engineering problems. Basic numerical methods including errors, equation solution, matrices, optimization, regression, integration, and differential equations. Corequisite: Drill component. Pre- or Corequisite: MATH 2584.

**MEEG3013 Mechanics of Materials (Sp, Su, Fa)** Stress and deformation of members in tension, compression, torsion, and bending, and the design of these members. Columns, statically indeterminate beams, and simple connections. Corequisite: Drill component. Prerequisite: MEEG 2003.

**MEEG3113 Machine Dynamics and Control (Su, Fa)** The principles of kinematics and kinetics for rigid body motion from dynamics are reviewed and applied to machine components with the goal being to determine their impact on machine behavior and performance. The time varying forces created by the movement of machine components are used to describe the machine's vibrational motion and elementary control principles are introduced with the goal of describing how these motions might be reduced or eliminated. Corequisite: Drill component. Prerequisite: MEEG 2103 and MATH 2584.

**MEEG3202L Mechanical Engineering Laboratory I (Sp, Fa)** Introduction to measurement, uncertainty, data acquisition, and instrumentation with an emphasis in materials and manufacturing. Corequisite: Drill component. Pre or Corequisite: MEEG 3013. Prerequisite: MEEG 2303 and PHYS 2074

**MEEG3212L Mechanical Engineering Laboratory II (Sp, Fa)** Design and implementation of measurements, fabrication processes, data acquisition, and data analysis with emphasis in mechanical-design elements and mechanical systems. Corequisite: Drill component. Prerequisite: ELEG 3903, MEEG 3202L, MEEG 3503 and MEEG 3113.

**MEEG3503 Mechanics of Fluids (Su, Fa)** A study of fluids including properties, pressure forces, and field flow utilizing conservation of mass, conservation of energy, and momentum principles. Pre- or Corequisite: MATH 2584. Prerequisite: MEEG 2403.

**MEEG4003 Intermediate Dynamics (Irregular)** Review of central-force motion of spacecraft, use of rotating reference frames, Coriolis acceleration. Kinematics of rigid bodies in 3-D space: velocities and accelerations in different moving reference frames, addition theorem of angular accelerations. Kinetics of rigid bodies in 3-D space: eigenvalues and eigenvectors of inertia matrices, momentum and kinetic energy of a rigid body in 3-D motion, Euler's equations of motion; precession, nutation, and spin of a gyroscope; forced steady precession, torque free steady precession, space cone, and body cone. Prerequisite: MEEG 2013

**MEEG4023 Composite Materials: Analysis and Design (Irregular)** A study of fibrous composite materials with emphasis on mechanical behavior, synthesis, and application. Topics include macro- and micromechanical analysis lamina, lamina theory, failure analysis in design, and manufacturing techniques. Prerequisite: MEEG 3013.

**MEEG4104 Machine Element Design (Sp, Su)** Select design components commonly used in modern machines, principally for energy transmission. Students will be required to design a small system and present their design to the class. Prerequisite: MEEG 3013. Pre- or Corequisite: MEEG 3113.

**MEEG4104H Honors Machine Element Design (Sp, Su)** Select design components commonly used in modern machines, principally for energy transmission. Students will be required to design a small system and present their design to the class. Advanced project required of honors students. Advanced project required. Prerequisite: MEEG 3013. Pre- or Corequisite: MEEG 3113.

**MEEG4123 Finite Element Methods I (Irregular)** Introduction to the use of the finite element method in mechanical engineering analysis and design. Use of commercial software to solve thermal and mechanical problems. Pre- or Corequisite: MEEG 3013 and MEEG 4413.

**MEEG4131 Creative Project Design I (Sp, Fa)** Students will select a capstone design project, and each student group will prepare a formal written proposal on their project for presentation to a panel of judges. This group project will be carried to completion in MEEG 4133. Pre- or Corequisite: MEEG 4104 or MEEG 4483. Prerequisite: Senior Standing.

**MEEG4132 Professional Engineering Practices (Sp, Fa)** Design proposal preparation, design codes, professional ethics, engineering economics, and the role of the engineer in society. Pre- or Corequisite: MEEG 4104 or MEEG 4483. Prerequisite: Senior Standing.

**MEEG4133 Creative Project Design II (Sp, Fa)** Student groups will present their final capstone design proposal to a faculty panel and then carry out their project to completion. Each student group will make timely progress reports, complete their design project, and present their final report to a panel of judges. Prerequisite: MEEG 4131.

**MEEG4202L Mechanical Engineering Laboratory III (Sp, Fa)** Application of measurement techniques to mechanical engineering problems with an emphasis in thermal systems. Corequisite: Drill component. Pre- or corequisite: MEEG 4483. Prerequisite: MEEG 3212L and MEEG 4104.

**MEEG4213 Control of Mechanical Systems (Irregular)** Mathematical modeling for feedback control of dynamic mechanical systems with design techniques using Laplace transforms, state variables, root locus, frequency analysis, and cri-

teria for performance and stability. Prerequisite: MEEG 3113. (Same as ELEG 4403)

**MEEG4233 Microprocessors in Mechanical Engineering I: Electromechanical Systems (Irregular)** Microcomputer architectural, programming, and interfacing. Smart product design (microprocessor-based design). Control of DC and stepper motors and interfacing to sensors. Applications to robotics and real-time control. Mobile robot project. Digital and analog electronics are reviewed where required. Prerequisite: ELEG 3933.

**MEEG4253 Introduction to Robotics (Fa)** this course serves as an introduction to robotics. The course covers the historical development of robotics as a field, and as mechatronic systems, the importance of integrating sensors, actuators, effectors, and basic control (reactive, behavior-based, and hybrid) as well as briefly touching on robot learning and multi-robot systems. Prerequisite: MEEG 2703 and ELEG 3933.

**MEEG4303 Materials Laboratory (Irregular)** A study of properties, uses, testing, and heat treatment of basic engineering materials and related analytical techniques. Corequisite: Lab component. Prerequisite: MEEG 2303.

**MEEG4303H Honors Materials Laboratory (Irregular)** A study of properties, uses, testing, and heat treatment of basic engineering materials. Corequisite: Lab component. Prerequisite: MEEG 2303 and MEEG 3013.

**MEEG4313 Introduction to Tribology (Irregular)** A study of science and technology of interacting surfaces in relative motion. Topics include solid surface characterization, contact between solid surfaces, adhesion, friction, wear, lubrication, micro/nanotribology, friction and wear screening test methods, and tribological components and applications. Prerequisite: MEEG 3013 and MEEG 3503 or graduate standing.

**MEEG4413 Heat Transfer (Sp, Su)** Basic thermal energy transport processes; conduction, convection, and radiation; and the mathematical analysis of systems involving these processes in both steady and time-dependent cases. Prerequisite: MEEG 3503 and MEEG 2703.

**MEEG4423 Power Generation (Irregular)** Study of design and operational aspects of steam, gas, and combined cycle power plants. Brief study of Nuclear and Alternative energy systems. Prerequisite: MEEG 3503.

**MEEG4433 Aerospace Propulsion (Irregular)** Principles, operation, and characteristics of gas turbine and rocket engines. Brief study of novel spacecraft propulsion systems. Prerequisite: MEEG 3503.

**MEEG4453 Industrial Waste and Energy Management (Irregular)** Applications of thermodynamics, heat transfer, fluid mechanics, and electric machinery to the analysis of waste streams and energy consumption for industrial facilities. Current techniques and technologies for waste minimization and energy conservation including energy-consuming systems and processes, utility rate analysis, economic analysis and auditing are taught. Prerequisite: MEEG 4413.

**MEEG4473 Indoor Environmental Control (Irregular)** Gives student a thorough understanding of the fundamental theory of air conditioning design for commercial buildings, including calculating heating and cooling loads along with the proper selection and sizing of air conditioning equipment. Prerequisite: MEEG 4413.

**MEEG4483 Thermal Systems Analysis and Design (Su, Fa)** Analysis design and optimization of thermal systems and components with examples from such areas as power generation, refrigeration, and propulsion. Availability loss characteristics of energy systems and availability conservation methods. Prerequisite: MEEG 4413.

**MEEG4483H Honors Thermal Systems Analysis and Design (Su, Fa)** Analysis design and optimization of thermal systems and components with examples from such areas as power generation, refrigeration, and propulsion. Availability loss characteristics of energy systems and availability conservation methods. Additional topics, with an additional design project and/or more rigorous approach to design projects for honors course. Advanced project required. Prerequisite: MEEG 4413

**MEEG4493 Internal Combustion Engines (Irregular)** Study of the design of internal combustion engines, including emissions and performance issues. Pre- or Corequisite: MEEG 3503.

**MEEG4503 Introduction to Flight (Fa)** The course will provide understanding in basic aerodynamics, airfoil design and characteristics, and flight control surfaces. Prerequisite: MATH 2584, MEEG 3503.

**MEEG4503H Honors Introduction to Flight (Fa)** The course will provide understanding in basic aerodynamics, airfoil design and characteristics, and flight control surfaces. Prerequisite: MATH 2584 and MEEG 3503.

**MEEG4523 Astronautics (Irregular)** Study of spacecraft

design and operations. Prerequisite: MEEG 2013 and MEEG 2403 or consent of instructor.

**MEEG4703 Mathematical Methods in Engineering (Irregular)** Determinants, matrices, inverse of a matrix, simultaneous equations, eigenvalues, eigenvectors, coordinate transformations for matrices, diagonalization, square roots of a matrix, cryptography, and method of least squares. Vector algebra and calculus, Green's theorem, Stokes' theorem, and Gauss' divergence theorem. Index notation, epsilon-delta identity, and Cartesian tensors. Curvilinear coordinates, base vectors, and covariant and contravariant tensors. Applications to mechanics. Prerequisite: MATH 2574.

**MEEG4903H Honors Mechanical Engineering Research (Sp, Fa)** Independent research for mechanical engineering honors students. Prerequisite: Student must be enrolled in Honors Program.

**MEEG491V Special Projects (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**MEEG491VH Honors Special Projects (Sp, Su, Fa) (1-6)**

**MEEG5033 Advanced Mechanics of Materials I (Irregular)** Combined stress, theories of failure, thick-walled cylinders, bending of unsymmetrical sections, torsion in noncircular section, plate stresses, and strain energy analysis. Prerequisite: MEEG 2013 and MEEG 3013.

**MEEG5103 Structural Dynamics (Irregular)** The forced and random vibration response of complex structural systems are studied through the use of the finite element method. Computational aspects of these problems are discussed and digital computer applications undertaken. Prerequisite: MEEG 3113 and MEEG 4103 and graduate standing.

**MEEG5113 Modal Analysis Methods (Irregular)** Fundamental concepts of both analytical and experimental modal analysis methods are examined and applied to the study of complex structural systems. Computational aspects of these problems are discussed, and digital computer applications undertaken with experimental verification. Prerequisite: MEEG 5103 and graduate standing.

**MEEG5123 Finite Elements Methods II (Irregular)** Development and application of finite element (FE) methods used to solve transient and two-dimensional boundary value problems. Applications are taken from solid and fluid mechanics, heat transfer, and acoustics. Emphasis is placed on the FE methodology in order to make accessible the research literature and commercial software manuals, and to encourage responsible use and interpretation of FE analysis. Prerequisite: MEEG 4123 and graduate standing or consent.

**MEEG5143 Advanced Machine Design (Su)** Application of advanced topics such as probability theory, fracture mechanics, and computer methods to the design and analysis of complex mechanical systems. Prerequisite: MEEG 4104 and graduate standing.

**MEEG5203 Robot Modeling and Simulation (Sp)** This is a graduate level course in Robotics dealing with the behavioral study of robots. Topics covered in this course will include but not limited to the following: mathematical modeling of robots, rigid motions and homogeneous transformation, forward/inverse kinematics of robots, velocity kinematics, path and trajectory planning, robot dynamics, joint control, PD/PID control, and multivariable control. Advanced topics may include passivity-based motion control, geometric nonlinear control, computer vision, vision-based control, and sensor fusion. Prerequisite: Graduate standing in MEEG or ELEG and consent of the instructor.

**MEEG5253 Bio-Mems (Sp)** Topics include the fundamental principles of microfluidics, Navier-Stokes Equation, bio/abio interfacing technology, bio/abio hybrid integration of micro-fabrication technology, and various biomedical and biological problems that can be addressed with microfabrication technology and the engineering challenges associated with it. Lecture 3 hours per week. Prerequisite: MEEG 3503 or CVEG 3213 or CHEG 2133. (Same as BENG 5253)

**MEEG5263 Introduction to Micro Electro Mechanical Systems (Fa)** A study of mechanics and devices on the micro scale. Course topics will include: introduction to micro scales, fundamentals of microfabrication, surface and bulk micromachining, device packaging, device reliability, examples of micro sensors and actuators. Recitation three hours per week.

**MEEG5273 Electronic Packaging (Irregular)** An introductory treatment of electronic packaging from single chip to multichip including materials, electrical design, thermal design, mechanical design, package modeling and simulation, processing considerations, reliability, and testing. Credit cannot be earned for both MEEG 5273 and ELEG 5273. Prerequisite: (ELEG 3213 or ELEG 3933) and MATH 2584. (Same as ELEG 5273)

**MEEG5303 Physical Metallurgy (Irregular)** Physical and chemical properties of solids and the application of materials

in commerce. Prerequisite: MEEG 2303.

**MEEG5323 Physical and Chemical Vapor Deposition Processes (Irregular)** Fundamental principles of materials behavior in the deposition of films by PVD/CVD. Topics include kinetic theory of gases, statistical mechanics, plasmas, diagnostics, reaction rate theory, nucleation and growth, crystal structures and defects in thin films, advanced characterization techniques for thin films, and applications in microelectronics, tribology, corrosion, bio- and nano-materials. Prerequisite: Graduate standing in Engineering or consent of instructor.

**MEEG5333 Introduction to Tribology (Irregular)** A study of science and technology of interacting surfaces in relative motion. Topics include solid surface characterization, contact between solid surfaces, adhesion, friction, wear, lubrication, micro/nanotribology, friction and wear screening test methods, and tribological components and applications. Students may not earn credit for both MEEG 5333 and MEEG 4313. Prerequisite: Graduate standing.

**MEEG5343 Computational Material Science (Irregular)** This course provides students with an overview of different modeling techniques in material science. Applications will be presented on a broad range of modeling techniques including atomistic simulation methods, Monte Carlo techniques, molecular mechanics, and molecular dynamics. Prerequisite: Graduate standing.

**MEEG5403 Advanced Thermodynamics (Sp)** An in-depth review of classical thermodynamics, including availability analysis, combustion, and equilibrium, with an introduction to quantum mechanics and statistical thermodynamics. Prerequisite: Graduate standing in Engineering or consent of instructor.

**MEEG5423 Statistical Thermodynamics (Irregular)** Concepts and techniques for describing high temperature and chemically reactive gases from a molecular point of view. Introductory kinetic theory, chemical thermodynamics, and statistical mechanics applied. Prerequisite: MEEG 2403 and MATH 2574.

**MEEG5433 Combustion (Irregular)** Introduction to combustion of solid, liquid, and gaseous fuels. Equilibrium and kinetics of hydrocarbon oxidation, laminar and turbulent flames, premixed and non-premixed combustion processes, ignition, quenching, stability, emissions and diagnostics. Prerequisite: Graduate standing in Engineering or consent of instructor.

**MEEG5453 Advanced Heat Transfer (Fa)** More in-depth study of topics covered in MEEG 4413, Heat Transfer, and coverage of some additional topics. Prerequisite: MEEG 4413 or CHEG 3143 or equivalent.

**MEEG5473 Radiation Heat Transfer (Even years, Su)** Spectral analysis, radiant exchange in gray and non-gray enclosures, gas radiation, and multi-mode heat transfer. Prerequisite: MEEG 5453 or equivalent.

**MEEG5503 Advanced Fluid Dynamics I (Sp)** A basic survey of the characteristics of fluid flow under a variety of conditions with examples. Begins with a derivation of the Navier-Stokes equations and an evaluation of the dimensionless groups found from these equations. Topics to be covered include viscous laminar and turbulent boundary layers, jets and wakes, Stokes flow, inviscid flows with and without free surfaces and turbulence. Prerequisite: MEEG 3503 and MATH 2584.

**MEEG5533 Fundamentals of Aerodynamics (Irregular)** A study of external-flow fluid mechanics applied to Aerodynamics. Topics include integral and differential forms of the basic fluid equations (continuity, momentum, and energy), potential flow, and supersonic flow. Prerequisite: MEEG 3503 and MEEG 4503.

**MEEG5733 Advanced Numerical Methods (Irregular)** Numerical methods for the solution of linear and non-linear ordinary and partial differential equations; initial and boundary value problems; one-step and multi-step methods; predominantly finite difference but also finite element and control volume techniques; and computer applications. Graduate standing in Engineering or consent of instructor.

**MEEG590V Research (Sp, Su, Fa) (1-6)** Fundamental or applied research. Prerequisite: Graduate standing.

**MEEG591V Special Problems (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**MEEG600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**MEEG6800 Graduate Seminar (Sp, Fa)** A periodic seminar devoted to mechanical engineering research topics. Course includes letter grades A, B, C, D, and F as well as CR.

**MEEG700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Microelectronics-Photonics (MEPH)

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**MEPH488V MicroEP Undergraduate Research (Sp, Fa) (1-3)** Special research topics associated with undergraduates enrolled in the Microelectronics-Photonics minor program, or by special permission of the microEP Director to undergraduate students engaged in research with microEP faculty members. May be repeated for up to 6 hours of degree credit.

**MEPH5383 Research Commercialization and Product Development (Sp)** This survey course examines research commercialization through analysis of IP, technology space, market space, manufacturability, financials, and business plans. Entrepreneurial behaviors and product development within large companies are also discussed. A case study using a current UA faculty member's research commercialization effort will be developed. Prerequisite: Graduate Standing.

**MEPH5513 Applied Research in External Technical Organizations (Sp, Su, Fa)** A one semester narrow focus graduate level research effort while working at an external technical organization's site. Requires a final report of style and quality suitable for journal submission. This course available only to Professional Path M.S. microEP students, and may substitute for an MEPH 588V External Internship. May be repeated for up to 6 hours of degree credit.

**MEPH5523 Applied On-Campus Collaborative Research with External Technical Organizations (Sp, Su, Fa)** A one semester narrow focus graduate level on-campus research effort performed in collaboration with an external technical organization. Requires a final report of style and quality suitable for journal submission. This course available only to Professional Path M.S. microEP students. May be repeated for up to 6 hours of degree credit.

**MEPH555V Internship in External Technical Organization (Sp, Su, Fa) (1-3)** Used to document a microEP grad student internship experience in an external technical organization for a minimum duration of six weeks (6-9 weeks=one hour, 10-12 weeks=two hours, and 13-15 weeks=three hours). It may not be used to meet the research requirements of a M.S. degree. Prerequisite: Graduate standing.

**MEPH5611 Research Communication Seminar of MS Students (Sp, Fa)** This course serves as a forum for MS students to develop oral presentation skills and to exchange research ideas. Research presentations will be on various topics in the area of micro to nanoscale materials, processing, and devices, with research management and planning also being addressed. Prerequisite: Graduate standing.

**MEPH5713 Advanced Nanomaterials Chemistry (Irregular)** Science and engineering graduates are using more nanomaterials, and modern industry demands that its scientists and engineers have materials chemistry knowledge. Materials from the micro to nanoscale will be examined in this course from the perspective of fundamental chemistry principles to build a picture of tomorrow's materials. May be repeated for up to 3 hours of degree credit.

**MEPH5733L Fabrication at the Nanoscale (Sp)** This hands-on lab course will cover the disciplines needed to make active electronic and photonic devices utilizing nanoscale structures and fabrication techniques presently used in research and industry. Prerequisite: Graduate standing and permission of the instructor.

**MEPH5742 Transmission Electron Microscopy Theory and Operation (Irregular)** This new laboratory course will introduce students to practical electron microscopy and to the operation of the Titan STEM for examination of sub-angstrom examination of materials. Students will learn how to conduct a TEM study, how to operate the TEM, and how to extract and interpret useful information. Prerequisite: Graduate standing.

**MEPH5811 1st Year Operations Seminar - Infrastructure Management (Fa)** Weekly seminar for 1st year Microelectronics-Photonics graduate students to discuss issues that increase professional performance in technology-centered organizations. The discussions will focus on issues that affect organizational infrastructure, career planning, organizational structures, and may include examples from current events. Prerequisite: Graduate standing.

**MEPH5821 Ethics for Scientists and Engineers (Su)** This course will introduce methods useful in the practice of ethical decision making in the high technology academic and industrial work place. An emphasis will be placed on applying the methods discussed in the text to student and instructor past professional experiences. Prerequisite: graduate standing.

**MEPH5832 Proposal Writing and Management (Su)** This course introduces factors that affect proposal success in both the academic and industrial arenas; demonstrates different approaches to writing successful proposals; and introduces students to the legal responsibilities and ramifications of proposal

management. Students will write two proposals for peer review and formal evaluation. Prerequisite: Graduate standing.

**MEPH587V Special Topics in Microelectronics-Photonics (Irregular) (1-4)** Consideration of current microelectronic-photonic topics not covered in other courses. One section will be created for each topic only after a syllabus is submitted to the microEP office by the faculty member teaching the course. May be repeated for up to 9 hours of degree credit.

**MEPH588V Special Problems in Microelectronics-Photonics (Irregular) (1-3)** Opportunity for individual study of advanced subjects related to a graduate degree in Microelectronics-Photonics to suit individual requirements. One section will be created for each student only after a syllabus is submitted to the microEP office by the supervising faculty member. May be repeated for up to 6 hours of degree credit.

**MEPH5911 1st Year Operations Seminar - Personnel Management (Sp)** Weekly seminar for 1st year Microelectronics-Photonics graduate students to discuss issues that increase professional performance in technology-centered organizations. The discussions will focus on issues that affect personnel management, team building and structures, and may include examples from current events. Prerequisite: Graduate standing.

**MEPH599T MEPH TRANSFER COURSE**

**MEPH6023 Law and Public Policy (Fa)** This course focuses on the legal aspects of public policy, with emphasis on the regulatory process and its legal constraints. Also considered are the process of administrative decision making, judicial review, legislative oversight, and public access to government information. Pre- or corequisite: PUBP 6012.

**MEPH6103 Policy Leadership Seminar (Irregular)** This interdisciplinary seminar will explore the relationship between policy, public administration, and organizations in the community. Stakeholder groups will be considered as part of the newer approaches to practice-driven scholarship. The class will examine innovative approaches to decision making, strategic management and policy leadership in complex interorganizational and interagency settings.

**MEPH6113 Agenda Setting and Policy Formulation (Irregular)** This course is a seminar on agenda and policy formation focusing on the classic theoretical and empirical literature. The course is designed to introduce graduate students to a variety of theories typologies, concepts, and ideas relating to the study of public policy.

**MEPH6611 Research Communication Seminar of PhD Students (Sp, Fa)** This course serves as a forum for Ph.D. students to develop oral presentation skills and to exchange research ideas. Research presentations will be on various topics in the area of micro to nanoscale materials, processing and devices, with research management and planning also being addressed. Prerequisite: Graduate standing.

**MEPH6811 2nd Year Operations Seminar - Management and Leadership (Fa)** Weekly seminar for 2nd year Microelectronics-Photonics graduate students to discuss issues that increase professional performance in technology-centered organizations. The discussions will focus on issues that affect management and leadership effectiveness and efficiency, and may include examples from current events. Prerequisite: Graduate standing.

**MEPH6911 2nd Year Operations Seminar - Advanced Management and Leadership (Sp)** Weekly seminar for 2nd year Microelectronics-Photonics graduate students to discuss advanced issues that increase professional performance in technology-centered organizations. The discussions will focus on the complex issues that affect management and leadership effectiveness and efficiency, and may include examples from current events. Prerequisite: Graduate standing.

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Middle East Studies (MEST)

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**MEST2003 Islam in History, Practice and Experience (Irregular)** This course introduces Islam as a global religion and world civilization, including study of the Qur'an, prophet Muhammad, ritual and community practices, metaphysics, mysticism, art, literature, and sacred and critical history.

**MEST2013 Introduction to Middle East Studies (Fa)** This course is designed to provide students with fundamental building blocks for understanding the contemporary Middle East/ Islamic World. Students will be introduced to a variety of disciplinary approaches to the study of the geo-cultural region, including history, politics, arts and literature, religions and cultures, social geography, and economics.

**MEST310V Special Topics in Middle East Studies (Irregular) (1-9)** Courses in lecture or colloquium format to be offered in a variety of disciplines relating to the history, culture, politics, geography, languages, arts, and religions of the Middle



East and Islamic world. May be repeated for up to 9 hours of degree credit.

**MEST399V MEST: Honors Thesis (Irregular) (1-3)** Middle East Studies Honors research, readings and thesis. Prerequisite: Junior standing.

**MEST4003 Middle East Studies Colloquium (Sp)** An interdepartmental colloquium with an annual change in subject required of all students in the Middle East studies program. Prerequisite: Sophomore standing. May be repeated for up to 6 hours of degree credit.

**MEST4003H Honors Middle East Studies Honors Colloquium (Sp)** May be repeated for up to 3 hours of degree credit.

**MEST410V Special Topics in Middle East Studies (Irregular) (1-3)** Courses in lecture or seminar format to be offered in a variety of disciplines relating to the history, culture, politics, geography, languages, literature, arts, and religions of the Middle East and Islamic world. Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

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Management (MGMT)

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**MGMT3563 Management Concepts and Organizational Behavior (Irregular)** Business students may not receive credit for this course. Course introduces students to fundamental concepts of management practice with particular emphasis on managing human behavior in organizations. Addresses the planning, organizing, directing, and controlling functions performed by managers as these functions relate to managing human resources. Provides survey of critical management concepts; enables students to develop analytical and problem solving skills through case studies and experimental exercises. Students may not receive credit for both WCOB 2033 and MGMT 3563. Non degree credit for business majors.

**MGMT3933 Entrepreneurship and New Venture Development (Fa)** The role of the entrepreneur in starting up new businesses. Identification of new venture opportunities and the evaluation of their feasibility.

**MGMT4003H Honors Management Colloquium (Fa)** Explores events, concepts and/or new developments in the field of Management. Prerequisite: Senior standing. May be repeated for credit.

**MGMT4103 Special Topics in Management (Irregular)** Explores trends, concepts, and important developments in management as they impact on organizational performance. Topics are selected by the Management Department faculty for each semester the course is offered. May be repeated for credit.

**MGMT4103H Honors Special Topics in Management (Irregular)** Explores trends, concepts, and important developments in management as they impact on organizational performance. Topics are selected by the Management Department faculty for each semester the course is offered. May be repeated for credit.

**MGMT4243 Ethics and Corporate Responsibility (Sp, Fa)** A comprehensive and critical examination of traditional and current ethical theories and approaches that guide business decision-making, ethical issues that affect business decisions, and ethics related to the various business disciplines.

**MGMT4253 Leadership (Sp, Fa)** This course offers a foundation for understanding and evaluating organizational leadership. It is designed to assist students in developing frameworks for understanding and enacting leadership. This course examines topics such as the nature and foundation of the leader-follower relationship, models that explain effective leadership, and the interface of leadership with gender, ethics, and culture. Prerequisite: WCOB 2033 or MGMT 3563.

**MGMT4263 Organizational Change and Development (Sp, Fa)** This course will develop diagnostic and intervention skills that can be applied to identifying and overcoming problems of morale and productivity in organizations. A variety of behavioral methods will be covered. Prerequisite: WCOB 2033 or MGMT 3563.

**MGMT4433 Small Enterprise Management (Sp)** Small enterprise opportunities and problems emphasizing innovation, management planning and control, financing, marketing and legal requirements. Emphasis on application of management knowledge to small enterprise management. Prerequisite: MGMT 3933.

**MGMT450V Independent Study (Irregular) (1-3)** Permits students on individual basis to explore selected topics in management. May be repeated for up to 3 hours of degree credit.

**MGMT4583 International Management (Sp)** Develops an understanding of international business management and the cultural environments in which IB exists today. Students examine international business practices and learn about unique

elements of business as it practiced in selected nations and diverse cultures.

**MGMT4943 Organizational Staffing (Sp, Fa)** In-depth study of theoretical, legal, methodological, and substantive issues related to selection, performance appraisal, and development of employees. Students participate in individual and group projects designed to provide theoretical and practical skills related to staffing. Prerequisite: WCOB 1033.

**MGMT4953 Organizational Rewards and Compensation (Sp, Fa)** Develops an understanding of reward systems theory and its application to the design of compensation systems. Provides theoretical and legal background and practical applications for the use of reward systems in attracting, motivating, and retaining employees. Prerequisite: WCOB 1033.

**MGMT4993 Entrepreneurship Practicum (Sp, Su, Fa)** Hands-on management of an actual on-going business. Students will gain experience working in, making decisions about, and managing a business. Topics covered include accounting, economics, finance, information systems, law, logistics, management, and marketing. Entrance by application only. May be repeated for up to 6 hours of degree credit.

**MGMT5213 Business Foundations for Entrepreneurs (Sp)** Introduction to the fundamental business concepts an entrepreneur needs to know to evaluate and launch a successful new venture. Topic areas include recruitment, selection, motivation and management of employees, market analysis and the marketing mix, financial strategies and accounting for funds, economic considerations, and the management of operations. Prerequisite: Graduate standing.

**MGMT5223 Managing & Leading Organizations (Fa)** Management for a global environment. The class will cover interpersonal workplace skills such as leadership and motivation, along with the management of human capital through well designed recruitment, selection, performance evaluation, compensation, and quality control systems. May be repeated for credit.

**MGMT5313 Strategic Management (Sp)** Strategy formulation, strategy implementation, and other topics related to the long-term success of the firm. Includes role of the general manager, international issues, and the impact of management fads on decision making.

**MGMT5323 New Venture Development (Fa)** Focuses on the identification and analysis of new venture opportunities and how entrepreneurs acquire the human and financial resources needed to develop successful businesses. Topics include market analysis, development of products and services, negotiation, developing and executing business plans, and new venture financing. Students are required to complete summer assignments before the course begins in the fall semester. Prerequisite: MGMT 5213 or an undergraduate degree in business or permission of the instructor.

**MGMT5363 Innovation & Creativity (Sp)** This class will provide a framework for developing, assessing and implementing innovations in start-ups and established businesses. Focus is on creative decision making, managing for innovation, strategic analysis of innovations, and implementation of innovations. Aimed at entrepreneurs, brand managers, and managers in industries where innovation is a key strategic capability.

**MGMT5373 International Management: Globalization and Business (Su)** This course provides students with guidance on understanding the forces unleashed by increasing globalization of the world and how to understand and cope with the issues involved in managing large and small companies in multiple geographic and cultural markets.

**MGMT5993 Entrepreneurship Practicum (Sp, Su, Fa)** Hands-on management of an actual on-going business. Students will gain experience working in, making decisions about, and managing a competitive business. Students will be required to analyze the business in a term paper or other integrative assignment. Entrance by application only.

**MGMT6011 Graduate Colloquium (Sp, Fa)** Presentation and critique of research papers and proposals.

**MGMT6113 Seminar in Organizational Behavior (Irregular)** Survey of theoretical and empirical literature in organizational behavior. Stresses critical evaluation of current writing in the field and its integration with prior research. Covers topics relating to motivation, individual differences, job attitudes, social influence processes, and group dynamics. Prerequisite: Admission to a Ph.D. program.

**MGMT6123 Seminar in Organization Theory (Irregular)** This Ph.D.-level seminar presents an overview and introduction into organization theory literature. Emphasis on the development of relevant schools of thought, changes in the content of the traditional or 'mainstream' themes, current topics, schools of thought, and future directions are examined. Prerequisite: Admission to a Ph.D. program.

**MGMT6133 Seminar in Strategy Research (Irregular)** This Ph.D.-level seminar presents an overview and introduction into the strategic management literature. Emphasis on both the content and process of the extant research. Relevant theory, methods, 'mainstream' themes, current topics, schools of thought, and future directions are examined. Prerequisite: Admission to a Ph.D. program.

**MGMT6213 Seminar in Research Methods (Irregular)** Familiarizes students with the principles and techniques underlying research in management and organizations. Issues of basic philosophy of science and research methods are covered. Special attention given to the practical problems of research design, measurement, data collection, sampling, and interpretation in conducting research in management and in organizations. Prerequisite: Admission to a Ph.D. program.

**MGMT6223 Seminar in Management Topics (Irregular)** Seminar in special research topics in management. Topics vary depending upon instructor. Prerequisite: Admission to a Ph.D. program. May be repeated for up to 3 hours of degree credit.

**MGMT6233 Seminar in Human Resource Management (Irregular)** Provides an overview of major issues in human resource management. Designed to familiarize students with the seminal research in human resource management, and to provide them with the conceptual and methodological tools necessary to do research in the area. Prerequisite: Admission to a Ph.D. program.

**MGMT636V Special Problems in Management (Sp, Fa) (1-6)** Individual reading and research. May be repeated for up to 6 hours of degree credit.

**MGMT700V Doctoral Dissertation (Sp, Fa) (1-18)** Prerequisite: Candidacy.

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Army ROTC (MILS)

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**MILS1001 Basic Outdoor Skills and Leadership Introduction (Fa)** Incorporates various outdoor field craft skills involving both classroom and outdoor instruction. Subjects include small group leadership, rappelling, basic map reading, water safety and first aid. Introduction to safe use of a rifle and basic marksmanship. Introduction to organization, values, and role of the Army. Classroom 1 hour per week. Lab 2 hours per week. Corequisite: Lab component.

**MILS1011 Rappelling, Outdoor Field Craft and Leadership Development (Sp)** Incorporates various outdoor field craft involving both classroom and outdoor instruction. Subjects include basic rappelling/mountaineering, intermediate map reading/ orienteering, first aid and outdoor cold/hot weather survival skills. Introduction to small group leadership principles. Classroom 1 hour per week. Lab 2 hours per week.

**MILS1101 Basic Marksmanship (Fa)** Introduction to safe use of a rifle and practical application of rifle marksmanship. Course includes weapons safety, mechanics, capabilities, and fundamentals of marksmanship. Includes visit to fire at a local indoor rifle range. Materials and equipment furnished by Department of Military Science.

**MILS1211 Basic Outdoor Field Craft and Skills (Sp, Fa)** Introduction to basic military survival skills and outdoor field craft. Subjects include cold/hot weather survival, water procurement methods, expedient field shelters, signaling, map reading and rappelling technique. Materials and equipment furnished by Department of Military Science. Classroom 2 hours per week.

**MILS2002 Leadership Development I (Fa)** Continuation of basic skills presented in MILS 1001 and MILS 1011. Course focus is on small unit leadership, team building and management skills. Includes an introduction to small unit tactics. Students develop leadership foundations by leading discussions, developing and briefing operation plans using the military decision making model. Classroom 2 hours per week. Lab 1 hour per week. Corequisite: Lab component. Prerequisite: MILS 1001 and MILS 1011 or approval of Professor of Military Science.

**MILS2012 Leadership Development II (Sp)** Continuation of leadership skills presented in MILS 2002. Course focus is on decision making process, time management, and leadership skills. Includes an introduction to military writing and basic tactics. Cadets continue training in land navigation, first aid, and outdoor field craft. Classroom 2 hours per week. Lab 1 hour per week. Corequisite: Lab component. Prerequisite: MILS 1001 and MILS 1011 or approval of Professor of Military Science.

**MILS2101 Advanced Rifle Marksmanship (Sp)** Course to teach students the fundamentals of Advanced Rifle Marksmanship. Class is conducted once a week with topics including: Air rifle, small bore rifle, advanced practical exercises of different shooting positions and marksmanship competition

with other universities. Prerequisite: MILS 1101.

**MILS3004 Applied Leadership I (Fa)** Development of managerial and leadership abilities, maximizing performance-oriented 'hands-on' training. Students learn advanced infantry tactics and demonstrate their leadership potential using this medium. Students are required to lead in drill and ceremony, physical training, and tactical infantry situations. The training is intended to prepare the student for the ROTC Advanced Camp experienced normally in the summer prior to the senior year or 4th year of ROTC. Lecture 3 hours, laboratory 3 hours per week, plus 3 hours of physical training are conducted weekly. One weekend field training exercise is required per semester. Corequisite: Lab component. Prerequisite: Junior standing plus one of the following conditions: completion of ROTC basic camp, veteran status, or completion of basic training with any component of the U.S. Armed Forces.

**MILS3014 Applied Leadership II (Sp)** Development of managerial and leadership abilities, maximizing performance-oriented 'hands-on' training. Students learn advanced infantry tactics and demonstrate their leadership potential using this medium. Students are required to lead in drill and ceremony, physical training, and tactical infantry situations. The training is intended to prepare the student for the ROTC Advanced Camp experienced normally in the summer prior to the senior year or 4th year of ROTC. Lecture 3 hours, laboratory 3 hours per week, plus 3 hours of physical training are conducted weekly. One weekend field training exercise is required per semester. Corequisite: Lab component. Prerequisite: Junior standing plus one of the following conditions: completion of ROTC basic camp, veteran status, or completion of basic training with any component of the U.S. Armed Forces.

**MILS4001 Contemporary Military Issues (Sp, Fa)** Individual study for advanced undergraduates. Students will research, write a paper, and give an oral presentation of a current military issue. Prerequisite: PMS approval.

**MILS4004 Advanced Leadership I (Fa)** The study of various military organizations and their role in military operations. Discussion of command and staff management in military organizations, executive responsibility of Army commissioned officers, service customs, courtesies, and traditions. The senior year includes the study of personnel management, professional ethics, the military justice system, and the Army's training and maintenance management system. Lecture 3 hours, laboratory 3 hours, physical training 3 hours per week. MS IV cadets plan and participate in 1 field training exercise per semester. Corequisite: Lab component. Prerequisite: Successful completion of MS III course work (MILS 3004 and MILS 3014).

**MILS4011 Advanced Military Correspondence (Sp, Fa)** Practicum for advanced undergraduates. Students submit prepared military correspondence projects written in the military style using military forms and formats. Prerequisite: PMS approval.

**MILS4014 Advanced Leadership II (Sp)** The study of various military organizations and their role in military operations. Discussion of command and staff management in military organizations, executive responsibility of Army commissioned officers, service customs, courtesies, and traditions. The senior year includes the study of personnel management, professional ethics, the military justice system, and the Army's training and maintenance management system. Lecture 3 hours, laboratory 3 hours, physical training 3 hours per week. MS IV cadets plan and participate in 1 field training exercise per semester. Corequisite: Lab component. Prerequisite: Successful completion of MS III course work.

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Marketing (MKTG)

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**MKTG3433 Introduction to Marketing Strategy (Fa)** Examines strategies, tactical, and operational decisions related to contemporary marketing activities. Topics covered include product, services and international strategies in consumer and business markets. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**MKTG3553 Consumer Behavior (Fa)** Analyzes consumer motivation, buying behavior, market adjustment, product innovation and adaptation; consumer market measurement, including survey of economic, behavioral science theories of consumer market behavior, producer and intermediary reactions. Consumer decision making is evaluated as to psychological drives, sociological concepts used by producers, channel intermediaries, consumers; considers methods, techniques for measuring consumer behavior, and analyzing consumer markets. Prerequisite: MKTG 3433.

**MKTG3633 Marketing Research (Sp)** Research designs, techniques, and analyses of primary and secondary data for the purposes of (1) developing market forecasts and seg-

mentation analyses; (2) strategy implementation determining product development, pricing, distribution, and promotion decisions; and (3) monitoring customer attitudes, motivations and satisfaction. Prerequisite: MKTG 3433 and WCOB 1033.

**MKTG4003H Honors Marketing and Transportation Colloquium (Fa)** Explores events, concepts and/or new developments in the field of Marketing and/or Transportation. Prerequisite: Senior standing.

**MKTG4103 Marketing Topics (Irregular)** Special topics in marketing not available in other courses. Topics are selected by the Marketing faculty for each semester each course is offered. Prerequisite: MKTG 3433. May be repeated for up to 6 hours of degree credit.

**MKTG4233 Integrated Marketing Communications (Sp, Fa)** The theory, knowledge, and application relevant to the coordination of marketing communications including advertising, personal selling, sales promotion, public relations, and publicity. Prerequisite: MKTG 3433.

**MKTG4343 Selling and Sales Management (Sp, Fa)** Examines how organizations and individuals communicate value and obtain desired results through the process of personal selling and customer relationship management, along with the role of sales management in the development of people and resource utilization within the firm. Prerequisite: MKTG 3433.

**MKTG4433 Retail Strategy (Sp)** Concentrates on planning to meet the objectives and satisfy the retail marketing concept. Attention is devoted to retail format, competition among retail institutions, determination of store location, merchandise lines, atmospherics, and levels of customer service provided with the sale of consumer products. Prerequisite: MKTG 3433.

**MKTG4443 Retail Buying and Merchandise (Sp, Fa)** Examination of supplier and buyer responsibilities and decisions associated with product assortment depth, budgets, promotions, inventory investment and control, and gross margin management for consumer goods including apparel, food, and durables. Prerequisite: MKTG 3433.

**MKTG450V Independent Study (Irregular) (1-3)** The Marketing Independent Study course permits students on an individual basis to explore select topics in Marketing and Retail. Independent study projects will explore topics relevant for marketing and retail that typically are not covered in the existing curriculum. Prerequisite: Junior standing.

**MKTG4633 Global Marketing (Sp, Fa)** Examines differences in global environment; how cultural considerations, political, legal, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plan for global environments. Prerequisite: MKTG 3433.

**MKTG4853 Marketing Management (Sp)** Strategic planning and management of the marketing function within the firm from a managerial viewpoint. Focus on the development and management of marketing strategies and tactics related to product, pricing, promotion, and distribution decisions. Prerequisite: MKTG 3633 and MKTG 3553.

**MKTG5103 Retail Consumer Marketing (Sp)** Introduction to marketing concepts and practices as applied to the retail consumer environment. Focuses on the strategic development, positioning, and management of products, promotion, distribution, pricing, and store environments in building customer relationships from retailer and supplier perspectives. (Core) May be repeated for credit.

**MKTG5333 Retailing Strategy and Processes (Sp)** Strategic planning and operation of retailing organizations. Investigation of the various types of retailing with emphasis on both the strategic and functional aspects in retail processes.

**MKTG5433 Consumer and Market Research (Fa)** Modern marketing research methods and analyses applied to consumers, shoppers, and buyers of goods and services sold in competitive retail environments. Attention is given to both quantitative and qualitative methods, analyses, interpretation, and decision making. Prerequisite: MKTG 5103.

**MKTG5533 Strategic Category Management (Su)** Strategic planning and management of brands and product categories from both manufacturing and retailing perspectives. Focus is on the product brand development, pricing, distribution, and promotion of brands and their strategic and functional roles in the product mix.

**MKTG5543 Category Analysis and Management (Irregular)** Analysis and management of brands and product categories from supplier and retailing strategic perspectives. Focus is on brand and category strategic and functional roles in the merchandising mix as well as their development, pricing, distribution, promotion, and in-store placement. May be repeated for credit.

**MKTG5553 Shopper, Buyer, and Consumer Behavior (Fa)** Behavioral and social science concepts applied to retail shoppers, buyers, and consumers of products and services. Atten-

tion is given to research on the cognitive, affective, and experiential aspects involved in the acquisition, consumption, and disposal of products and services by individuals and households. Prerequisite: MKTG 5103.

**MKTG636V Special Problems in Marketing (Irregular) (1-6)** Individual research problems. May be repeated for up to 6 hours of degree credit.

**MKTG6413 Special Topics in Marketing (Irregular)** Seminar in special topics in marketing. Topics vary depending upon the instructor. May be repeated for up to 3 hours of degree credit.

**MKTG6433 Seminar in Research Methods (Irregular)** Extensive review of literature illustrative of marketing research studies. Focuses upon theoretical foundations of research design, methodology, and analysis as well as interpretation of univariate, bivariate, and multivariate data in marketing theory exploration. May be repeated for up to 3 hours of degree credit.

**MKTG6443 Seminar in Marketing Theory (Irregular)** Comprehensive survey and critical review of the history of marketing thought and contemporary schools of thought in marketing discipline. In-depth research, review, synthesis, and a research proposal will be required in a selected topic from the perspectives of advancing marketing theory. Prerequisite: MKTT 5103 and MKTT 5303.

**MKTG6453 Seminar in Transportation and Business Logistics (Irregular)** Underlying theories and problems related to the development of logistical systems in the U.S. Attention focused on transport economics, the role of government in providing transportation facilities, and managerial issues related to integrating transportation, inventory control, warehousing, customer service levels, and facility location.

**MKTG700V Doctoral Dissertation (Sp, Fa) (1-18)** Prerequisite: Candidacy.

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Music Literature (MLIT)

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**MLIT1003 Basic Course in the Arts: Music Lecture (Sp, Su, Fa)** Introduction to music. Lecture 3 hours per week providing experience in guided listening. Acquisition of vocabulary and certain fundamentals of music.

**MLIT1003H Honors Music Lecture (Sp, Su, Fa)**

**MLIT1013 Music Lecture for Music Majors (Sp, Fa)** Introduction to academic study of Western art music, jazz, popular music, and world music. Students will gain experience in guided listening and in reading, writing, and critical thinking about musical cultures and their roles in society. Required for music majors. Prerequisite: Music major or music minor.

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Applied Music (Class) (MUAC)

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**MUAC1121 Italian for Singers (Fa)** Training in proper pronunciation and inflections of Italian as applied to singers. Two meetings per week.

**MUAC1141 German for Singers (Even years, Sp)** Training in proper pronunciation and inflection of German as applied to singing. Two meetings per week.

**MUAC1151 French for Singers (Odd years, Sp)** Training in proper pronunciation and inflections of French as applied to singing. Two meetings per week.

**MUAC1161 Class Instruction in Piano for Non-Music Majors (Sp, Fa)** Beginning instruction in piano. Does not fulfill the class piano requirement for music majors.

**MUAC1221 Piano Class for Music Majors I (Fa)** Training in functional piano skills for music majors. Two meetings per week. Prerequisite: Music major with degree plan code of MUSCBA/HA or MUSCBM/HM.

**MUAC1231 Piano Class for Music Majors II (Sp)** A continuation of MUAC 1221. Two meetings per week. Upon successful completion of MUAC 1221 will also be given. Prerequisite: Music major pursuing a degree of Bachelor of Arts or Honors Bachelor of Arts or Bachelor of Music or Honors Bachelor of Music.

**MUAC1301 Class Instruction in Violin and Viola (Fa)** Beginning class instruction in violin and viola. For music education majors only or with instructor's consent. Prerequisite: Music Education majors pursuing a concentration in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1311 Class Instruction in Violoncello and String Bass (Sp, Fa)** Beginning class instruction in violoncello and string bass. Prerequisite: Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1321 Class Instruction in Guitar (Sp, Fa)** Beginning class instruction in guitar. Students must provide their own instruments.

**MUAC1331 Class Instruction in Clarinet and Saxophone**

**(Sp)** The elementary study of clarinet and saxophone. Beginning class instruction designed to familiarize the student with the basic playing skills and teaching techniques for the instruments. Corequisite: MUAC 1341 and lab component. Prerequisite: Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1341 Class Instruction in Flute (Sp)** The elementary study of flute. Beginning class instruction designed to familiarize the student with basic playing skills and teaching techniques of the instrument. Corequisite: MUAC 1331 and lab component. Prerequisite: Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1351 Class Instruction in High Brass Instruments (Sp)** The elementary study of the cornet, trumpet, and horn. Beginning class instruction designed to familiarize the student with the history, physics, basic playing skills, methods, materials, and teaching techniques of the high brass family. Corequisite: MUAC 1361 and lab component. Prerequisite: Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1361 Class Instruction in Low Brass Instruments (Sp)** The elementary study of the trombone, euphonium and tuba. Beginning class instruction designed to familiarize the student with the history, physics, basic playing skills, methods, materials, and teaching techniques of the low brass family. Corequisite: MUAC 1351 and lab component. Prerequisite: Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1371 Teaching the Beginning Percussionist (Sp, Fa)** A study of the pedagogy and techniques needed to instruct middle school and junior high percussionists. Emphasis on elementary snare drum and marimba performance. Study of junior high band and orchestra methods, solos and ensemble music. Prerequisite: Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC1381 Class Instruction in Voice (Sp, Fa)** Fundamentals of vocalization and singing of English songs, including breathing, vowel clarity, and pronunciation of consonants.

**MUAC2111 Music Technology I (Sp, Su, Fa)** Students will develop skills in transcribing music using music notation software and learn about sound reinforcement systems. Corequisite: MUAC 2121. Prerequisite: MUAC 1231, Music major pursuing a Bachelor Music or Honors Bachelor of Music degree, and sophomore standing.

**MUAC2121 Music Technology II (Sp, Su, Fa)** Students will learn how to use MIDI sequencing and audio recording and editing software to produce accompaniment tracks and create compact discs of music and multimedia projects. Corequisite: MUAC 2111. Prerequisite: MUAC 1231, Music major pursuing a Bachelor of Music or Honors Bachelor of Music degree, and sophomore standing.

**MUAC2141 Class Instruction in Oboe and Bassoon (Sp)** The elementary study of oboe and bassoon. Class instruction designed to familiarize the student with basic playing skills and teaching techniques of the instruments. Prerequisite: MUAC 1331 or MUAC 1341 and a Music education major pursuing a degree in Piano Education, Voice Education, String Education or Woodwind Brass Percussion Education; or instructor's consent.

**MUAC2221 Piano Class for Music Majors III (Fa)** A continuation of MUAC 1231. Two meetings per week. Upon successful completion of MUAC 2221 with a grade of B or better, credit for MUAC 1221 and 1231 will also be given. Prerequisite: Music major pursuing a degree of Bachelor of Arts or Honors Bachelor of Arts or Bachelor of Music or Honors Bachelor of Music.

**MUAC2231 Piano Class for Music Major IV (Sp)** A continuation of MUAC 2221. Two meetings per week. Upon successful completion of MUAC 2231 with a grade of B or better, credit for MUAC 1221, 1231, and 2221 will also be given. Prerequisite: Music major pursuing a degree of Bachelor of Arts or Honors Bachelor of Arts or Bachelor of Music or Honors Bachelor of Music.

**MUAC4371 Teaching the High School Percussionist (Irregular)** A study of solo literature and small and large ensemble literature appropriate for the high school percussionist. Emphasis on advanced snare drum and marimba lit., timpani and the broad range of percussionist instruments. Includes study of high school band, orchestra and perc. ensemble scores. Prerequisite: MUAC 1371.

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Applied Music (Private Inst) (MUAP)

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**MUAP1001 Applied Secondary-Level Voice/Instrument I (Sp, Su, Fa)** Private study of secondary voice/instrument. Instructor permission required to enroll. May be repeated for up to 2 hours of degree credit.

**MUAP110V Applied Major Voice/Instrument I (Sp, Su, Fa) (1-4)** Private study of the primary voice/instrument for music majors. Admission to MUAP 110V requires the successful completion of audition for the instructor. Corequisite: Lab component. Prerequisite: Music major. May be repeated for up to 8 hours of degree credit.

**MUAP130V Applied Skills Voice/Instrument I (Sp, Su, Fa) (1-4)** Private study of the primary voice/instrument for music majors. Continued development of fundamental musical and technical skills introduced in MUAP 110V. Corequisite: Lab component. Prerequisite: Music major; recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUAP2001 Applied Secondary-Level Voice/Instrument II (Sp, Su, Fa)** Continued private study of secondary voice/instrument. Instructor permission required to enroll. Prerequisite: Two semesters of MUAP 1001 with grades of "B" or better and recommendation of the instructor. May be repeated for up to 2 hours of degree credit.

**MUAP210V Applied Major Voice/Instrument II (Sp, Su, Fa) (1-4)** Continued private study of the primary voice/instrument for music majors. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 110V with grades of B or better or MUAP 130V with a grade of B or better. May be repeated for up to 8 hours of degree credit.

**MUAP230V Applied Skills Voice/Instrument II (Sp, Su, Fa) (1-4)** Private study of the primary voice/instrument for music majors. Continued development of fundamental musical and technical skills introduced in MUAP 210V. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 210V and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUAP3001 Applied Secondary-Level Voice/Instrument III (Sp, Su, Fa)** Advanced private study of secondary voice/instrument. Prerequisite: Two semesters of MUAP 2001 with grades of "B" or better and recommendation of the instructor. May be repeated for up to 2 hours of degree credit.

**MUAP310V Applied Major Voice/Instrument III (Sp, Su, Fa) (1-4)** Continuation of MUAP 210V. Private study of the primary instrument/voice for music majors at the advanced level. Admission requires approval of the faculty committee of the area of study (voice, piano, woodwind, brass, percussion). Mastery of fundamental/technical skills sufficient to prepare for a recital must be observable by the committee. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 210V with grades of B or better or MUAP 230V with a grade of B or better. May be repeated for up to 8 hours of degree credit.

**MUAP310VH Honors Applied Major Voice/Instrument III (Sp, Su, Fa) (1-4)** Continuation of MUAP 210V. Private study of the primary voice/instrument for honors music majors at the advanced level. Admission requires approval of faculty committee of the area of study (voice, piano, woodwind, brass, percussion). Mastery of fundamental/technical skills sufficient to prepare for a recital must be observable by the committee. Prerequisite: Two semesters of MUAP 210V with grades of B or better or MUAP 230V with a grade of B or better; honors standing. May be repeated for up to 8 hours of degree credit.

**MUAP3201 Applied Recital I (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 25 minutes of music. May be repeated for credit.

**MUAP3201H Honors Applied Recital I (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 50 minutes of music. Corequisite: MUAP 310VH. May be repeated for credit.

**MUAP330V Applied Skills Voice/Instrument III (Sp, Su, Fa) (1-4)** Private study of the primary voice/instrument for music majors at the advanced level. Continued development of musical and technical skills introduced in MUAP 310V. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 310V and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUAP4001 Applied Secondary-Level Voice/Instrument IV (Sp, Su, Fa)** Continued advanced private study of secondary voice/instrument. Instructor permission required to enroll. Prerequisite: Two semesters of MUAP 3001 with grades of "B" or better and recommendation of the instructor. May be repeated for up to 2 hours of degree credit.

**MUAP410V Applied Major Voice/Instrument IV (Sp, Su, Fa) (1-4)** Continuation of MUAP 310V. Private study of the primary voice/instrument for music majors at the advanced level. Prerequisite: Two semesters of MUAP 310V or 330V and

recommendation of instructor. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 310V with grades of B or better or MUAP 330V with a grade of B or better. May be repeated for up to 8 hours of degree credit.

**MUAP410VH Honors Applied Major Voice/Instrument IV (Sp, Su, Fa) (1-4)** Continuation of MUAP 310VH. Private study of the primary voice/instrument for honors music majors at the advanced level. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 310VH and recommendation of instructor; honors standing. May be repeated for up to 8 hours of degree credit.

**MUAP415V Applied Skills Voice/Instrument IV (Sp, Su, Fa) (1-4)** Private study of the primary voice/instrument for music majors at the advanced level in preparation for recital. Continued development of musical and technical skills introduced in MUAP 410V. Corequisite: Lab component. Prerequisite: Two semesters of MUAP 410V and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUAP4201 Applied Recital II (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 50 minutes of music. Prerequisite: MUAP 3201. May be repeated for credit.

**MUAP4201H Honors Applied Recital II (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 50 minutes of music. Corequisite: MUAP 310VH. May be repeated for credit.

**MUAP4301 Composition Recital (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 50 minutes consisting of original musical compositions. May be repeated for credit.

**MUAP5001 Applied Voice/Instrument-Secondary Level (Sp, Su, Fa)** Private study at the graduate secondary level. May be repeated for credit.

**MUAP510V Applied Voice/Instrument (Sp, Su, Fa) (1-5)** Private study at the graduate level. Prerequisite: MUAP 310 or equivalent. May be repeated for credit.

**MUAP5201 Graduate Recital I (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 50 minutes of music. May be repeated for credit.

**MUAP5211 Graduate Recital II (Sp, Su, Fa)** Preparation and performance of a public recital of a minimum of 50 minutes of music. May be repeated for credit.

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Music Education (MUED)

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**MUED2012 Introduction to Music Education (Sp)** A course designed to provide early experiences for the prospective music teacher. Students will become familiar with professional trends, music classroom organizational and management issues, and principles of effective education. Emphases will include basic psychological and philosophical orientation, as well as observations in public school classrooms. Required of all prospective Music Education majors.

**MUED2552 Class Instruction in Orchestral String Instruments (Fa)** Familiarizes students with elementary and intermediate skills, techniques and pedagogy needed to teach orchestral stringed instruments in a class setting. Includes a lab that specifically focuses on peer teaching of concepts and skills related to teaching stringed instruments. Prerequisite: Bachelor of Music Major with an emphasis in PIAN, VOCE, STRG, or WWBP and sophomore standing.

**MUED3021 Supervised Practicum in Teaching Musical Skills (Sp, Su, Fa)** Provides for supervised teaching opportunities with public school students in instrumental, choral, and elementary classes. Prerequisite: All Emphases: MUED 2012.

**MUED3833 Music Education in the Elementary School (Sp, Fa)** Concepts of elementary music education; methods, materials, curriculum design, and supervision in elementary school music. Prerequisite: MUED 2012.

**MUED4031 Seminar for Professional Entry into Music Education (Sp, Fa)** A seminar offered during student teaching semester to prepare the student for the role of a professional educator. Content includes professional ethics and conduct, classroom management, evaluation and grading, and application for employment.

**MUED4112 Pedagogy in Music Education (Fa)** A course presenting broad music teaching concepts and specific teaching behaviors. Students will experience the pedagogical teaching situation through the construct of effective communication practice. Emphases will be on providing a laboratory environment representative of public school classrooms. Required of all Music Education majors. Prerequisite: MUED 3833.

**MUED4273 Methods for Teaching String Instruments (Odd years, Fa)** Methods and materials for students preparing to teach orchestral instruments and ensembles in the public schools. Prerequisite: MUAC 1331, MUAC 1341, MUAC 1351,

MUAC 1361, MUAC 1371, MUED 2012, MUED 2552, and MUED 3021.

**MUED4283 Teaching Vocal Music (Even years, Fa)** Methods and materials used in teaching high school music. Prerequisite: MUAC 1371, MUED 2012 and MUED 2552.

**MUED4293 Instrumental Methods (Fa)** Problems of teaching instrumental music in the public schools. Prerequisite: MUAC 1331, MUAC 1341, MUAC 1351, MUAC 1361, MUAC 1371, MUED 2012, MUED 2552, and MUED 3021.

**MUED451V Student Teaching: Elementary Music (Sp, Su, Fa) (4-8)** A minimum of five weeks and a maximum of ten weeks will be spent in an off-campus school, where the student will teach under supervision in the elementary classroom and will participate in other activities involving the school and community. Enrollment requirement is for a total of 12 hours and 15 weeks involvement in 452V and 451V. Corequisite: MUED 452. Prerequisite: Bachelor of Music degree in Music Education.

**MUED452V Student Teaching: Secondary Music (Sp, Su, Fa) (4-8)** A minimum of five weeks and a maximum of ten weeks will be spent in an off-campus school, where the student will teach under supervision in the elementary classroom and will participate in other activities involving the school and community. Enrollment requirement is for a total of 12 hours and 15 weeks involvement in 452V and 451V. Corequisite: MUED 451. Prerequisite: Bachelor of Music degree in Music Education.

**MUED477V Special Topics in Music Education (Irregular) (1-4)** Subject matter not covered in other sources. With permission, may be repeated for credit if topics are different.

**MUED5513 Seminar: Resources in Music Education (Irregular)** Study of the analytical and writing skills necessary for academic research in music education. Each student identifies one problem specific to music education, finds and reviews related literature and sources, develops a comprehensive bibliography, and writes a paper which synthesizes the research. Open to graduate students and undergraduates in honors in music education.

**MUED5653 Seminar: Issues in Music Education (Irregular)** A seminar exploring the relationships between the profession of teaching music and selected views about learning theories, teaching methods, philosophy, psychology, and other selected topics relevant to contemporary music education.

**MUED5733 Music Education in the Elementary School (Irregular)** Concepts of elementary music education; methods, materials, curriculum design, and supervision in elementary school music.

**MUED5811 Curriculum Design in Music (Irregular)** Goals and objectives in music education. Student will develop a curriculum for an actual or hypothetical music education program.

**MUED583V Workshop: Music in the Elementary School (Irregular) (1-18)** An in-service training workshop for elementary music teachers.

**MUED5862 Marching Band Techniques (Irregular)** Includes the place of the marching band in the school program, types of formations used, and selecting, arranging or writing the musical score.

**MUED5973 Tests and Measurement in Music (Irregular)** This course will address the psychometric concepts of tests and measurement of music achievement, aptitude, attitude, and self-assessment. The course will focus on the teaching and assessment of musical skills, musical responses, and will critically examine existing aptitude tests (Seashore, Watkins Farnum, Gordon, etc.). Basic statistical concepts and data analysis used in common testing scenarios will be introduced. Prerequisite: Graduate standing in music.

**MUED5983 Psychology of Music Behavior (Irregular)** This course is an introduction to the psychology of music, and will adopt an interdisciplinary view toward the field, covering such topics as philosophical and sociological questions about the nature and function of music, the physiology of the ear, the physical and perceptual properties of sounds (acoustics), performance anxiety, preference and taste research, social and pedagogical attributes of performance, and behavioral musical responses. Prerequisite: Graduate standing.

**MUED600V Master's Thesis (Irregular) (1-6)** Preparation of a master's thesis as partial fulfillment of the requirement for the master's degree.

**MUED605V Independent Study (Irregular) (1-6)** Provides students with an opportunity to pursue special study of problems in music education. May be repeated for up to 6 hours of degree credit.

#### Music Ensemble (MUEN)

**MUEN1341 Collegium Musicum I (Irregular)** Performance of early music; various combinations of instruments and/or voices. Two hours rehearsal weekly. May be repeated for up to 2 hours of degree credit.

**MUEN1401 Opera Theatre I (Sp, Fa)** Study of opera through performances of scenes, chamber and major operatic production. Admission with director's approval. May be repeated for up to 2 hours of degree credit.

**MUEN1411 Concert Choir I (Sp, Fa)** Large ensemble study and performance of a range of choral literature. Emphasis on proper vocal production, breathing, intonation, and vocal registration. Style and interpretative elements will be highlighted during the semester. Open to all interested students. May be repeated for up to 2 hours of degree credit.

**MUEN1421 Inspirational Chorale I (Sp, Fa)** Performance of African American literature with particular emphasis on Negro spirituals, traditional/contemporary gospel music, and sacred world music. Rehearsal 3 hours per week. Admission with director's approval. Prerequisite: Audition and director's approval. May be repeated for up to 2 hours of degree credit.

**MUEN1431 Symphony Orchestra I (Sp, Fa)** Large, select orchestral ensemble setting with a focus on the study and performance of a range of symphonic literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced players; by audition only. Corequisite: Lab component. Prerequisite: Director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN1441 Marching Band I (Fa)** Large ensemble performs at football games. Emphasis on high performance standards and a variety of performing styles. Rehearsal 8 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1451 Schola Cantorum I (Sp, Fa)** Large, select choral ensemble with focus on the study and performance of a range of choral literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced singers; by audition only. Prerequisite: Director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN1461 Wind Symphony I (Sp, Fa)** Large, select choral ensemble with focus on the study and performance of a range of choral literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced singers; by audition only. Corequisite: Lab component. Prerequisite: Director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN1471 Jazz Performance Laboratory I (Sp, Fa)** Training in the various styles of jazz and popular music. Rehearsal 3 hours per week. Admission by audition. May be repeated for up to 2 hours of degree credit.

**MUEN1481 Campus Band I (Sp, Fa)** Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public may be required. Admission is by audition or special approval. Corequisite: Lab component. May be repeated for up to 2 hours of degree credit.

**MUEN1501 Chamber Music I (Sp, Su, Fa)** Performance of small ensemble music for any combination of instruments and/or voice. Rehearsal 3 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1511 Symphonic Band I (Sp, Fa)** Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public are required. Admission is by audition or special approval. Corequisite: Lab component. Prerequisite: Director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN1521 Woodwind Quintet I (Sp, Fa)** Study and performance of music for woodwind quintet. Weekly coaching will emphasize intonation, blend, stylistic awareness, and ensemble precision. Repertoire ranges from the 18th to the 20th centuries. 3 hours of rehearsals weekly. May be repeated for up to 2 hours of degree credit.

**MUEN1541 Accompanying I (Sp, Fa)** Piano accompanying of vocal and instrumental soloists. Rehearsal 2 hours per week. Prerequisite: MUAP 110V. May be repeated for up to 2 hours of degree credit.

**MUEN1551 Percussion Ensemble I (Sp, Su)** Study and performance of ensemble music for multiple percussion instruments. Rehearsal 2 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1581 Vocal Ensemble I (Sp, Su, Fa)** Study and performance of vocal chamber music. Rehearsal 2 hours per week

for 1 hour of credit. May be repeated for up to 2 hours of degree credit.

**MUEN1711 Flute Ensemble I (Sp, Fa)** Study and performance of music for multiple flutes, including trios, quartets, quintets, and flute choir. Rehearsal 2 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1721 Clarinet Ensemble I (Sp, Fa)** Study and performance of music for multiple clarinets, including trios, quartets, quintets, and clarinet choir. Rehearsal 2 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1731 Saxophone Ensemble I (Sp, Fa)** Study and performance of music for multiple saxophones, including trios, quartets, quintets, and saxophone choir. Rehearsal 3 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1751 Trumpet Ensemble I (Sp, Fa)** Study and performance of music for multiple trumpets, including trios, quartets, quintets, and trumpet choir. Rehearsal 2 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1771 Trombone Ensemble I (Irregular)** Study and performance of music for multiple trombones, including trios, quartets, quintets, and trombone choir. Rehearsal 2 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN1781 Tuba Ensemble (Sp, Fa)** Study and performance of music for multiple combinations of tuba and euphonium, including trios, quartets, quintets, and low brass choir. Rehearsal 2 hours per week. May be repeated for up to 2 hours of degree credit.

**MUEN2341 Collegium Musicum II (Irregular)** Continuation of Collegium Musicum I. Performance of early music various combinations of instruments and/or voices. Two hours rehearsal weekly. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2401 Opera Theatre II (Sp, Fa)** Continuation of Opera Theatre I. Study of opera through performances of scenes, chamber and major operatic production. Admission with director's approval. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2411 Concert Choir II (Sp, Fa)** Continuation of Concert Choir I. Large ensemble study and performance of a range of choral literature. Emphasis on proper vocal production, breathing, intonation, and vocal registration. Style and interpretative elements will be highlighted during the semester. Open to all interested students. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2421 Inspirational Chorale II (Sp, Fa)** Continuation of Inspirational Chorale I. Performance of African American literature with particular emphasis on Negro spirituals, traditional/contemporary gospel music, and sacred world music. Rehearsal 3 hours per week. Admission with director's approval. Prerequisite: Sophomore standing; audition and approval of director. May be repeated for up to 2 hours of degree credit.

**MUEN2431 Symphony Orchestra II (Sp, Fa)** Continuation of Symphony Orchestra I. Large, select orchestral ensemble setting with a focus on the study and performance of a range of symphonic literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced players; by audition only. Corequisite: Lab component. Prerequisite: Sophomore standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN2441 Marching Band II (Fa)** Continuation of Marching Band I. Large ensemble performs at football games. Emphasis on high performance standards and a variety of performing styles. Rehearsal 8 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2451 Schola Cantorum II (Sp, Fa)** Continuation of Schola Cantorum I. Large, select choral ensemble with focus on the study and performance of a range of choral literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced singers; by audition only. Prerequisite: Sophomore standing; Director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN2461 Wind Symphony II (Sp, Fa)** Continuation of Wind Symphony I. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of high artistic merit which serve the campus community and general public are required. Admission by audition. Corequisite: Lab component. Prerequisite: Sophomore standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN2471 Jazz Performance Laboratory II (Sp, Fa)** Continuation of Jazz Performance Laboratory I. Training in the various styles of jazz and popular music. Rehearsal 3 hours per week. Admission by audition. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2481 Campus Band II (Sp, Fa)** Continuation of Campus Band I. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public may be required. Admission is by audition or special approval. Corequisite: Lab component. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2501 Chamber Music II (Sp, Fa)** Continuation of Chamber Music I. Performance of small ensemble music for any combination of instruments and/or voice. Rehearsal 3 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2511 Symphonic Band II (Sp, Fa)** Continuation of Symphonic Band I. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public are required. Admission is by audition or special approval. Corequisite: Lab component. Prerequisite: Sophomore standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN2521 Woodwind Quintet II (Sp, Fa)** continuation of Woodwind Quintet I. Study and performance of music for woodwind quintet. Weekly coaching will emphasize intonation, blend, stylistic awareness, and ensemble precision. Repertoire ranges from the 18th to the 20th centuries. 3 hours of rehearsals weekly. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2541 Accompanying II (Sp, Fa)** Continuation of Accompanying I. Piano accompanying of vocal and instrumental soloists. Rehearsal 2 hours per week. Prerequisite: Sophomore standing and MUAP 110V. May be repeated for up to 2 hours of degree credit.

**MUEN2551 Percussion Ensemble II (Sp, Su)** Continuation of Percussion Ensemble I. Study and performance of ensemble music for multiple percussion instruments. Rehearsal 2 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2581 Vocal Ensemble II (Sp, Su, Fa)** Continuation of Vocal Ensemble I. Study and performance of vocal chamber music. Rehearsal 2 hours per week for 1 hour of credit. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2711 Flute Ensemble II (Sp, Fa)** Continuation of Flute Ensemble I. Study and performance of music for multiple flutes, including trios, quartets, quintets, and flute choir. Rehearsal 2 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2721 Clarinet Ensemble II (Sp, Fa)** Continuation of Clarinet Ensemble I. Study and performance of music for multiple clarinets, including trios, quartets, quintets, and clarinet choir. Rehearsal 2 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2731 Saxophone Ensemble II (Sp, Fa)** Continuation of Saxophone Ensemble I. Study and performance of music for multiple saxophones, including trios, quartets, quintets, and saxophone choir. Rehearsal 3 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2751 Trumpet Ensemble II (Sp, Fa)** Continuation of Trumpet Ensemble I. Study and performance of music for multiple trumpets, including trios, quartets, quintets, and trumpet choir. Rehearsal 2 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2771 Trombone Ensemble II (Irregular)** Continuation of Trombone Ensemble I. Study and performance of music for multiple trombones, including trios, quartets, quintets, and trombone choir. Rehearsal 2 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN2781 Tuba Ensemble II (Sp, Fa)** Continuation of Tuba Ensemble I. Study and performance of music for multiple combinations of tuba and euphonium, including trios, quartets, quintets, and low brass choir. Rehearsal 2 hours per week. Prerequisite: Sophomore standing. May be repeated for up to 2 hours of degree credit.

**MUEN3341 Collegium Musicum III (Irregular)** Continuation of Collegium Musicum II. Performance of early music various combinations of instruments and/or voices. Two hours rehearsal weekly. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3401 Opera Theatre III (Sp, Fa)** Continuation of Opera Theatre II. Study of opera through performances of scenes, chamber and major operatic production. Admission with direc-

tor's approval. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3411 Concert Choir III (Sp, Fa)** Continuation of Concert Choir II. Large ensemble study and performance of a range of choral literature. Emphasis on proper vocal production, breathing, intonation, and vocal registration. Style and interpretative elements will be highlighted during the semester. Open to all interested students. Prerequisite: junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3421 Inspirational Chorale III (Sp, Fa)** Continuation of Inspirational Chorale II. Performance of African American literature with particular emphasis on Negro spirituals, traditional/contemporary gospel music, and sacred world music. Rehearsal 3 hours per week. Admission with director's approval. Prerequisite: Junior standing; by audition and approval of director. May be repeated for up to 2 hours of degree credit.

**MUEN3431 Symphony Orchestra III (Sp, Fa)** Continuation of Symphony Orchestra II. Large, select orchestral ensemble setting with a focus on the study and performance of a range of symphonic literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced players; by audition only. Prerequisite: Junior standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN3441 Marching Band III (Fa)** Continuation of Marching Band II. Large ensemble performs at football games. Emphasis on high performance standards and a variety of performing styles. Rehearsal 8 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3451 Schola Cantorum III (Sp, Fa)** Continuation of Schola Cantorum II. Large, select choral ensemble with focus on the study and performance of a range of choral literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced singers; by audition only. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3461 Wind Symphony III (Sp)** Continuation of Wind Symphony II. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of high artistic merit which serve the campus community and general public are required. Admission by audition. Corequisite: Lab component. May be repeated for up to 2 hours of degree credit.

**MUEN3471 Jazz Performance Laboratory III (Sp, Fa)** Continuation of Jazz Performance Lab II. Training in the various styles of jazz and popular music. Rehearsal 3 hours per week. Admission by audition. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3481 Campus Band III (Sp)** Continuation of Campus Band II. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public may be required. Admission is by audition or special approval. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3501 Chamber Music III (Sp, Su, Fa)** Continuation of Chamber Music II. Performance of small ensemble music for any combination of instruments and/or voice. Rehearsal 3 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3511 Symphonic Band III (Sp)** Continuation of Symphonic Band II. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public are required. Admission is by audition or special approval. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3521 Woodwind Quintet III (Sp, Fa)** Continuation of Woodwind Quintet II. Study and performance of music for woodwind quintet. Weekly coaching will emphasize intonation, blend, stylistic awareness, and ensemble precision. Repertoire ranges from the 18th to the 20th centuries. 3 hours of rehearsals weekly. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3541 Accompanying III (Sp, Fa)** Continuation of Accompanying II. Piano accompanying of vocal and instrumental soloists. Rehearsal 2 hours per week. Prerequisite: MUAP 110V; junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3551 Percussion Ensemble III (Sp, Su)** Continuation of Percussion Ensemble II. Study and performance of ensemble music for multiple percussion instruments. Rehearsal 2 hours per week. Prerequisite: Junior standing. May be re-

peated for up to 2 hours of degree credit.

**MUEN3581 Vocal Ensemble III (Sp, Su, Fa)** Continuation of Vocal Ensemble II. Study and performance of vocal chamber music. Rehearsal 2 hours per week for 1 hour of credit. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3711 Flute Ensemble III (Sp, Fa)** Continuation of Flute Ensemble II. Study and performance of music for multiple flutes, including trios, quartets, quintets, and flute choir. Rehearsal 2 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3721 Clarinet Ensemble III (Sp, Fa)** Continuation of Clarinet Ensemble II. Study and performance of music for multiple clarinets, including trios, quartets, quintets, and clarinet choir. Rehearsal 2 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3731 Saxophone Ensemble III (Sp, Fa)** Continuation of Saxophone Ensemble II. Study and performance of music for multiple saxophones, including trios, quartets, quintets, and saxophone choir. Rehearsal 3 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3751 Trumpet Ensemble III (Sp, Fa)** Continuation of Trumpet Ensemble II. Study and performance of music for multiple trumpets, including trios, quartets, quintets, and trumpet choir. Rehearsal 2 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3771 Trombone Ensemble III (Irregular)** Continuation of Trombone Ensemble II. Study and performance of music for multiple trombones, including trios, quartets, quintets, and trombone choir. Rehearsal 2 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN3781 Tuba Ensemble III (Sp, Fa)** Continuation of Tuba Ensemble II. Study and performance of music for multiple combinations of tuba and euphonium, including trios, quartets, quintets, and low brass choir. Rehearsal 2 hours per week. Prerequisite: Junior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4341 Collegium Musicum IV (Irregular)** Continuation of Collegium Musicum III. Performance of early music various combinations of instruments and/or voices. Two hours rehearsal weekly. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4401 Opera Theatre IV (Sp, Fa)** Continuation of Opera Theatre III. Study of opera through performances of scenes, chamber and major operatic production. Admission with director's approval. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4411 Concert Choir IV (Sp, Fa)** Continuation of Concert Choir III. Large ensemble study and performance of a range of choral literature. Emphasis on proper vocal production, breathing, intonation, and vocal registration. Style and interpretative elements will be highlighted during the semester. Open to all interested students. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4421 Inspirational Chorale IV (Sp, Fa)** Continuation of Inspirational Chorale III. Performance of African American literature with particular emphasis on Negro spirituals, traditional/contemporary gospel music, and sacred world music. Rehearsal 3 hours per week. Admission with director's approval. Prerequisite: Senior standing; by audition and approval of director. May be repeated for up to 2 hours of degree credit.

**MUEN4431 Symphony Orchestra IV (Sp, Fa)** Continuation of Symphony Orchestra III. Large, select orchestral ensemble setting with a focus on the study and performance of a range of symphonic literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced players; by audition only. Corequisite: Lab component. Prerequisite: Senior standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN4441 Marching Band IV (Fa)** Continuation of Marching Band III. Large ensemble performs at football games. Emphasis on high performance standards and a variety of performing styles. Rehearsal 8 hours per week. Prerequisite: Senior Standing. May be repeated for up to 2 hours of degree credit.

**MUEN4451 Schola Cantorum IV (Sp, Fa)** Continuation of Schola Cantorum III. Large, select choral ensemble with focus on the study and performance of a range of choral literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced singers; by audition only. Prerequisite: Senior standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN4461 Wind Symphony IV (Sp, Fa)** Continuation of Wind Symphony III. Large ensemble setting with emphasis on performing wind band literature and enhancing the musician-

ship of members. Focus on performance standards through style and interpretation. Concerts of high artistic merit which serve the campus community and general public are required. Admission by audition.

Corequisite: Lab component. Prerequisite: Senior standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN4471 Jazz Performance Laboratory IV (Sp, Fa)** Continuation of Jazz Performance Lab III. Training in the various styles of jazz and popular music. Rehearsal 3 hours per week. Admission by audition. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4481 Campus Band IV (Sp, Fa)** Continuation of Campus Band III. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public may be required. Admission is by audition or special approval. Corequisite: lab component. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4501 Chamber Music IV (Sp, Fa)** Continuation of Chamber Music III. Performance of small ensemble music for any combination of instruments and/or voice. Rehearsal 3 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4511 Symphonic Band IV (Sp)** Continuation of Symphonic Band III. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public are required. Admission is by audition or special approval. Corequisite: Lab component. Prerequisite: Senior standing; director's consent. May be repeated for up to 2 hours of degree credit.

**MUEN4521 Woodwind Quintet IV (Sp, Fa)** Continuation of Woodwind Quintet III. Study and performance of music for woodwind quintet. Weekly coaching will emphasize intonation, blend, stylistic awareness, and ensemble precision. Repertoire ranges from the 18th to the 20th centuries. 3 hours of rehearsals weekly. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4541 Accompanying IV (Sp, Fa)** Continuation of Accompanying III. Piano accompanying of vocal and instrumental soloists. Rehearsal 2 hours per week. Prerequisite: Senior standing and MUAP 110V. May be repeated for up to 2 hours of degree credit.

**MUEN4551 Percussion Ensemble IV (Sp, Su)** Continuation of Percussion Ensemble III. Study and performance of ensemble music for multiple percussion instruments. Rehearsal 2 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4581 Vocal Ensemble IV (Sp, Su, Fa)** Continuation of Vocal Ensemble III. Study and performance of vocal chamber music. Rehearsal 2 hours per week for 1 hour of credit. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4601 Opera Theatre V (Sp, Fa)** Continuation of Opera Theatre IV. Study of opera through performances of scenes, chamber and major operatic production. Admission with director's approval. Prerequisite: Two semesters of MUEN 4401. May be repeated for up to 2 hours of degree credit.

**MUEN4611 Concert Choir V (Sp, Fa)** Continuation of Concert Choir IV. Large ensemble study and performance of a range of choral literature. Emphasis on proper vocal production, breathing, intonation, and vocal registration. Style and interpretative elements will be highlighted during the semester. Open to all interested students. Prerequisite: Two semesters of MUEN 4411. May be repeated for up to 2 hours of degree credit.

**MUEN4621 Inspirational Chorale V (Sp, Fa)** Continuation of Inspirational Chorale IV. Performance of African American literature with particular emphasis on Negro spirituals, traditional/contemporary gospel music, and sacred world music. Rehearsal 3 hours per week. Admission with director's approval. Prerequisite: Two semesters of MUEN 4421. May be repeated for up to 2 hours of degree credit.

**MUEN4631 Symphony Orchestra V (Sp, Fa)** Continuation of Symphony Orchestra IV. Large, select orchestral ensemble setting with a focus on the study and performance of a range of symphonic literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced players; by audition only. Prerequisite: Two semesters of MUEN 4431. May be repeated for up to 2 hours of degree credit.

**MUEN4641 Collegium Musicum V (Irregular)** Continuation of Collegium Musicum IV. Performance of early music various

combinations of instruments and/or voices. Two hours rehearsal weekly. Prerequisite: Two semesters of MUEN 4341. May be repeated for up to 2 hours of degree credit.

**MUEN4651 Schola Cantorum V (Sp, Fa)** Continuation of Schola Cantorum IV. Large, select choral ensemble with focus on the study and performance of a range of choral literature. Emphasis on high artistic standards through style and interpretation. Enrollment limited to more experienced singers; by audition only. Prerequisite: Two semesters of MUEN 4451. May be repeated for up to 2 hours of degree credit.

**MUEN4661 Wind Symphony V (Sp, Fa)** Continuation of Wind Symphony IV. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of high artistic merit which serve the campus community and general public are required. Admission by audition. Corequisite: Lab component. Prerequisite: Two semesters of MUEN 4461. May be repeated for up to 2 hours of degree credit.

**MUEN4671 Jazz Performance Laboratory V (Sp, Fa)** Continuation of Jazz Performance Laboratory IV. Training in the various styles of jazz and popular music. Rehearsal 3 hours per week. Admission by audition. Prerequisite: Two semesters of MUEN 4471. May be repeated for up to 2 hours of degree credit.

**MUEN4681 Campus Band V (Sp, Fa)** Continuation of Wind Symphony IV. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of high artistic merit which serve the campus community and general public are required. Admission by audition. Corequisite: Lab component. Prerequisite: Two semesters of MUEN 4461. May be repeated for up to 2 hours of degree credit.

**MUEN4711 Flute Ensemble IV (Sp, Fa)** Continuation of Flute Ensemble III. Study and performance of music for multiple flutes, including trios, quartets, quintets, and the flute choir. Rehearsal 2 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4721 Clarinet Ensemble IV (Sp, Fa)** Continuation of Clarinet Ensemble III. Study and performance of music for multiple clarinets, including trios, quartets, quintets, and clarinet choir. Rehearsal 2 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4731 Saxophone Ensemble IV (Sp, Fa)** Continuation of Saxophone Ensemble III. Study and performance of music for multiple saxophones, including trios, quartets, quintets, and saxophone choir. Rehearsal 3 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4751 Trumpet Ensemble IV (Sp, Fa)** Continuation of Trumpet Ensemble III. Study and performance of music for multiple trumpets, including trios, quartets, quintets, and trumpet choir. Rehearsal 2 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4771 Trombone Ensemble IV (Irregular)** Continuation of Trombone Ensemble III. Study and performance of music for multiple trombones, including trios, quartets, quintets, and trombone choir. Rehearsal 2 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4781 Tuba Ensemble IV (Sp, Fa)** Continuation of Tuba Ensemble III. Study and performance of music for multiple combinations of tuba and euphonium, including trios, quartets, quintets, and low brass choir. Rehearsal 2 hours per week. Prerequisite: Senior standing. May be repeated for up to 2 hours of degree credit.

**MUEN4801 Chamber Music V (Sp, Fa)** Continuation of Chamber Music IV. Performance of small ensemble music for any combination of instruments and/or voice. Rehearsal 3 hours per week. Prerequisite: Two semesters of MUEN 4501. May be repeated for up to 2 hours of degree credit.

**MUEN4811 Symphonic Band V (Sp)** Continuation of Symphonic Band IV. Large ensemble setting with emphasis on performing wind band literature and enhancing the musicianship of members. Focus on performance standards through style and interpretation. Concerts of artistic merit which serve the campus community and general public are required. Admission is by audition or special approval. Corequisite: Lab component. Prerequisite: Two semesters of MUEN 4511. May be repeated for up to 2 hours of degree credit.

**MUEN4821 Woodwind Quintet V (Sp, Fa)** Continuation of Woodwind Quintet IV. Study and performance of music for woodwind quintet. Weekly coaching will emphasize intonation, blend, stylistic awareness, and ensemble precision. Repertoire ranges from the 18th to the 20th centuries. 3 hours of rehears-

als weekly. Prerequisite: Two semesters of MUEN 4521. May be repeated for up to 2 hours of degree credit.

**MUEN4841 Accompanying V (Sp, Fa)** Continuation of Accompanying IV. Piano accompanying of vocal and instrumental soloists. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4541. May be repeated for up to 2 hours of degree credit.

**MUEN4851 Percussion Ensemble V (Sp, Su)** Continuation of Percussion Ensemble IV. Study and performance of ensemble music for multiple percussion instruments. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4551. May be repeated for up to 2 hours of degree credit.

**MUEN4881 Vocal Ensemble V (Sp, Su, Fa)** Continuation of Vocal Ensemble IV. Study and performance of vocal chamber music. Rehearsal 2 hours per week for 1 hour of credit. Prerequisite: Two semesters of MUEN 4581. May be repeated for up to 2 hours of degree credit.

**MUEN4911 Flute Ensemble V (Sp, Fa)** Continuation of Flute Ensemble IV. Study and performance of music for multiple flutes, including trios, quartets, quintets, and flute choir. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4711. May be repeated for up to 2 hours of degree credit.

**MUEN4921 Clarinet Ensemble V (Sp, Fa)** Continuation of Clarinet Ensemble IV. Study and performance of music for multiple clarinets, including trios, quartets, quintets, and clarinet choir. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4721. May be repeated for up to 2 hours of degree credit.

**MUEN4931 Saxophone Ensemble V (Sp, Fa)** Continuation of Saxophone Ensemble IV. Study and performance of music for multiple saxophones, including trios, quartets, quintets, and saxophone choir. Rehearsal 3 hours per week. Prerequisite: Two semesters of MUEN 4731. May be repeated for up to 2 hours of degree credit.

**MUEN4941 Marching Band V (Fa)** Continuation of Marching Band IV. Large ensemble performs at football games. Emphasis on high performance standards and a variety of performing styles. Rehearsal 8 hours per week. Prerequisite: Two semesters of MUEN 4441. May be repeated for up to 2 hours of degree credit.

**MUEN4951 Trumpet Ensemble V (Sp, Fa)** Continuation of Trumpet Ensemble IV. Study and performance of music for multiple trumpets, including trios, quartets, quintets, and trumpet choir. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4751. May be repeated for up to 2 hours of degree credit.

**MUEN4971 Trombone Ensemble V (Irregular)** Continuation of Trombone Ensemble IV. Study and performance of music for multiple trombones, including trios, quartets, quintets, and trombone choir. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4771. May be repeated for up to 2 hours of degree credit.

**MUEN4981 Tuba Ensemble V (Sp)** Continuation of Tuba Ensemble IV. Study and performance of music for multiple combinations of tuba and euphonium, including trios, quartets, quintets, and low brass choir. Rehearsal 2 hours per week. Prerequisite: Two semesters of MUEN 4781. May be repeated for up to 2 hours of degree credit.

**MUEN5401 Opera Theatre (Sp, Fa)** Study of opera through performances of scenes, chamber and major operatic production. Admission with director's approval. May be repeated for credit.

**MUEN5411 Concert Choir (Sp, Su, Fa)** Rehearsal 3 hours per week with extra rehearsals at the director's discretion. Admission with director's approval. No audition required prior to registration. May be repeated for credit.

**MUEN5421 Inspirational Chorale (Sp, Fa)** Performance of African-American literature with particular emphasis on Negro spirituals, traditional/contemporary gospel music and sacred world music. Rehearsal 3 hours per week. Admission with director's approval. May be repeated for up to 2 hours of degree credit.

**MUEN5431 Symphony Orchestra (Sp, Su, Fa)** Rehearsal 3 hours per week with extra rehearsals at director's discretion. Admission with director's approval. Corequisite: Lab component. May be repeated for credit.

**MUEN5441 Marching Band (Fa)** Rehearsal 8 hours per week. Admission with director's approval. May be repeated for credit.

**MUEN5451 Schola Cantorum (Sp, Fa)** Vocal ensemble limited to the more experienced singers. Rehearsal 5 hours per week. Admission with director's approval. May be repeated for credit.

**MUEN5461 Wind Symphony (Sp, Fa)** Rehearsal 3 to 5 hours per week. Admission by audition and approval of the conductor. Corequisite: MUEN 5460L. May be repeated for credit.

**MUEN5471 Jazz Performance Laboratory (Sp, Fa)** Training in the various styles of jazz and popular music. Rehearsal 3 hours per week. Admission by audition. May be repeated for credit.

**MUEN5481 Campus Band (Sp)** Rehearsal 3 hours per week. Admission by audition and approval of the conductor. May be repeated for credit.

**MUEN5501 Chamber Music (Sp, Su, Fa)** Performance of small ensemble music for any combination of instruments and/or voice. Rehearsal 3 hours per week. May be repeated for credit.

**MUEN5511 Symphonic Band (Sp)** Rehearsal 3 hours per week. Admission by audition and approval of the conductor. May be repeated for credit.

**MUEN5521 Woodwind Quintet (Sp, Fa)** Study and performance of music for woodwind quintet. Weekly coaching will emphasize intonation, blend, stylistic awareness, and ensemble precision. Repertoire ranges from the 18th to the 20th centuries. 3 hours of rehearsals weekly. May be repeated for credit.

**MUEN5541 Accompanying (Sp, Fa)** Piano accompanying of vocal and instrumental soloists. Rehearsal 2 hours per week. Prerequisite: MUAP 110. May be repeated for credit.

**MUEN5551 Percussion Ensemble (Sp, Su)** Study and performance of ensemble music for multiple percussion instruments. Rehearsal 2 hours per week. May be repeated for credit.

**MUEN5711 Flute Ensemble (Sp, Fa)** Study and performance of music for multiple flutes, including trios, quartets, quintets, and flute choir. Rehearsal 2 hours per week. May be repeated for credit.

**MUEN5721 Clarinet Ensemble (Sp, Fa)** Study and performance of music for multiple clarinets, including trios, quartets, quintets, and clarinet choir. Rehearsal 2 hours per week. May be repeated for credit.

**MUEN5751 Trumpet Ensemble (Sp, Fa)** Study and performance of music for multiple trumpets, including trios, quartets, quintets, and trumpet choir. Rehearsal 2 hours per week. May be repeated for credit.

**MUEN5771 Trombone Ensemble (Irregular)** Study and performance of music for multiple trombones, including trios, quartets, quintets, and trombone choir. Rehearsal 2 hours per week. May be repeated for credit.

**MUEN5781 Tuba Ensemble (Sp, Fa)** Study and performance of music for multiple combinations of tuba and euphonium, including trios, quartets, quintets, and low brass choir. Rehearsal 2 hours per week. May be repeated for credit.

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#### Music History (MUHS)

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**MUHS3703 History of Music to 1750 (Fa)** Survey of history of music in western culture from ancient Greece to 1750. Lecture 3 hours, listening/quiz laboratory 1 hour per week. Prerequisite: MLIT 1003 or MLIT 1003H; MUTH 2603; Music major pursuing a degree of Bachelor of Arts or Honors Bachelor of Arts or Bachelor of Music or Honors Bachelor of Music or Music minors or with instructor's consent.

**MUHS3713 History of Music from 1750 to Present (Sp)** Survey of the history of music in western culture from 1750 to present. Lecture 3 hours, listening/quiz laboratory 1 hour per week. Corequisite: Lab component. Prerequisite: MLIT 1003 or MLIT 1003H and MUTH 2603 and MUHS 3703; Music major pursuing a degree of Bachelor of Music or Honors Bachelor of Music or Music minors or with instructor's consent.

**MUHS398VH Honors Independent Studies (Sp, Su, Fa) (1-2)** Independent projects in music history and literature. One hour credit per semester. Open to undergraduates in honors. May be repeated for up to 2 hours of degree credit.

**MUHS4253 Special Topics in Music History (Sp, Fa)** Topics not covered in MUHS 3703 or 3713, including history of American music, world music, music of Russia, and others. Satisfactory completion of the term paper in this class will fulfill the Fulbright College writing requirement. Prerequisite: MUHS 3703 and MUHS 3713. May be repeated for credit.

**MUHS4623 Music History Review (Fa)** Review of the central data and concepts of music history, with emphasis on individual periods as needed by students enrolled. Credit in this course may not count toward the Master of Music or Master of Education degree.

**MUHS4703 Survey of String Literature (Irregular)** A survey of solo and chamber music literature involving stringed instruments. Prerequisite: MUAP 110 and MUTH 3613.

**MUHS4733 Survey of Symphonic Literature (Even years, Sp)** A survey of the symphonic literature from its beginning to the present.

**MUHS4763 Survey of Vocal Literature I (Even Years, Fa)** A survey of concert literature for the solo voice.

**MUHS4773 Survey of Vocal Literature II (Odd years, Sp)** A survey of concert literature for the solo voice. Prerequisite: MUHS 4763.

**MUHS4793 Band Literature (Irregular)** A study of literature written for performance by concert band, symphonic band, and wind ensemble, representative of the following five periods in Music History: Renaissance (1420-1600), Baroque (1600-1750), Classical (1750-1820), Romantic (1820-1900), and Contemporary (1900-present).

**MUHS4803 Survey of Keyboard Literature I (Odd years, Fa)** A survey of the piano works of outstanding composers. Prerequisite: MUAP 110V.

**MUHS4813 Survey of Keyboard Literature II (Irregular)** A survey of the piano works of outstanding composers. Prerequisite: MUHS 4803.

**MUHS489V Seminar in Music History (Irregular) (1-4)** Subject matter not covered in other courses. With permission, may be repeated for credit if topics are different.

**MUHS498V Senior Thesis (Sp, Su, Fa) (1-6)**

**MUHS5722 Directed Studies in Music Literature I (Sp, Su, Fa)** Research in music literature in the performance field of the individual student.

**MUHS5732 Directed Studies in Music Literature II (Sp, Su, Fa)** Research in music literature in the performance field of the individual student. Prerequisite: MUHS 5722.

**MUHS5753 Seminar in Medieval & Early Renaissance (Irregular)** Intensive studies in music of Western Europe from early Christian times through the 15th century.

**MUHS5773 Seminar in Music of the 18th Century (Irregular)** Intensive studies of late Baroque and Classical music.

**MUHS5783 Seminar in Music of the 19th Century (Odd years, Sp, Su)** Intensive studies in music of the 19th century.

**MUHS5793 Seminar in Music of the 20th Century (Even years, Fa)** Intensive studies in 20th century music.

**MUHS5903 Seminar in Musicology (Irregular)** Current problems, techniques, and approaches to the practice of musicology, including notation and editing problems. May be repeated for credit.

**MUHS5943 Seminar in Opera (Irregular)** Intensive studies in operatic literature.

**MUHS5952 Choral History and Literature I (Irregular)** Detailed study of choral history and literature from Gregorian chant to J.S. Bach.

**MUHS5962 Choral History and Literature II (Irregular)** Detailed study of choral history and literature from J.S. Bach to the present.

**MUHS5973 Seminar in Bibliography and Methods of Research (Fa)** A survey of the methods and materials of musical research, including bibliography, methods of analysis, and style in the presentation of research results. Open to graduate students and to juniors in Honors.

**MUHS600V Master's Thesis (Sp, Su, Fa) (1-6)**

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#### Music Pedagogy (MUPD)

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**MUPD3801 Conducting I (Fa)** A study of the elementary techniques of conducting instrumental and choral groups. Prerequisite: MUTH 2603.

**MUPD3811 Conducting II: Instrumental Music (Sp)** Continuation of study of the technique of conducting instrumental music groups. Prerequisite: MUPD 3801.

**MUPD3861 Conducting II: Vocal Music (Sp)** Continuation of study of conducting with emphasis on techniques of choral conducting. Prerequisite: MUPD 3801.

**MUPD3871 Reed-Making (Fa)** The making of reeds for oboe, bassoon, or clarinet, including the processing of cane from tubes. May be repeated for up to 2 hours of degree credit.

**MUPD477V Special Topics in Pedagogy (Irregular) (1-6)** Subject matter not covered in other sources. With permission, may be repeated for credit if topics are different.

**MUPD481V Conducting (Sp, Su, Fa) (1-4)** Private lessons of 1/2 hour, and one hour conducting laboratory each week. Development of skills in conducting symphony, opera, oratorio, ballet and band repertoire. May be repeated for credit.

**MUPD4863 Piano Pedagogy (Irregular)** Analytical study and discussion of the various approaches to piano pedagogy and its application in individual/class instruction. Involves demonstration of principles through actual teaching of beginning, intermediate and upper level students.

**MUPD499V Special Workshop in Music (Sp, Su, Fa) (1-2)** Presented by visiting master artist-teachers in various fields of music performance, teaching and composition. For this level it is expected that the prospective students are professionals in the given field seeking additional knowledge and insights

from acknowledged professionals. May be repeated for up to 2 hours of degree credit.

**MUPD5202 Voice Pedagogy I (Irregular)** Graduate-level study of the techniques and materials of teaching voice.

**MUPD582V Conducting (Sp, Su, Fa) (1-2)** Private lessons of 1/2 hour and 1 hour conducting laboratory each week. Development of skills in conducting symphony, choral, opera, oratorio, ballet, and band repertoire. May be repeated for up to 18 hours of degree credit.

**MUPD584V Opera Workshop Techniques (Sp, Su, Fa) (1-2)** A basic course in every phase of opera production, including staging, set design, music coaching, voice casting, and translation.

**MUPD586V Woodwind Techniques (Sp, Su, Fa) (1-2)** A continuation of the undergraduate courses in techniques and materials for elementary and secondary school music teaching. Prerequisite: One year of similar class instruction in the field on the undergraduate level.

**MUPD587V Brass Techniques (Su) (1-2)** A continuation of the undergraduate class brass instrument course. Emphasis is placed on teaching methods, techniques, concepts, and materials. Prerequisite: One year of similar class instruction in the field on the undergraduate level.

**MUPD599V Special Workshop in Music (Sp, Su, Fa) (1-6)** Presented by visiting master artist-teacher in various fields of music performance, teaching and composition. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

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#### Music (MUSC)

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**MUSC3923H Honors Colloquium in Music (Irregular)** Covers a special topic or issue offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in Music). May be repeated for up to 9 hours of degree credit.

**MUSC490VH Honors Essay (Irregular) (1-6)** An honors research paper in Music History or literature, Ethnomusicology, Music Theory, or Music Education. Open to seniors in honors.

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#### Ethnomusicology (MUSY)

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**MUSY4113 Pro-Seminar: Ethnomusicology (Irregular)** An introduction to ethnomusicological study, with readings and discussion of seminal writings in the field and practical experience in ethnomusicological analysis and description. (Same as MUSY 5113) May be repeated for up to 6 hours of degree credit.

**MUSY4113H Pro-Seminar: Honors Ethnomusicology (Irregular)** An introduction to ethnomusicological study, with readings and discussion of seminal writings in the field and practical experience in ethnomusicological analysis and description. May be repeated for up to 6 hours of degree credit.

**MUSY4313H Honors Special Topics in Asian and Middle Eastern Musics (Irregular)** Research seminars on selected topics in Asian and Middle Eastern Musics.

**MUSY477V Independent Research in Ethnomusicology (Irregular) (1-4)** Subject matter not covered in other courses. In-depth study of specialized topics in contemporary, historical, or systematic ethnomusicology, and practical instruction in essay-structuring and presentation. May be repeated for up to 4 hours of degree credit.

**MUSY477VH Honors Independent Research in Ethnomusicology (Irregular) (1-4)** Subject matter not covered in other courses. In depth study of specialized topics in contemporary, historical, or systematic ethnomusicology, and practical instruction in essay-structuring and presentation. May be repeated for up to 4 hours of degree credit.

**MUSY5113 Proseminar: Ethnomusicology (Irregular)** An introduction to ethnomusicological study, with readings and discussion of seminal writings in the field and practical experience in ethnomusicological analysis and description. (Same as MUSY 4113) May be repeated for up to 6 hours of degree credit.

**MUSY5313 Proseminar: Topics in Asian and Middle Eastern Musics (Irregular)** Research seminars on selected topics, such as The Performing Arts in East Asia; and Music and Ritual. May be repeated for up to 6 hours of degree credit.

**MUSY5323 Seminar: Topics in Asian and Middle Eastern Poetry and Music (Irregular)** Reading seminars on selected topics, such as Poetry and Music in Persian, Arabic and Turkish Cultures of the Islamic World; and Poetry and Song in Early East Asia. May be repeated for up to 6 hours of degree credit.

**MUSY5343 Seminar: Special Topics in Traditional Musics and Dance of Europe and the Americas (Irregular)** Topics not covered in MUSY 5223 and MUSY 5423, including, but

not limited to: European Folk Music; the musical or scholarly legacy of a particular figure.

**MUSY5413 Proseminar: Cross-cultural Performance Practices (Irregular)** A survey of performance practices from historic western art music through modern non-western music. An introductory course with readings from seventeenth- and eighteenth-century performance treatises as well as a study of written and aural traditions of non-western music.

**MUSY6333 Advanced Studies in Ethnomusicology (Irregular)** Advanced level studies, individually tailored and supervised, including Ethnomusicology (prerequisite MUSY 5113 or MUSY 5213); The Music or Dance of a Selected Area (prerequisite at least one of MUSY 5313, MUSY 5323, MUSY 5423, MUSY 5223, MUSY 5343, or HUMN 4243); Historic Performance Practices (prerequisite MUSY 5413); Historical East Asian Musicology (prerequisite MUSY 5313 or MUSY 5323); and Historical Central Asian or Middle- and Near-Eastern Musicology (prerequisite MUSY 5313 or MUSY 5323).

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Music Theory (MUTH)

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**MUTH1003 Basic Musicianship (Su)** Introductory-level studies in music theory and aural perception for students not prepared for MUTH 1603 or MUTH 1621. Meets 4 days per week.

**MUTH1603 Music Theory I (Sp)** A study of diatonic harmonic practice. Includes part-writing and analysis. Prerequisite: MUTH 1003 or permission of instructor.

**MUTH1621 Aural Perception I (Sp)** Development of aural perception through ear training, sight singing, and keyboard harmony. Meets 2 hours per week.

**MUTH1631 Aural Perception II (Fa)** Continued development of aural perception through ear training, sight singing, and keyboard harmony. Meets 2 hours per week. Prerequisite: MUTH 1621.

**MUTH164V Composition I (Sp, Su, Fa) (1-4)** Private lessons of one-half hour, and one hour of composition laboratory session each week. Development of skills in creative musical expression. Specifically for composition-theory majors. Others admitted by consent. Prerequisite: Music theory or composition major. May be repeated for up to 8 hours of degree credit.

**MUTH2603 Music Theory II (Fa)** A continuation of MUTH 1603. Also includes chromatic harmony. Prerequisite: MUTH 1603. (Same as MUTH 3603)

**MUTH2621 Aural Perception III (Sp)** A continuation of MUTH 1631. Two hours per week, one hour credit. Prerequisite: MUTH 1631.

**MUTH2631 Aural Perception IV (Fa)** A continuation of MUTH 2621. Two hours per week, one hour credit. Prerequisite: MUTH 2621.

**MUTH264V Composition II (Sp, Su, Fa) (1-4)** Continuation of Composition I. Private lessons of one-half hour, and one hour of composition laboratory session per credit hour each week. Continued development of skills in creative musical expression. Specifically for composition-theory majors. Others admitted by consent. Prerequisite: Two semesters of MUTH 164V with grades of "B" and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUTH3603 18th Century Counterpoint (Sp)** A study of 18th century counterpoint. Writing and analysis of inventions, canons, fugues, etc. Three hours per week. Prerequisite: MUTH 2603. (Same as MUTH 2603)

**MUTH3613 Form and 20th Century Techniques (Fa)** A study of the harmonic and melodic trends of the 20th century. Three hours per week. Prerequisite: MUTH 2603.

**MUTH364V Composition III (Sp, Su, Fa) (1-4)** Continuation of Composition II. Private lessons of one-half hour, and one hour of composition laboratory session per credit hour each week. Continued development of advanced skills in creative musical expression. Specifically for composition-theory majors. Others admitted by consent. Prerequisite: Two semesters of MUTH 264V with grades of B and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUTH364VH Honors Composition III (Sp, Su, Fa) (1-4)** Continuation of Composition III for honors students. Private lessons of one-half hour, and one hour of composition laboratory session per credit hour each week. Continued development of advanced skills in creative musical expression. Specifically for honors composition-theory majors. Prerequisite: Two semesters of MUTH 264V with grades of "B" and recommendation of instructor; honors standing. May be repeated for up to 8 hours of degree credit.

**MUTH4322 Score Reading (Irregular)** A conductor's approach to the technique of score reading and analysis of orchestra, band, and choral scores for the purpose of preparing composition for rehearsal and performance.

**MUTH4612 Orchestration (Sp)** A continuation of study of the

capabilities of the various orchestral and band instruments and their use in arrangement for ensembles, band, and orchestra. Scoring for orchestra. Prerequisite: MUTH 3613.

**MUTH462V Music Theory Review (Su, Fa) (1-3)** A continuation and intensification of undergraduate music theory. (May not count for credit toward the Master of Music degree.)

**MUTH464V Composition IV (Sp, Su, Fa) (1-4)** Continuation of Composition III. Private lessons of one-half hour and one hour of composition laboratory session per credit hour each week. Continued development of advanced skills in creative musical expression. Specifically for composition-theory majors. Others admitted by consent. Prerequisite: Two semesters of MUTH 364V with grades of "B" and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUTH464VH Honors Composition IV (Sp, Su, Fa) (1-4)** Continuation of Composition III. Private lessons of one-half hour and one hour of composition laboratory session per credit hour each week. Continued development of advanced skills in creative musical expression. Specifically for composition-theory majors. Others admitted by consent. Prerequisite: Two semesters of MUTH 364V with grades of B and recommendation of instructor. May be repeated for up to 8 hours of degree credit.

**MUTH4703 Writing Music Analysis (Sp)** Analysis of music with an emphasis on analytical writing skills and the use of library source materials.

**MUTH477V Special Topics in Music Theory (Irregular) (1-4)** Subject matter not covered in other courses. May be repeated for up to 4 hours of degree credit.

**MUTH477VH Honors Special Topics in Music Theory (Irregular) (1-4)** Subject matter not covered in other courses. May be repeated for up to 4 hours of degree credit.

**MUTH4923H Honors Colloquium in Music Theory (Irregular)** Covers a special topic or issue, offered as part of the honors program.

**MUTH498V Senior Thesis (Sp, Su, Fa) (1-18)**

**MUTH5343 Analytical Techniques (Irregular)** An intensive study of selected works from music literature. Schenkerian analysis, rhythmic analysis, and set theory analytical techniques will be studied and employed in addition to traditional harmonic and formal analysis. Prerequisite: MUTH 3613 or equivalent and graduate standing.

**MUTH5623 Pedagogy of Theory (Irregular)** Detailed study of methods of teaching undergraduates courses in music theory and aural perception. Prerequisite: Graduate standing.

**MUTH5631 Music Theory Teaching Practicum (Irregular)** Supervised teaching of an undergraduate course in music theory or aural perception, including lesson plan and examination preparation and in-class observation.

**MUTH5643 Analysis of 20th Century Music (Irregular)** Study of 20th century music and analytic techniques including pitch class set theory and serial techniques. Prerequisite: Graduate standing.

**MUTH5662 Instrumental Arranging (Su)** A practical course in arranging for the various small ensembles including keyboard. Review of instrumental ranges and capabilities. Study of current trends in instrumental ranges and arranging.

**MUTH5672 Advanced Orchestration (Irregular)** A study of advanced principles of orchestral writing through individual projects in scoring and analysis. Prerequisite: MUTH 4612 or equivalent.

**MUTH568V Composition (Sp, Su, Fa) (1-4)** Private lessons of one-half hour, and one hour of composition laboratory session each week. Development of skills in creative musical expression specifically for composition-theory majors - others admitted by consent. Prerequisite: Graduate standing. May be repeated for credit.

**MUTH599V Independent Study in Music Theory (Irregular) (1-6)** Provides students with an opportunity to pursue special study of topics in music theory. May be repeated for up to 12 hours of degree credit.

**MUTH600V Master's Thesis (Sp, Su, Fa) (1-6)**

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Nursing (NURS)

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**NURS2012 Nursing Informatics (Sp, Su, Fa)** This course focuses on how information technology is used in the health care system. The course describes how nursing informatics is currently being used by healthcare professionals and speculates about future applications. Prerequisite: For pre-nursing and nursing majors only. Must have sophomore standing or above and a GPA of 3.0 or above.

**NURS2022 Introduction to Professional Nursing Concepts (Sp, Su, Fa)** The course presents an overview of theories, principles and concepts essential to professional nursing practice. It includes ethical and legal implications relevant to

health care systems. Focus is on the nursing process as the organizing framework for the delivery of care. It also explores the role of the professional nurse. This is a pre-nursing course. Prerequisite: For pre-nursing and nursing majors only. Must have sophomore standing or above and a GPA of 3.0 or above.

**NURS2032 Therapeutic and Interpersonal Communication (Sp, Su, Fa)** Focuses on intrapersonal and interpersonal strategies necessary for effective nurse-client interactions. Introduces a variety of communication techniques skills including group process and dynamics. This is a pre-nursing course. Prerequisite: For pre-nursing and nursing majors only. Must have sophomore standing or above and a GPA of 3.0 and above.

**NURS217V Independent Study in Nursing (Sp, Su, Fa) (1-2)** A selected learning experience in nursing to enhance knowledge about and/or practice in the profession. Objectives and experiences are designed on an individual basis with a faculty adviser. May be repeated for up to 12 hours of degree credit.

**NURS217VH Honors Independent Study in Nursing (Irregular) (1-2)** A selected learning experience in nursing to exchange knowledge about and/or practice in the profession. Objectives and experiences are designed on an individual basis with a faculty adviser.

**NURS3171 Independent Study Nursing (Irregular)** A structured learning experience in nursing to improve knowledge of the science in nursing. Objectives and experiences are designed on an individual basis with a faculty adviser. May be taken with any 3500 level nursing course or above. May be repeated for up to 7 hours of degree credit.

**NURS3313 Pharmacology in Nursing (Fa)** The use of therapeutic drugs in health care is the focus of the course. Nursing assessment, safety measures and client education related to drug therapy are emphasized. This is a Level I course. Prerequisite: Admission into the BSN professional program.

**NURS3314 Pathophysiology (Sp, Fa)** The course focuses on underlying concepts common to pathophysiologic processes across the life span. Factors that contribute to altered physiological functioning and the body's adaptive and compensatory mechanisms are studied. Emphasizes concepts essential for understanding the rationale for preventive and therapeutic nursing interventions in health and illness. This is a Level I course. Prerequisite: Admission into BSN professional program.

**NURS3314H Honors Pathophysiology (Sp, Fa)** The course focuses on underlying concepts common to pathophysiologic processes across the life span. Factors that contribute to altered physiological functioning and the body's adaptive and compensatory mechanisms are studied. Emphasizes understanding the rationale for preventive and therapeutic nursing interventions in health and illness. This is a Level I course. Prerequisite: Admission into BSN professional program.

**NURS3321L Health Assessment (Fa)** The course focuses on assessment of client's health status, environment, nursing care needs, and referral needs. The course presents concepts and skills necessary to perform a holistic health assessment of the adult client. This is a Level I course. Prerequisite: Admission to the BSN professional program.

**NURS3402 Nursing Concepts: Older Adult (Sp, Fa)** This course focuses on gerontologic theories, concepts, and principles as they relate to nursing care of older adults. Students explore socio-cultural context of gerontologic nursing, professional standards of practice, common health concerns, and future considerations. This is a Level I course. Prerequisite: Admission into the BSN Professional Program of Studies.

**NURS3422 Nursing Concepts: Foundations of Professional Practice (Fa)** Introduction to the nursing process and the scope of basic human needs. The student learns to use nursing diagnoses and care plans in case studies. This is a Level I course. Corequisite: NURS 3423. Prerequisite: Admission to BSN professional program.

**NURS3424 Professional Role Implementation I: Caregiver (Fa)** Students apply basic nursing concepts and skills in laboratory and clinical settings. Emphasis is on the role of nurse as caregiver and use of the nursing process in the delivery of care. This is a Level I course. Pre- or Corequisite: NURS 3422, NURS 3321L, and NURS 3313. Prerequisite: Admission to the BSN program.

**NURS3634 Nursing Concepts: Adult Health and Illness I (Sp, Fa)** Focuses on the adult population experiencing acute problems in the health-illness continuum. Utilizing the nursing process, nursing, and medical treatments of selected conditions that will be emphasized in the acute care setting. This is a Level I course. Corequisite: NURS 3644. Prerequisite: NURS 3313, 3314, 3321L, 3402, and 3422.

**NURS3644 Professional Role Implementation II: Caregiver**



**(Sp, Fa)** Emphasizes the role of caregiver in acute care settings. Course expands on assessment and includes advanced clinical skills. Emphasizes the use of clinical judgment to promote optimal health for adults experiencing illness and/or undergoing surgery. This is a Level I course. Pre- or Corequisite: NURS 3634. Prerequisite: NURS 3313, 3314, 3321L, 3402, 3422, and 3424.

**NURS3742 Nursing Concepts: Mental Health and Illness (Sp, Fa)** Presents the basic concepts and theories of mental health and illness. Examines various therapeutic modalities in the care of clients experiencing mental health or psychosocial disorders. This is a Level I course. Corequisite: NURS 3752. Prerequisite: NURS 3313, 3314, 3321L, 3402, and 3422.

**NURS3752 Professional Role Implementation III: Caregiver (Sp, Fa)** Students work with clients who have mental health problems, observe group process in therapy sessions, and develop interpersonal communication skills. Students apply research-based knowledge in assisting assigned clients to meet mental and other health care needs. The caregiver role is emphasized. This is a Level I course. Pre- or Corequisite: NURS 3742. Prerequisite: NURS 3313, 3314, 3321L, 3402, 3422, and 3424.

**NURS3842 Research in Nursing (Sp, Fa)** Introduction to the research process through a comparative analysis of selected studies exemplifying various theoretical, methodological and analytical approaches. Students acquire the basic competencies to critically read, evaluate and interpret nursing research studies for use in professional nursing practice. This is a Level I course.

**NURS4003 Transition to Professional Nursing Practice (Fa)** The course introduces the RN student to the standards and concepts of professional nursing based on the Essentials of Baccalaureate for Professions Nursing Education. Prerequisite: Admission to the RN-BSN program.

**NURS4013 Informatics for the Professional Nurse (Su)** This course focuses on how information technology is used in the health care system. The course describes how nursing informatics is currently being used by healthcare professionals, and speculates about future applications. Prerequisite: Admission into the RN-BSN program.

**NURS4112 Nursing Concepts: Teaching and Health Promotion (Sp, Fa)** The course focuses on teaching/learning and the professional nurse's role in health promotion and disease prevention. A variety of health education and health promotion strategies are presented and evaluated. This is a Level II course. Prerequisite: Completion of Level I courses.

**NURS4154 Nursing Concepts: Children and Family (Sp, Fa)** This course provides theory and research-based knowledge regarding holistic nursing care of children and families. Principles of health promotion and health education for expanding families are integral to this course. This is a Level II course. Corequisite: NURS 4164. Prerequisite: Completion of Level I courses.

**NURS4164 Professional Role Implementation IV: Teacher (Sp, Fa)** Clinical and laboratory experience for application of research-based knowledge and skills in the nursing care of children and families. Emphasis is on teaching role of the nurse. This is a Level II course. Pre- or Corequisite: NURS 4154. Prerequisite: Completion of Level I courses.

**NURS4203 Leading and Managing in Healthcare Micro-environments (Fa)** This course introduces theories and principles of management and leadership and the professional nurse's role within the health care system. Social issues, economic policy, and regulatory requirements are used to explore healthcare delivery systems and access, quality improvement, and patient safety. This course includes strategies for monitoring delivery of care, outcomes, and evaluating program effectiveness. Prerequisite: Admission into the RN-BSN program.

**NURS4242 Management in Nursing (Sp, Fa)** Introduces principles of management and the professional nurse's roles in the health care system. Considers the perspectives of management, organization, and change theory. Includes strategies for monitoring delivery of care, outcomes and evaluating program effectiveness. This is a Level II course.

**NURS4252 Professional Role Implementation V: Manager (Sp, Fa)** Students will apply the theoretical principles learned in NURS 4242 and NURS 4262 to the delivery of care to adults with chronic conditions across transitions of care settings. The manager will be emphasized. This is a Level II course. Prerequisite: Completion of Level I courses. Pre- or Corequisite: NURS 4242 and 4262.

**NURS4262 Nursing Concepts: Adult Health and Illness II (Sp, Fa)** Focuses on the adult population experiencing chronic problems in the health-illness continuum. Utilizing the nursing process, nursing and medical treatment of selected conditions will be emphasized across transitional care settings. This is a

Level II course. Prerequisite: Level I courses.

**NURS4323 Health Assessment and Clinical Reasoning for Professional Nurses (Sp)** This 3-credit theory course builds on the Registered Nurse's clinical experience and knowledge of health assessment. Emphasis is placed on expanding physical assessment skills, interpreting abnormal findings, and applying the principles of evidence-based practice to the health assessment process. The role of documentation of health assessment in third party reimbursement is also explored. Prerequisite: Admission to the RN-BSN program.

**NURS4442 Nursing Concepts: Critical Care (Sp, Fa)** Focuses on the adult population experiencing multiple or critical illnesses or conditions necessitating admission to a critical care unit. The course emphasizes both nursing and medical treatment of selected conditions. This is a Level II course. Corequisite: NURS 4452. Prerequisite: Completion of Level I courses and NURS 4112, 4154, 4164, 4242, 4252, and 4262.

**NURS4452 Professional Role Implementation VI: Role Synthesis (Sp, Fa)** Clinical learning is focused on further developing and refining the knowledge, skills, and attitudes necessary to manage the care of an acutely ill or complex patient and/or family within the context of an inter-professional team. This is a Level II course. Prerequisite or Corequisite: NURS 4442. Prerequisite: Completion of Level I and NURS 4112, 4154, 4164, 4242, 4252, and 4262.

**NURS4603 Nursing Concepts: Community (Sp, Fa)** The course focuses on theories and concepts in community health nursing. Health resources are explored in a variety of settings. This is a Level II course. Corequisite: NURS 4613. Prerequisite: Completion of Level I courses and NURS 4112, NURS 4154, NURS 4164, NURS 4242, NURS 4252, and NURS 4262.

**NURS4613 Professional Role Implementation VII: Role Synthesis (Sp, Fa)** Application of community health concepts and the nursing process to promote community health and to restore health in a variety of settings. This is a Level II course. Pre- or Corequisite: NURS 4603. Prerequisite: Completion of Level I courses and NURS 4112, 4154, 4164, 4242, 4252, 4262.

**NURS4701 Professional Nursing Synthesis (Sp, Su, Fa)** The course emphasizes reflection, integration, and synthesis of concepts from previous courses. Course enrollment occurs in the last semester of the program. Prerequisite: Admission into the RN-BSN program.

**NURS4712 Seminar in Nursing (Sp, Fa)** Focuses on integrating the nursing caregiver, teacher and manager roles. Prepares students to analyze practice issues, trends and future demands. Explores the roles of baccalaureate prepared professional nurses and facilitates students to incorporate those roles as they enter professional practice. Must be taken in the final semester of the Professional Program of Study. This is a Level II course. Corequisite: NURS 4722. Prerequisite: Completion of Level I courses and NURS 4112, NURS 4154, NURS 4164, NURS 4242, NURS 4252, and NURS 4262.

**NURS4722 Professional Role Implementation VIII: Role Synthesis (Sp, Fa)** Clinical immersion experience that approximates the role of a beginning BSN nurse generalist. Corequisite: NURS 4712. Prerequisite: Completion of Level I courses and NURS 4112, 4154, 4164, 4242, 4252, 4262. To be taken in final semester of the Professional Program of Study.

**NURS481V Special Topics in Nursing (Irregular) (1-6)** This course is the study of a special topic(s) in nursing. Content varies. May be repeated for up to 6 hours of degree credit.

**NURS481VH Honors Special Topics in Nursing (Irregular) (1-6)** This course is the study of a special topic(s) in nursing. Content varies. May be repeated for up to 6 hours of degree credit.

**NURS491V Independent Study in Nursing (Sp, Su, Fa) (1-6)** A selected learning experience in nursing to enhance knowledge and/or practice of the profession. Objectives and experiences are designed on an individual basis with a faculty adviser. May be taken with any 3500-level nursing course or above.

**NURS491VH Honors Independent Study in Nursing (Irregular) (1-6)** A selected learning experience in nursing to enhance knowledge and/or practice of the profession. Objectives and experiences are designed on an individual basis with a faculty adviser. May be taken with any 3500-level nursing course or above.

**NURS5003 Theoretical Foundations in Nursing (Fa)** The course utilizes the critical reasoning process to examine the element of nursing knowledge. Emphasis is placed on concept analysis and the evaluation of nursing theories. Identification of the links between theory and empirical indicators is examined. The clinical relevance of mid-range and practice theories is explored.

**NURS5033 Role Development of the Advanced Practice Clinical Nurse Specialist (Fa)** The study of role development of the Advanced Practice Nurse with specific emphasis on the role of the Clinical Nurse Specialist (CNS). Concepts include role development, interdisciplinary communication and collaborative strategies, patient advocacy and serving as change agent for role implementation. Pre- or Corequisite: NURS 5003.

**NURS5043 Advanced Concepts in Health Promotion with Diverse Populations (Fa)** Provides a theoretical base for health promotion, risk reduction and disease prevention at the individual, family and community levels. A cross-disciplinary approach to achieve or preserve health is identified. Focuses on holistic plans and interventions that address the behavioral and social factors that contribute to morbidity and mortality in diverse populations. Provides opportunity to develop, implement, and evaluate health promotion interventions for selected clients.

**NURS5053 Evidence-Based Practice and Innovation in Nursing (Sp)** This course focuses on developing evidence-based practice and innovation in nursing. Models and strategies for leadership in evidence-based practice and innovation, outcomes management, and translational scholarship will be examined.

**NURS5063 Health Care Policy (Su)** The course provides the concepts of the political process, health care policy, advocacy, leadership skills, legislative and regulatory issues, health care financing, designing and implementing health care policies and evaluating outcomes. Access, cost, and quality of health care will be a major focus of the course. Prerequisite: Admission to the graduate program or by permission of the instructor.

**NURS5102 Advanced Health Assessment (Sp)** Application of advanced health assessment techniques with adults within the context of the family and community. Differentiate abnormal from normal findings, interpret diagnostic tests, and use clinical reasoning to formulate diagnoses for culturally diverse individuals. Emphasis on health promotion and disease prevention. Corequisite: NURS 5111.

**NURS5111 Clinical Practicum: Advanced Health Assessment (Sp)** Clinical practicum companion course for NURS 5102: Advanced Health Assessment. Opportunities to conduct health assessments on a variety of clients. Corequisite: NURS 5102.

**NURS5123 Advanced Pharmacology (Su)** Advanced concepts and application of pharmacotherapeutic and pharmacokinetics of broad categories of agents used for disease management of individuals. Provides the student with the knowledge and skills to manage (including the prescription of pharmacologic agents) a client's common health problems in a safe, high quality, cost-effective manner.

**NURS5143 Advanced Pathophysiology (Sp)** This course is designed for nurses experienced in the management of pathophysiological disorders. It includes mechanisms of disease, the immune response and selected system based disorders.

**NURS5212 Advanced Medical-Surgical Nursing I (Fa)** Focuses on utilization of advanced theories, concepts, knowledge and skill in the care of diverse adult populations with complex acute health problems. Prerequisite: All core courses.

**NURS5225 Clinical Practicum: Advanced Medical-Surgical Nursing I (Fa)** Clinical practicum for NURS 5212. Application of advanced theories, concepts, knowledge and skill in the care of diverse adult populations with complex acute health problems. Corequisite: NURS 5212. Prerequisite: All core courses.

**NURS5232 Advanced Medical-Surgical Nursing II (Sp)** Focuses on utilization of advanced theories, concepts, knowledge and skill in the care of diverse adult populations with complex chronic health problems. Corequisite: NURS 5245. Prerequisite: All core courses.

**NURS5245 Clinical Practicum: Advanced Medical-Surgical Nursing II (Sp)** Clinical practicum for NURS 5232. Application of advanced theories, concepts, knowledge and skill in the care of adults with chronic health problems. Corequisite: NURS 5232. Prerequisite: All core courses.

**NURS5303 Foundations of Nursing Education (Fa)** Considers the principles, philosophies, theories, and strategies of teaching, learning, and evaluation needed in nursing education.

**NURS5313 Curriculum and Evaluation in Nursing Education (Su)** Considers knowledge and skills needed for curriculum and program development and evaluation for a variety of nursing education settings.

**NURS5323 Teaching in Nursing Practicum (Fa)** Supervised experience in the nurse educator role in both classroom and clinical settings.

**NURS5343 Independent Study: Specialty Development I**

**(Sp)** This course will include two foci. There will be readings focused on current topics in a specialty area. A focused field experience will allow student to integrate knowledge and skills in a specialty area of nursing in preparation for the nurse educator role.

**NURS5353 Independent Study: Specialty Development II (Fa)** Building on the Independent Study: Specialty Development I, this course will include two foci. There will be readings focused on current topics in a specialty area. A focused field experience will allow student to integrate knowledge and skills in a specialty area of nursing in preparation for the nurse educator role. Prerequisite: NURS 5343.

**NURS579V Independent Study (Sp, Su, Fa) (1-3)** Independent study designed by student with faculty advisor. May be completed as alternative to thesis.

**NURRS599V Seminar (Irregular) (1-3)** Selected topics in nursing explored in discussion format.

**NURS600V Master's Thesis (Sp, Su, Fa) (1-3)** Student research to fulfill degree requirement for the MSN. Prerequisite: NURS 5013 and NURS 5023.

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Operations Management (OMGT)

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**OMGT4303 Industrial Safety and Health Administration (Irregular)** Based on Federal Regulations for Occupational Safety and Health, the course examines current regulations, as well as their commonsense application. Covers various standards, such as those for material handling, personal protective equipment, toxic substances, and machine guarding. Uses case studies and real world scenarios to present topics and demonstrate their application.

**OMGT4313 Law and Ethics (Sp, Su, Fa)** Analysis of the fundamental legal principles applicable in protecting the rights and interests of individuals and organizations; court systems and litigation processes; constitutional law and legislation, formation and discharge of contracts; agency relationships; torts; labor laws; patents; trademarks; copyrights; unfair competition; ethics; professional relations. Not for graduate credit.

**OMGT4323 Industrial Cost Analysis (Sp, Su, Fa)** Use of accounting information for planning and control from a management viewpoint; principles of cost accounting and other aspects of production costs; budgeting, depreciation, taxes, distribution of profits, securities, sources of corporate capital, and interpretation of financial statements. Not for graduate credit.

**OMGT4333 Applied Statistics (Sp, Su, Fa)** Fundamentals of probability and distribution theory with applications in managerial decision making. Descriptive methods, probability distributions, sampling distributions and hypothesis testing are included. Not for graduate credit.

**OMGT4613 Lean Production and Inventory Control (Irregular)** Defines analytical methods used to support inventory replenishment for the production of goods and services. Operational problems of production systems are examined, including objective/subjective forecasting methods, aggregate planning of work force and production under seasonal demand; and inventory models of EOQ for known and unknown demand. Supply chain management and lean manufacturing concepts are also discussed. Prerequisite: OMGT 4333 and OMGT 5003.

**OMGT4623 Strategic Management (Irregular)** Examines strategic management, which is defined as the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its long-term objectives. Principles of strategic management will be covered in conjunction with case studies to provide opportunity for analysis and experience in applying these principles in an operations management environment. Required course (may be substituted by OMGT 5873).

**OMGT4783 Project Management for Operations Managers (Irregular)** An introduction to the Critical Path Method and Program Evaluation and Review Technique. Covers project planning and control methods; activity sequencing; time-cost trade-offs; allocation of manpower and equipment resources; scheduling activities and computer systems for PERT/CPM with emphasis on MS project. Case studies include topical issues combining methodologies and project management soft skills, such as conflict management, negotiation, presentations to stakeholders, and team building. Required course.

**OMGT4853 Data Processing Systems (Irregular)** Fundamentals of computers and data processing. Computer hardware and software. Spreadsheet and presentation methods and applications. Introduction to database concepts and applications.

**OMGT4873 Principles of Operations Research (Irregular)** Surveys the mathematical models used to design and analyze operational systems. Includes linear programming models, waiting line models, computer simulation models, and man-

agement science. Students will be introduced to applications of operations research and solution methods, using spreadsheet software. Prerequisite: OMGT 4333.

**OMGT5003 Introduction to Operations Management (Sp, Su, Fa)** Provides an overview of the functional activities necessary for the creation/delivery of goods and services. Topics covered include: productivity; strategy in a global business environment; project management; quality management; location and layout strategies; human resources management; supply chain and inventory management; material requirements planning; JIT; maintenance and reliability; and other subjects relevant to the field. Required course.

**OMGT5013 Supply Chain Management for Operations Managers (Irregular)** Focuses on the development and application of decision models in supply chains with emphasis on supply chain performance, cost, and metrics; demand forecasting; aggregate planning; inventory management; supply chain design and distribution; transportation modeling and analysis; supply chain coordination; the role of information technology; and sourcing decisions. Spreadsheet tools and techniques will be used to analyze supply chain performance. Prerequisite: OMGT 4333 and OMGT 5003.

**OMGT5113 Human Resource Management (Irregular)** A review of Human Resources Management functions as they apply in today's business setting with specific emphasis on regulatory compliance, total rewards systems, recruitment, training, and employment practices. The course is designed both for HRM professionals and for line managers/professionals who need to understand the roles and responsibilities of HR as a business partner.

**OMGT5123 Finance for Operations Managers (Irregular)** Examines the scope and environment of finance for operations managers. Topics include financial markets, interest rates, financial statements, cash flows, and performance evaluation. Valuation of financial assets, using time value of money; the meaning and measurement of risk/return; capital-budgeting, cost of capital, capital structure, dividend policy, and working capital management are also covered. Required course (may substitute OMGT 5463). Prerequisite: OMGT 4323.

**OMGT5133 Operations Management in the Service Sector (Irregular)** Review of the role of the operations management in the service sector, e.g., health care systems, banking, municipal services, utilities, and postal service and others. Emphasizes the principles and methodologies applicable to the solution of problems within the service industries. Prerequisite: Graduate standing.

**OMGT5143 Strategic Issues in Human Resource Management (Irregular)** Explores the concept of Strategic Human Resource Management with emphasis on effective partnering by various HR functions with all levels of management to support the large-scale, long-range goals of achieving success in the organization's chosen markets. Internal and external impacts on and of HR in all areas will be examined. Students will analyze case studies to build on basic concepts acquired in OMGT 5113. Prerequisite: OMGT 5113 or consent.

**OMGT5223 Safety and Health Standards Research (Irregular)** For graduate students who seek Certified Professional or Certified Industrial Hygienist status, or both. Includes review and development of computer databases for standards, interpretations, court decisions, and field memoranda. Test equipment and procedures for determining indoor industrial aid containment PEL concentrations and industrial environment noise levels are examined. Prerequisite: INEG 4223 or OMGT 4303.

**OMGT5303 Health Care Policies and Issues (Irregular)** Explores health care management strategies and policy development with emphasis on health insurance, Medicare, Medicaid and managed care, as well as employee health benefits. The roles of government and business in policy formulation are addressed, as are the problems of financing health care, legal and ethical considerations, current healthcare issues, and quality measures.

**OMGT5373 Quality Management (Irregular)** Introduces students to quality management concepts and their use in enhancing organizational performance and profitability. History of the quality movement, its broad application in key economic sectors, and philosophical perspectives of major quality leaders will be discussed. Focus is on continuous process improvement, using data and information to guide organizational decision-making. The Six Sigma approach and associated statistical tools, supporting process improvement, are also covered. Prerequisite: OMGT 4333.

**OMGT5423 Operations Management & Global Competition (Sp)** Studies of principles and cases in business/industrial administration in global competition. Survey of markets, technologies, multi-national corporations, cultures, and customs. Discussion of ethics, professionalism, difference valu-

ing, human relations skills, and other topics relevant to global practice.

**OMGT5433 Cost Estimation Models (Irregular)** An examination of the methodologies for estimating and forecasting manufacturing costs. Types of cost recovery systems, work progress functions, product improvement curves, determination of hourly rates, parametric estimating systems, and the development of software for computer-assisted estimating systems. Prerequisite: INEG 3513 and INEG 3833. (Same as INEG 5433)

**OMGT5443 Decision Models (Irregular)** Focus on quantitative and qualitative decision models and techniques for technical and managerial problems. Emphasis on application and interpretation of results. Topics include decision trees, influence diagrams, weighting methods, value of information, Analytic Hierarchy Process, Bayes Theorem, Monte Carlo simulation, utility theory, risk analysis, group decision making and expert systems. Prerequisite: INEG 3313. (Same as INEG 5443)

**OMGT5463 Economic Decision Making (Irregular)** Principles of economic analysis with emphasis upon discounted cash flow criteria for decision-making. Comparison of criteria such as rate of return, annual cost, and present worth for the evaluation of investment alternatives. Required course (may be substituted by OMGT 5123). Prerequisite: OMGT 4323.

**OMGT5503 Maintenance Management (Irregular)** Principles and practices of maintenance department organization, prevention procedures, and typical equipment problems. Includes related topics such as plant protection, preventative and plant maintenance. Prerequisite: OMGT 4333.

**OMGT5633 Linkages among Technology, Economics and Societal Values (Irregular)** Addresses how macro-level change is influenced by the linkages among technology, economics and societal values. Three major course initiatives:

1) Developing a conceptual model for understanding how macro-level change has occurred over history; 2) Examining recorded history in order to develop a contextual appreciation for Society's current situation; and 3) Using statistical data to identify six overriding world trends that are likely to greatly impact society's goal of achieving sustainable prosperity and well being in the foreseeable future. Prerequisite: Graduate standing or instructor permission (Same as BENG 5633)

**OMGT5733 Human Behavior Analysis (Irregular)** Examination of the principal drivers of individual and group behavior in organizations with coverage of practical applications of concepts in organizational behavior for operations managers. In addition to group behavior and organizational processes, the course explores people management challenges that result from external pressures on stakeholders (e.g. competitive, economic, social, political, and regulatory impacts).

**OMGT577V Special Problems (Irregular) (1-3)** Application of previous course work knowledge to problems encountered in military base and civilian operations. Problems are proposed by students according to individual interests and needs. May be repeated for up to 3 hours of degree credit.

**OMGT5823 Information Technology for Operations Managers (Irregular)** Information Technology for the management and control of information systems and processes used in operations management. Topics covered include e-Business and e-Commerce Systems, Management Information Systems (MIS), Data Resource Management, Networking, Decision Support, Information Security, Enterprise and Global IT, and IT Strategies and Solutions for Operations Managers. Prerequisite: OMGT 4853.

**OMGT5833 Decision Support Application Development for Operations Management (Irregular)** Students will utilize Microsoft Excel and will write programming code in Visual Basic for Applications to develop custom solutions to challenging operations management problems. Emphasis will be placed on computing productivity in a spreadsheet-based setting to develop practical, useful decision support applications and computer programs to support operations management. Assumes basic knowledge of programming. Prerequisite: OMGT 4853.

**OMGT5873 Organization and Control (Irregular)** Provides an overview of fundamental management functions, including planning, organizing, staffing, directing and controlling. Organizational decision-making authority, structures, and controls are examined. Topics also include leadership, motivational techniques, ethical perspectives on decision-making and corporate social and environmental responsibility. Required course (may substitute OMGT 4623).

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Public Administration (PADM)

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**PADM5803 Quantitative Methods Analysis (Fa)** Data analysis techniques, including descriptive and inferential statistics

and packaged computer programs. Prerequisite: Graduate standing.

**PADM5813 Methods in Public Management Information (Fa)** Nature and use of public information systems. Includes: basic understanding of hardware, applications, network, and communication technologies, data and information; their use for data analysis and management, and decision support; discussion of technologies' societal impact, and security and ethical considerations. Prerequisite: Graduate standing.

**PADM5823 Grant Writing for the Social Sciences (Irregular)** This course will teach students the fundamentals of obtaining grants from local, state and federal agencies.

**PADM5833 Urban Planning (Fa)** Reviews the many forms, functions, and purposes of American cities. Covers basic planning theories, surveys the various sub-fields of planning, discusses trends in the planning field, and utilizes computer simulations.

**PADM584V Special Topics in Public Administration (Sp) (1-3)** Topic varies. Prerequisite: PLSC 5193. May be repeated for up to 6 hours of degree credit.

**PADM5853 Performance Measurement in the Public and Nonprofit Sectors (Su)** Provides a hands-on approach for measuring organizational performance and using performance information of decision making. Addresses components and key issues of performance measurement, such as steps in the measurement process, methods of data gathering, and analysis. Prerequisite: PLSC 5193.

**PADM5863 Issues in Public and Nonprofit Management (Sp)** Explores current developments and themes in the theory and practice of public and nonprofit management. Covers a range of contemporary issues in the field, such as managing collaborative networks, e-government, and managing for results. Emerging trends are intensively discussed at the juncture of theory and practice.

**PADM587V Professional Development (Sp, Su, Fa) (1-6)** Encompasses internships, professional projects if individual is employed full-time and not eligible for an internship, conference and workshop participation, and other activities conducive to the students development as a public service professional.

**PADM588V Directed Readings (Sp, Su, Fa) (1-3)** Prerequisite: Graduate standing.

**PADM589V Independent Research (Sp, Su, Fa) (1-3)** Prerequisite: Graduate standing.

Physical Education Activity (PEAC)

**PEAC1131 Beginning Swimming (Irregular)** Includes: essentials of water safety; basic strokes and techniques of swimming; and beginning diving.

**PEAC1221 Beginning Jogging (Sp, Fa)** Instruction and participation in jogging.

**PEAC1231 Beginning Bowling (Sp, Fa)** Instruction and participation in bowling.

**PEAC1241 Beginning Volleyball (Irregular)** Instruction and participation in volleyball.

**PEAC1251 Beginning Racquetball (Sp, Fa)** Instruction and participation in racquetball.

**PEAC1351 Beginning Golf (Sp, Fa)** Instruction and participation in golf.

**PEAC1391 Fitness Walking (Sp, Fa)** Instruction and participation in vigorous walking for cardiovascular development and improvement.

**PEAC1431 Beginning Tennis (Irregular)** Instruction and participation in tennis.

**PEAC1471 Beginning Badminton (Fa)** Instruction and participation in badminton.

**PEAC1621 Fitness Concepts (Sp, Fa)** Acquaints students with a basic knowledge, understanding, and value of physical activity as related to optimal wellness.

**PEAC1661 Weight Training (Sp, Fa)** Instruction and participation in weight training. May be repeated for credit.

**PEAC1801 Aerobic Dance I (Irregular)** The fundamentals of aerobic dance as a physical fitness program.

**PEAC1831 Beginning Scuba Diving (Sp, Fa)** Instruction and participation in scuba diving. Corequisite: Drill component.

**PEAC1901 Special Topics (Irregular)** Instruction and participation in specialized activity. May be repeated for up to 4 hours of degree credit.

**PEAC2241 Intermediate Volleyball (Irregular)** A continuation of the study and practice of volleyball fundamentals with emphasis on advanced skills and strategies. Prerequisite: PEAC 1241.

**PEAC2421 Intermediate Tumbling (Irregular)** The fundamentals of tumbling from basic rolls and balances to aerial movement and combinations. Prerequisite: PEAC 1401 and PEAC 1411.

Physical Education (PHED)

**PHED1003 The Physical Education Profession: An Overview (Sp, Fa)** An introduction to the teaching of physical education. May be repeated for credit. (Same as CATE 1001, CIED 1011)

**PHED2013 Teaching Progressions and Assessment of Basic Skills (Sp, Fa)** This course serves as an introduction to motor skill analysis. Emphasis is placed on teaching and task analysis of locomotor, non-locomotor, and manipulative skills.

**PHED2023 Teaching Progressions and Assessment of Advanced Skills (Sp, Fa)** This course is designed to teach the progression and analysis of motor and sport skills. Specific emphasis is on the commonalities of various motor skills that apply to various sport movements. Prerequisite: PHED 2013.

**PHED3001 Teaching Practicum (Sp, Fa)** P-12 Kinesiology majors serve as a teaching assistant with a local school physical education teacher. This course should be taken the semester before PHED 407V Internship. Prerequisite: Senior standing in KINS P-12 program and passing scores on all three parts of Praxis I submitted to instructor of record.

**PHED3002 Teaching and Leading Outdoor Recreation and Experiential Activities (Sp, Fa)** This course is designed to provide opportunities for the student to acquire the skills, teaching and leadership techniques associated with outdoor recreational and experiential learning activities, including camping, orienteering, cooperative activities, and experiential learning activities. Corequisite: PHED 3032. Prerequisite: PHED 1003 or KINS 1013, PHED 2013 and junior standing.

**PHED3022 Teaching Stunts and Tumbling (Sp, Fa)** Instructional strategies for teaching public school students stunts and tumbling skills. Corequisite: PHED 3043 Prerequisite: PHED 1003 or KINS 1013 and PHED 2013 and junior standing.

**PHED3032 Teaching Rhythms (Sp, Fa)** Designed to teach P-12 Physical Education majors how to perform, teach, develop and implement rhythmic activity. Corequisite: PHED 2002. Prerequisite: PHED 1003 or KINS 1013 and PHED 2013 and junior standing.

**PHED3043 Teaching Fitness (Sp, Fa)** Instructional strategies for teaching public school students about fitness concepts. Corequisite: PHED 3022. Prerequisite: PHED 2013 and junior standing.

**PHED3074 Secondary Physical Education (Sp, Fa)** Physical education instructional strategies and curriculum for secondary school. Prerequisite: PHED 1003 or KINS 1013, PHED 2013 and PHED 2023. Corequisite: PHED 3702. May be repeated for credit.

**PHED3203 Principles and Problems of Coaching (Su, Fa)** A focus on the various aspects of coaching the athletes in contemporary society through an examination of research findings related to factors affecting performance. Attention to be given to principles, problems and understanding essential to the management of athletic contests. Prerequisite: Junior standing.

**PHED3373 Elementary Physical Education (Sp, Su, Fa)** Program planning and techniques of teaching physical education activities to children; for early childhood, elementary and physical education teachers, supervisors, and principals. Prerequisite: Junior standing.

**PHED3702 Measurement Concepts In Kinesiology (Sp, Fa)** Measurement and assessment of physical education objectives. Corequisite: PHED 3074. May be repeated for credit.

**PHED3903 Physical Education for Special Populations (Sp, Fa)** Provides fundamental concepts and skills essential to physical education programming for handicapped students. Deals with definitions, handicapping conditions, developmental and remedial activities, games, and sports. Prerequisite: Junior standing.

**PHED4001 Coaching Practicum (Sp, Fa)** Designed for students who want to add the Coaching Endorsement to the state teaching license. Student serves as a coaching assistant with a local school, University or recreational sports team. Prerequisite: PHED 3203 and proof of current First Aid/CPR/AED certification submitted to instructor of record.

**PHED4023 Class Management (Sp, Fa)** This course is designed to provide opportunities for the student to acquire an understanding that emphasizes class management; and includes professional ethics, and school policies related to students, faculty, and programs. Corequisite: PHED 407V, PHED 4263, PHED 4731. Prerequisite: (1)Senior status in KINSBS P-12, (2)have a grade of "C" or better in all KINS/PHED Teacher Education classes: PHED 1003, 2013, 2023, 3001, 3002, 3022, 3032, 3043, 3074, 3203, 3373, 3702, 3903, KINS 3373 and 4413 (3) must have a cumulative grade point average of 2.5 or greater or a minimum 2.75 grade point average in KINS/PHED Teacher Education classes; Praxis I (all parts) passed,

completed or registered for Praxis II content knowledge exam and scores presented to the internship supervisor. May be repeated for credit.

**PHED407V Physical Education Teaching Internship (Sp, Fa) (1-9)** This internship involves supervised teaching experience in a P-12 setting. Students will be placed under the guidance of a mentor teacher at specific school sites within NW Arkansas. Internship will be done at both the elementary and secondary levels. Corequisite: PHED 4023, PHED 4263, PHED 4731. Prerequisite: Senior status in KINSBS P-12, (2) have a grade of "C" or better in all KINS/PHED Teacher Education classes; must have a cumulative grade point average of 2.5 or greater or a minimum 2.75 grade point average in KINS/PHED Teacher Education classes; Praxis I (all parts) passed, completed or registered for Praxis II content knowledge exam and scores presented to the internship supervisor.

**PHED4263 Professional Issues in Physical Education (Sp, Fa)** This course focuses on the contemporary issues surrounding effective teaching practices in physical education. Students gain experience critically reviewing issues relevant to the physical education teacher. Corequisite: PHED 407V, PHED 4023, and PHED 4731. Prerequisite: Senior in KINSBS P-12; & grade of "C" or better in all KINS/PHED Teacher Ed. courses; must have cumulative GPA of 2.5 or greater with a min. 2.75 GPA in Teacher Ed. courses, and Praxis I (all parts) passed, completed or registered for Praxis II content knowledge exam and scores presented to the internship supervisor.

**PHED4731 Senior Seminar (Sp, Fa)** This capstone class will cover special topics for the Kinesiology P-12 students in preparation for entry into the profession. In addition to specific topics, students will prepare their final portfolio and make a formal presentation. Corequisite: PHED 407V, PHED 4023, and PHED 4263. Prerequisite: Senior in KINSBS P-12; & grade of "C" or better in all KINS/PHED Teacher Ed. courses; must have cumulative GPA of 2.5 or greater with a min. 2.75 GPA in Teacher Ed. courses, and Praxis I (all parts) passed, completed or registered for Praxis II content knowledge exam and scores presented to the internship supervisor.

**PHED5233 Research on Teaching in Physical Education (Odd years, Fa)** A review of contemporary research literature informing effective teaching practices in physical education settings. Students gain experience in critically reviewing literature in physical education as well as related behavioral science, education, and humanities disciplines; emphasis is placed in incorporating research finding into personal teaching strategies.

**PHED5243 Sport Skill Assessment and Instructional Strategies (Odd years, Su)** The focus of this course is practical assessment techniques and instructional strategies in the area of sport and physical education activities.

**PHED5253 The Physical Education Curriculum (Even years, Fa)** Principles, problems, procedures, and the influence of educational philosophy on programs in physical education and their application in the construction of a course of study for a specific situation.

**PHED5273 Professional Issues in Physical Education and Sport (Even years, Fa)** A review of contemporary research literature informing effective teaching practices in physical education settings. Students gain experience in critically reviewing literature and discussing current issues.

**PHED5313 Risk Management in Physical Education & Athletics (Even years, Su)** This course is designed to provide opportunities for the student to acquire an understanding of how to reduce the risk of injuries and eliminate hazards that may contribute to injuries associated with physical education and athletics.

**PHED5413 Adapted Physical Education (Even years, Fa)** Methods, techniques and special groups of physical education for the atypical child.

**PHED5553 Scientific Principles of Movement and Performance (Odd years, Su)** This course focuses on theoretical information about sport biomechanics and movement principles, with practical applications to the physical education of coaching profession.

**PHED574V Internship (Sp, Fa) (1-6)**

**PHED6363 Supervision in Physical Education (Odd years, Fa)** The focus of this course is instructional supervision as a set of complex processes in which the supervisor works within accepted guidelines and functions to effectively supervise a teacher's pedagogical development. The Physical Education-Instructional Supervision (PEIS) Model will be used to help facilitate this process.

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 Philosophy (PHIL)
 

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**PHIL1003 Critical Reasoning: Discover, Deduction, and Intellectual Self-Defense (Irregular)** This is a practical, "hands-on" course in sound reasoning, critical thinking, and the careful evaluation of evidence and argument. The course will utilize a range of real-world sources (television, Internet, magazines, etc.) and will be informed in content and method by the psychology of human judgment.

**PHIL1503 Special Topics in Philosophy and Culture (Irregular)** Exploration of introductory-level special topics of an issue or issues in contemporary culture not otherwise covered in the philosophy curriculum.

**PHIL2003 Introduction to Philosophy (Sp, Su, Fa)** An examination of such basic philosophical topics as the existence of God, the nature of the human mind, the relationship between appearance and reality, the forms and limits of human knowledge, freedom of the will, and standards of right and wrong. Includes both historical and contemporary readings. (Same as PHIL 2003C)

**PHIL2003H Honors Introduction to Philosophy (Sp, Su, Fa)** An examination of such basic philosophical topics as the existence of God, the nature of the human mind, the relationship between appearance and reality, the forms and limits of human knowledge, freedom of the will, and standards of right and wrong. Includes both historical and contemporary readings.

**PHIL2003C Introduction to Philosophy (Sp, Fa)** An examination of such basic philosophical topics as the existence of God, the nature of the human mind, the relationship between appearance and reality, the forms and limits of human knowledge, freedom of the will, and standards of right and wrong. Includes both historical and contemporary readings. Corequisite: Drill component. (Same as PHIL 2003)

**PHIL2103 Introduction to Ethics (Sp, Su, Fa)** Basic concepts of moral philosophy, including historical and contemporary literature concerned with such issues as ethical relativism vs. objectivism, duty, happiness, freedom of the will and responsibility, facts and values, individual liberty and society. Application of theories to substantive questions.

**PHIL2203 Logic (Sp, Su, Fa)** Traditional and modern methods of deductive and inductive inference. Degree credit may not be earned for both PHIL 1203 and 2203.

**PHIL2303 Human Nature and the Meaning of Life (Irregular)** Examination of important views on human nature, the meaning of human existence, the value and significance of different human activities and projects, and on what philosophy, religion, art, and literature have to teach us on these topics. Reading may be drawn from a variety of philosophical, literary, and religious writings.

**PHIL2503 Philosophical Explorations (Irregular)** Explores topics in philosophy that are not currently covered in lower-level philosophy courses.

**PHIL3103 Ethics and the Professions (Sp, Su, Fa)** After a survey of the standard theories of moral obligation, justice, and rights, the course focuses on specific moral problems that arise within engineering, business, and the professions.

**PHIL3113 Environmental Ethics (Odd years, Sp)** The course addresses ethical questions about nature and the natural environment. Topics of discussion include anthropocentric and biocentric ethics, population control, obligations to future generations, animal rights, moral considerability, Leopold's land ethic, deep ecology, and ecofeminism.

**PHIL3203 Philosophy and the Christian Faith (Irregular)** This course will deal with philosophical issues that arise in Christian theology. Topics to be discussed may include the doctrines of the Incarnation, the Trinity, Atonement, and Hell, as well as the nature of God and the relationship between faith and reason.

**PHIL390V Readings (Sp, Su, Fa) (1-6)**

**PHIL3923H Honors Colloquium (Irregular)** Treats a special topic of issue offered as part of the honors program. Prerequisite: honors candidacy (not restricted to candidacy in philosophy). May be repeated for credit.

**PHIL3933 Special Studies (Irregular)** A course (not independent study) which covers a topic or a philosopher not usually presented in depth in regular courses. May be repeated for credit.

**PHIL3943 Philosophy and Physics (Irregular)** Examination of the metaphysical and epistemological implications of specific physical theories with an emphasis on twentieth-century physics. Topics covered may include the nature of space and time (particularly as described in relativity theory), the nature of the quantum mechanical world, and the temporal asymmetries found in thermodynamics and other areas of physics. Prerequisite: PHIL 2003.

**PHIL3983 Capstone Course for Philosophy Majors (Sp)**

An undergraduate seminar to be taken in the student's final spring semester. The content will vary with the instructor. The objective is for the student to sharpen his or her philosophical skills by, e.g., writing short papers, giving class presentations, and writing a substantial final essay. Prerequisite: 21 hours of philosophy.

**PHIL399VH Honors Course (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**PHIL4003 Ancient Greek Philosophy (Fa)** Pre-Socratics, Socrates, Plato, and Aristotle. Prerequisite: 3 hours of philosophy.

**PHIL4013 Platonism & Origin of Christian Theology (Sp)** The study of Plato, Middle Platonism, and Neoplatonism, including Philo, Plotinus, and Proclus, and the influence of Platonism on the Greek church fathers of the 2nd-5th centuries, principally Origen and Gregory of Nyssa and also Pseudo-Dionysius. Prerequisite: 3 hours of philosophy.

**PHIL4023 Medieval Philosophy (Fa)** Includes Augustine, Bonaventure, Aquinas, Scotus, and Ockham.

**PHIL4033 Modern Philosophy-17th and 18th Centuries (Sp)** British and Continental philosophy, including Bacon, Descartes, Spinoza, Leibniz, Hobbes, Locke, Berkeley, Hume, and Kant.

**PHIL4043 Nineteenth Century Continental Philosophy (Fa)** Study of major Continental European philosophers of the 19th century including Hegel, Marx, Kierkegaard, Schopenhauer, Nietzsche. Emphasis on the nature of persons, the question of freedom, and the importance of self-expression, as well as views on knowledge, reality, and the nature of philosophy. Prerequisite: 3 hours of Philosophy.

**PHIL4063 Twentieth Century Continental Philosophy (Irregular)** Study of major figures (e.g. Husserl, Heidegger, Sartre, Foucault, Derrida) and trends (phenomenology, existentialism, hermeneutics, critical theory, deconstruction) in 20th century French and German thought. Topics include human beings and their place in the world, the role of history and culture, and the possibility of critical reflection.

**PHIL4073 History of Analytic Philosophy (Irregular)** From Frege to recent figures, including Russell, Moore, Wittgenstein, Schlick, Carnap, Ayer, Ryle, Strawson, Quine, including a representative sample of works on the logical analysis of language, logical positivism, and ordinary language analysis. Prerequisite: 3 hours of philosophy.

**PHIL4093 Special Topics in Philosophy (Irregular)** This course will cover subject matter not covered in regularly offered courses. May be repeated for up to 6 hours of degree credit.

**PHIL4113 Social and Political Philosophy (Irregular)** Selected philosophical theories of society, the state, social justice, and their connections with individuals.

**PHIL4123 Classical Ethical Theory (Fa)** Study of classical texts in the history of philosophical ethics from Plato to Nietzsche. Philosophers covered may include Plato, Aristotle, Butler, Hume, Kant, and Mill. Prerequisite: 3 hours of philosophy.

**PHIL4133 Contemporary Ethical Theory (Fa)** A study of contemporary texts in philosophical ethics from G.E. Moore to the present. Philosophers covered may include Moore, Stevenson, Hare, Foot, and Rawls. Prerequisite: 3 hours of philosophy.

**PHIL4143 Philosophy of Law (Sp)** A philosophical consideration of the nature of law, theory of adjudication, concepts of legal responsibility, liberty and the limits of law, and selected moral-legal issues (abortion, affirmative action, punishment, etc.).

**PHIL4203 Theory of Knowledge (Fa)** An examination of skepticism, the nature and structures of knowledge and epistemic justification, human rationality, and the justification of religious belief. Prerequisite: 3 hours of philosophy.

**PHIL4213 Philosophy of Science (Fa)** Examination of issues related to scientific explanation, empirical foundations of science, observation and objectivity, nature of laws and theories, realism and instrumentalism, induction and confirmation, models, causation, and simplicity, beginning with historical survey set in the context of the history of science but emphasizing works from the 1930s to the current period, often including issues in recent physics.

**PHIL4233 Philosophy of Language (Irregular)** A survey of mainstream philosophical theories of meaning, reference, truth, and logical form. Attention given to the views of such figures as Frege, Russell, Tarski, Searle, Dummett, and the advocates of possible world's semantics.

**PHIL4253 Symbolic Logic I (Fa)** Rigorous analyses of the concepts of proof, consistency, equivalence, validity, impli-

cation, and truth. Full coverage of truth-functional logic and quantification theory (predicate calculus). Discussion of the nature and limits of mechanical procedures (algorithms) for proving theorems in logic and mathematics. Informal accounts of the basic facts about infinite sets. Prerequisite: PHIL 2203 or MATH 2603. (Same as MATH 4253)

**PHIL4303 Philosophy of Religion (Irregular)** Types of religious belief and critical examination of their possible validity, including traditional arguments and contemporary questions of meaning.

**PHIL4403 Philosophy of Art (Sp)** Varieties of truth and value in the arts and aesthetic experience, focusing on the creative process in the art and in other human activities.

**PHIL4423 Philosophy of Mind (Sp)** An examination of such topics such as the relationship between mind and body, the mentality of machines, knowledge of other minds, the nature of psychological explanation, the relationships between psychology and the other sciences, mental representation, the nature of the self, and free will and determinism.

**PHIL4603 Metaphysics (Irregular)** Theory and critical analysis of such basic metaphysical problems as mind and body, universals and particulars, space and time, determinism and free will, self-identity and individualism, with emphasis on contemporary perspectives. Prerequisite: 3 hours of philosophy.

**PHIL5823 Seminar: Spinoza (Irregular)**

**PHIL5883 Seminar: Wittgenstein (Irregular)**

**PHIL5933 Seminar: Philosophical Theology (Irregular)**

**PHIL5983 Philosophical Seminar (Irregular)** Various topics and issues in historical and contemporary philosophy. May be repeated for up to 3 hours of degree credit.

**PHIL600V Master's Thesis (Sp, Su, Fa) (1-6)**

**PHIL690V Graduate Readings (Sp, Su, Fa) (1-6)** Supervised individual readings in historical and contemporary philosophy.

**PHIL700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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 Physics (PHYS)
 

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**PHYS100V Projects (Irregular) (1-2)** Independent study in experimental or theoretical physics for lower division undergraduate students. May be repeated for up to 2 hours of degree credit.

**PHYS1021M Honors Physics and Human Affairs Laboratory (Sp, Su, Fa)** Laboratory 2 hours per week. Pre- or Corequisite: PHYS 1023H. (Same as PHYS 1021L)

**PHYS1021L Physics and Human Affairs Laboratory (Sp, Su, Fa)** Laboratory 2 hours per week. Pre- or Corequisite: PHYS 1023.

**PHYS1023 Physics and Human Affairs (Sp, Su, Fa)** The great ideas of physics, together with their philosophical and social impact. Scientific topics include cosmology, relativity, quantum mechanics. Philosophical and social topics include methods and values of science, problems related to energy sources, and implications of modern weapons. Non-mathematical. Designed for non-science majors. Along with PHYS 1021L, can be used to satisfy a 4-year physical science requirement for a B.A. degree. Students who have received credit in PHYS 2013 and 2033, or 2053 and 2073 cannot also receive degree credit in this course. Corequisite: PHYS 1021L.

**PHYS1023H Honors Physics and Human Affairs (Sp, Su, Fa)** The great ideas of physics, together with their philosophical and social impact. Scientific topics include cosmology, relativity, quantum mechanics. Philosophical and social topics include methods and values of science, problems related to energy sources, and implications of modern weapons. Non-mathematical. Designed for non-science majors. Along with PHYS 1021L, can be used to satisfy a 4-year physical science requirement for a B.A. degree. Students who have received credit in PHYS 2013 and 2033, or 2053 and 2073 cannot also receive degree credit in this course. Corequisite: PHYS 1021M.

**PHYS1034 Physics for Elementary Education Majors (Sp)** For elementary education majors. Physical science concepts based on state frameworks are explored in a mixed lecture/lab environment. The inquiry-based lab activities can be transferable for school classroom use. Topics covered include: scientific inquiry, motion and forces, conservation of energy, heat, light, electricity and simple circuits, and magnetism. Prerequisite: Elementary education major. Corequisite: Lab component.

**PHYS1044 Physics for Architects I (Fa)** The relation between the principles of physics and the practice of building and operating structures. Topics include: The behavior of structures under various loads, the statics and dynamics of fluids, thermal storage, thermal expansion, the greenhouse effect, heat transfer, refrigeration, the energy problem, efficiency in the

operation of buildings. One underlying theme is that the self-sufficiency of a building is an important part of architecture. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: Major in architecture or interior design or agricultural education communication & technology.

**PHYS1054 Physics for Architects II (Sp)** Acoustics, electricity and magnetism, light, and environmental physics. Topics include resonance, acoustical isolation, interference, reverberation time, electrical circuitry with emphasis on power and efficiency, electrical storage, light sources, reflection, refraction, absorption, transmission, color, astronomy (to give perspective to the use of sunlight in architecture), heat, noise, and radioactivity pollution. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: PHYS 1044.

**PHYS2011L College Physics I Laboratory (Su, Fa)** Laboratory 2 hours per week. Corequisite: PHYS 2013.

**PHYS2013 College Physics I (Su, Fa)** A non-calculus survey of the principles of physics including mechanics, heat and sound. Lecture 3 hours per week and drill 1 hour per week. Corequisite: Drill component and PHYS 2011L. Prerequisite: (MATH 1203 and MATH 1213) or (MATH 1284 or MATH 2554) or a score of at least 26 on the math component of the ACT exam, or a score of at least 600 on the math component of the SAT.

**PHYS2031L College Physics II Laboratory (Su)** Laboratory 2 hours per week. Corequisite: PHYS 2033.

**PHYS2033 College Physics II (Sp, Su)** Continuation of PHYS 2013. Topics include electricity and magnetism, light, relativity, quantum mechanics, atomic and nuclear structure. Lecture 3 hours, drill (PHYS 2030D) 1 hour per week. Corequisite: Drill component and PHYS 2031L. Prerequisite: PHYS 2013.

**PHYS2054 University Physics I (Sp, Su, Fa)** Introduction to the principles of mechanics, wave motion, temperature and heat, with calculus. Lecture three hours per week and practicum two hours a week (included in lab component). Pre- or Corequisite: MATH 2554. Corequisite: Lab component.

**PHYS2054H Honors University Physics I (Sp, Su, Fa)** Introduction to the principles of mechanics, wave motion, temperature and heat, with calculus. Lecture three hours per week and practicum two hours a week (included in lab component). Pre- or Corequisite: MATH 2554. Corequisite: Lab component.

**PHYS2074 University Physics II (Sp, Su, Fa)** Continuation of PHYS 2054. Topics covered include electricity, magnetism, light and geometric optics. Lecture three hours per week and practicum two hours per week. Pre- or Corequisite: MATH 2564. Corequisite: Lab component. Prerequisite: PHYS 2054.

**PHYS2074H Honors University Physics II (Sp)** Continuation of PHYS 2054H. Topics covered include electricity, magnetism, light and geometric optics. Lecture three hours per week and practicum two hours per week. Pre- or Corequisite: MATH 2564. Corequisite: Lab component. Prerequisite: PHYS 2054 or PHYS 2054H.

**PHYS2094 University Physics III (Fa)** A continuation of PHYS 2054 and PHYS 2074. Topics include waves, physical optics, thermodynamics, kinetic theory, and an introduction to quantum mechanics. Lecture 3 hours per week and practicum 2 hours per week (included in lab component). Pre- or Corequisite: MATH 2574. Corequisite: Lab component. Prerequisite: PHYS 2074.

**PHYS306V Projects (Irregular) (1-3)** Individual experimental or theoretical research problems for advanced undergraduates. May be repeated for up to 3 hours of degree credit.

**PHYS3113 Analytical Mechanics (Fa)** Newton's laws of motion applied to particles, systems of particles, and rigid bodies. Introduction to Hamilton's and Lagrange's equations. Pre- or Corequisite: MATH 2584.

**PHYS3213 Electronics in Experimental Physics (Odd years, Sp)** DC & AC electronics, semiconductors, operational amplifiers, and digital logic circuits with lab applications in experimental physics. Corequisite: Lab component. Prerequisite: PHYS 2094 or instructor consent.

**PHYS3414 Electromagnetic Theory (Sp)** Electrostatics including dielectrics, magnetostatics and magnetic materials. Maxwell's equations, radiation theory, and wave propagation. Prerequisite: MATH 2574 and PHYS 2074. Pre- or Corequisite: MATH 2584.

**PHYS3544 Optics (Fa)** Elements of geometrical, physical, and quantum optics. Lecture 3 hours, laboratory 2 hours. Corequisite: Lab component. Prerequisite: PHYS 2074 or MATH 2564.

**PHYS3601L Modern Physics Laboratory (Fa)** Experiments illustrating the development and concepts of modern physics. No credit given toward a B.S. major in physics. Prerequisite: PHYS 3603.

**PHYS3603 Introduction to Modern Physics (Fa)** An introduction to the basic ideas of 20th century physics, with an

emphasis on those that form the foundations of modern technology: quantum theory and its application to atomic, nuclear, optical and condensed matter physics. No credit is given toward a B.S. degree in physics. Prerequisite: PHYS 2033 and MATH 2043 or MATH 2554.

**PHYS3614 Modern Physics (Sp, Su, Fa)** Introduction to special relativity, statistical physics, quantum physics, and a survey of nuclear and particle physics. Review of thermal radiation, photon, and wave mechanics. Prerequisite: PHYS 2074.

**PHYS3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. No more than 3 hours may be offered toward fulfillment of the requirements for the B.S. or B.A. degree in Physics. Prerequisite: Honors candidacy (not restricted to candidacy in physics). May be repeated for credit.

**PHYS399VH Honors (Sp, Su, Fa) (1-6)** Independent study for physics students enrolled in the honors program. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**PHYS400V Laboratory and Classroom Practices in Physics (Sp, Su, Fa) (1-3)** The pedagogy of curricular materials. Laboratory and demonstration techniques illustrating fundamental concepts acquired through participation in the classroom as an apprentice teacher. Prerequisite: PHYS 3113 or PHYS 3414.

**PHYS4073 Introduction to Quantum Mechanics (Fa)** A survey of quantum mechanics from the wave mechanical point of view including the application of quantum mechanics to the simple harmonic oscillator, angular momentum, and the hydrogen atom. Required course for B.S. Physics majors. Prerequisite: PHYS 3614, MATH 2574, and MATH 2584.

**PHYS4103 Physics in Perspective (Odd years, Sp)** Human implications of physics, including life's place in the universe, the methods of science, human sense perceptions, energy utilization, social impacts of technology, and the effect of physics on modern world views. No credit given toward a B.S. major in Physics. Prerequisite: PHYS 3603 or PHYS 3614.

**PHYS4113 Physics in Perspective (Odd years, Sp)** Human implications of physics, including life's place in the universe, the methods of science, human sense perceptions, energy utilization, social impacts of technology, and the effect of physics on modern world views. Credit allowed for only one of PHYS 4113 or PHYS 4103. Prerequisite: PHYS 3614.

**PHYS4203 Physics of Devices (Even years, Sp)** Principles of physics applied in a selection of technologically important devices in areas including computing, communications, medical imaging, lasers, and energy utilization. Students will utilize technical journals. No credit given toward a B.S. major in Physics. Prerequisite: PHYS 3603 or PHYS 3614.

**PHYS4213 Physics of Devices (Even years, Sp)** Principles of physics applied in a selection of technologically important devices in areas including computing, communications, medical imaging, lasers, and energy utilization. Students will utilize technical journals. Credit allowed for only one of PHYS 4203 or PHYS 4213. Prerequisite: PHYS 3614.

**PHYS4333 Thermal Physics (Sp)** Equilibrium thermodynamics, statistical physics, and kinetic energy. Prerequisite: PHYS 3614.

**PHYS4613 Introduction to Biophysics and Biophysical Techniques (Even years, Sp)** Origins of biophysics, biological polymers and polymer physics, properties of DNA and proteins, techniques to study DNA and proteins, biological membrane and ion channels, biological energy, experimental techniques to study single DNA and proteins. Two experiments are included: (1) DNA Gel electrophoresis; (2) Measurement of double-stranded DNA melting point. Prerequisite: PHYS 3614 and PHYS 4333, or consent. (Same as PHYS 5613)

**PHYS4621L Modern Physics Laboratory (Fa)** (Formerly PHYS 462L) Advanced experiments, projects, and techniques in atomic, nuclear, and solid state physics. Prerequisite: PHYS 3614

**PHYS4653 Subatomic Physics (Odd years, Fa)** Nuclear structure and nuclear reactions. Nature and properties of elementary particles and resonances, their interactions and decays. Phenomenological theory and discussion of experimental evidence. Prerequisite: PHYS 3614.

**PHYS4713 Solid State Physics (Even years, Sp)** Crystal structure, diffraction and symmetry. Lattice vibrations, elasticity and optical properties. Electronic structure, band theory, transport and magnetism. Course emphasizes applications and current topics in semiconductors, optics and magnetism. Pre- or Corequisite: PHYS 3414 and PHYS 4073.

**PHYS4734 Introduction to Laser Physics (Sp)** A combined lecture/laboratory course covering the theory of laser operation, laser resonators, propagation of laser beams, specific lasers such as gas, solid state, semiconductor and chemical

lasers, and laser applications. Prerequisite: PHYS 3414 and PHYS 3544.

**PHYS4774 Introduction to Optical Properties of Materials (Odd years, Sp)** A combined lecture/laboratory course covering crystal symmetry optical transmission and absorption, light scattering (Raman and Brillouin) optical constants, carrier mobility, and polarization effects in semi-conductors, quantum wells, insulators, and other optically important materials. Prerequisite: PHYS 3414 and PHYS 3544.

**PHYS4803 Mathematical Physics (Irregular)** Development of mathematics used in advanced physics, including tensors, matrices, group theory, special functions and operators. Prerequisite: MATH 2584.

**PHYS498V Senior Thesis (Sp, Su, Fa) (1-6)**

**PHYS4991 Physics Senior Seminar (Sp, Su, Fa)** Student mastery of the principles of physics are assessed by means of research paper writing and an examination chosen by the faculty. The research paper may be used to satisfy the Fulbright College writing requirement. (Required of all B.S. and B.A. physics majors in their last year.)

**PHYS500V Seminar (Irregular) (1-3)** Regular informal discussions of research reported in journals and monographs. May be repeated for up to 3 hours of degree credit.

**PHYS5011 Introduction to Current Physics Research Seminar (Fa)** This seminar course introduces new Physics graduate students to the faculty of the Physics department and their current research efforts. In addition, the students will be introduced to scientific ethics, and learn communication skills.

**PHYS502V Individual Study in Advanced Physics (Sp, Fa) (1-4)** Guided study in current literature. May be repeated for up to 4 hours of degree credit.

**PHYS5033 Design and Fabrication of Scientific Apparatus (Irregular)** Students will learn mechanical and electronic techniques used in the design and fabrication of scientific apparatus. (This course cannot be used to satisfy degree requirements in any physics program.)

**PHYS5041 Journal Club Seminar (Sp)** In this seminar, the students will present talks based on published research articles. The goal of the course is to develop oral communication skills in the students. Effective literature search techniques will also be covered.

**PHYS5073 Mathematical Methods for Physics (Fa)** This course merges the mathematics required in classical mechanics, electrostatics, magnetostatics, and quantum mechanics into a single course. The goal is to develop physics problem-solving skills, a strong mathematical foundation, and a more unified picture of physics. Prerequisite: MATH 3423 and PHYS 3414.

**PHYS5093 Applications of Group Theory to Physics (Sp)** Application of group theory to topics in physics, especially to atomic/molecular and solid-state physics. Prerequisite: PHYS 5073

**PHYS5103 Advanced Mechanics (Fa)** Dynamics of particles and rigid bodies. Hamilton's equations and canonical variables. Canonical transformations. Small oscillations. Prerequisite: PHYS 5073.

**PHYS5111 Research Techniques Through Laboratory Rotations (Sp)** Graduate students will be introduced to detailed operational aspects of two Physics research laboratories through extensive observation of those laboratory's operations during a six week rotation through each lab. Planning for starting a research project in the summer will take place in the final three week rotation period.

**PHYS5213 Statistical Mechanics (Odd years, Fa)** Classical and quantum mechanical statistical theories of matter and radiation. Prerequisite: PHYS 4333 and PHYS 4073 or PHYS 5413.

**PHYS5263L Experiment and Data Analysis (Sp)** This course is devoted to learning some of the frequently used experimental techniques and methods by which experimental data are analyzed to extract quantitative information on physical parameters. Students will perform experiments, analyze data, and write lab reports. Prerequisite: Graduate Standing or Instructor Consent.

**PHYS5313 Advanced Electromagnetic Theory I (Fa)** Electrostatics, boundary-value problems in electrostatics, electrostatics in a medium, magnetostatics, and Faraday's Law.

**PHYS5323 Advanced Electromagnetic Theory II (Sp)** Maxwell equations, conservation laws, wave propagation, waveguides, radiating systems, scattering, special relativity, and radiation by moving charges.

**PHYS5363 Scientific Computation and Numerical Methods (Fa)** An introduction to numerical methods used in solving various problems in engineering and the sciences. May not earn credit for this course and MATH 4353 or MATH 4363. (Same as MATH 5363)

**PHYS5413 Quantum Mechanics I (Fa)** Non-relativistic quantum mechanics; the Schrodinger equation; the Heisenberg matrix representation; operator formalism; transformation theory; spinors and Pauli theory; the Dirac equation; applications to atoms and molecules; collision theory; and semiclassical theory of radiation. Prerequisite: PHYS 4073.

**PHYS5423 Quantum Mechanics II (Sp)** Continuation of PHYS 5413 Prerequisite: PHYS 5413.

**PHYS5513 Atomic and Molecular Physics (Odd years, Sp)** Survey of atomic and molecular physics with emphasis on the electronic structure and spectroscopy of 1 and 2 electron atoms and diatomic molecules. Includes fine and hyperfine structure, Zeeman and Stark mixing of states, collision phenomena, radiative lifetimes, and experimental techniques. Prerequisite: PHYS 4073 or PHYS 5413.

**PHYS5523 Theory of Relativity (Irregular)** Conceptual and mathematical structure of the special and general theories of relativity with selected applications. Critical analysis of Newtonian mechanics; relativistic mechanics and electrodynamics; tensor analysis; continuous media; and gravitational theory.

**PHYS5613 Introduction to Biophysics and Biophysical Techniques (Sp, Fa)** Origins of biophysics, biological polymers and polymer physics, properties of DNA and proteins, techniques to study DNA and proteins, biological membrane and ion channels, biological energy, experimental techniques to study single DNA and proteins. Two experiments are included: (1) DNA Gel electrophoresis; (2) Measurement of double-stranded DNA melting point. (Same as PHYS 4613)

**PHYS5653 Subatomic Physics (Irregular)** Nuclear structure and nuclear reactions. Nature and properties of elementary particles and resonances, their interactions and decays. Phenomenological theory and discussion of experimental evidence. Prerequisite: PHYS 3614.

**PHYS5713 Condensed Matter Physics I (Sp, Fa)** The course covers the Drude theory and the Sommerfeld theory of metals, crystal lattices, reciprocal lattices, X-ray diffraction, Bloch's theory of electrons in periodic potential, formation of band gap, lattice vibration, and cohesive energy in solids. Prerequisite: PHYS 5413.

**PHYS5723 Physics at the Nanoscale (Sp)** This is a cross-disciplinary course that is focused on teaching nanoscience and engineering by studying surface science, the building and analysis of quantum-confined structures, and related nano manufacturing processes. Students will achieve an integrated knowledge of the concepts of surface science, quantum mechanics, nano processing and manipulation, and techniques of materials research.

**PHYS5734 Laser Physics (Sp)** A combined lecture/laboratory course covering the theory of laser operation, laser resonators, propagation of laser beams, specific lasers such as gas, solid state, semiconductor and chemical lasers, and laser applications. Prerequisite: PHYS 3414 and PHYS 3544.

**PHYS574V Internship in College or University Teaching (Sp, Fa) (3-9)** Supervised field experiences in student personnel services, college administration, college physics teaching, institutional research, development, or other areas of college and university work. Pre- or Corequisite: PHYS 400. May be repeated for up to 3 hours of degree credit.

**PHYS5754 Applied Nonlinear Optics (Even years, Fa)** A combined lecture/laboratory course. Topics include: practical optical processes, such as electro-optic effects, acousto-optic effects, narrow-band optical filters, second harmonic generation, parametric amplification and oscillation, and other types of nonlinear optical spectroscopy techniques which are finding current practical applications in industry. Prerequisite: PHYS 3414 and PHYS 3544.

**PHYS5763 Experimental Methods for Nanoscience (Irregular)** Fundamentals of the selected techniques suitable for characterization on the nanoscale. Focus on diverse methods such as x-ray and neutron spectroscopy, scanning probe microscopies, optical methods, electron diffraction methods and more.

**PHYS5773 Introduction to Optical Properties of Materials (Sp)** This course covers crystal symmetry optical transmission and absorption, light scattering (Raman and Brillouin) optical constants, carrier mobility, and polarization effects in semiconductors, quantum wells, insulators, and other optically important materials. Prerequisite: PHYS 3414 and PHYS 3544 or Permission of Instructor.

**PHYS588V Selected Topics in Experimental Physics (Irregular) (1-3)** May be repeated for up to 3 hours of degree credit.

**PHYS590V Master of Arts Research (Sp, Su, Fa) (1-6)**

**PHYS600V Master of Science Thesis (Sp, Su, Fa) (1-6)**

**PHYS6413 Quantum Mechanics III (Even years, Fa)** Relativistic quantum mechanics, second quantization, with applica-

tions to quantizing electromagnetic fields and to many-body theory. Introduction to Feynman diagrams. Prerequisite: PHYS 5423.

**PHYS6513 Advanced Topics in Complexity (Irregular)** The goal of the course is to give students tools to investigate the behavior of complex systems and to analyze the relationship of non-linear dynamics and chaos theory to complex biological and non-biological systems. A special emphasis will be given to understanding the way neurons work as biological computing elements.

**PHYS6613 Quantum Optics (Even years, Fa)** Properties of light and its interaction with atoms, particular attention given to the laser and recent experiments. Classical theory of resonance; Optical Bloch Eqs.; 2 level atoms in steady fields; pulse propagation; semiclassical theory of the laser, coherent states and coherent functions; gas, solid, and dye lasers; photon echoes and superradiance; quantum electrodynamics and spontaneous emission. Prerequisite: PHYS 5413 or equivalent.

**PHYS6713 Condensed Matter Physics II (Even years, Sp)** The course covers surface physics, physics of homogeneous and inhomogeneous semiconductors, dielectric and ferroelectric physics, defects in crystals, spin interaction and magnetic properties, superconductivity, and band structure calculation. Prerequisite: PHYS 5713 and PHYS 5413.

**PHYS700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** May be repeated for up to 18 hours of degree credit.

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#### Plant Pathology (PLPA)

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**PLPA3004 Principles of Plant Pathology (Fa)** Examination of the causes and symptoms of plant disease and the genetics of plant disease. Physiology, and ecology of host-pathogen interactions. Spread of disease and principles of disease control. Corequisite: Lab component. (Same as BIOL 3004)

**PLPA400V Research (Sp, Su, Fa) (1-6)** Original investigations of assigned problems in plant pathology. Prerequisite: PLPA 3004.

**PLPA4223 Plant Disease Control (Fa)** Principles, methods and mechanics of plant disease control. Emphasis is given to the integration of control measures and epidemiology of plant diseases. Lecture 3 hours per week. Prerequisite: PLPA 3004. (Same as BIOL 4133)

**PLPA4304 Applied Plant Disease Management (Irregular)** A plant pathology course emphasizing practical understanding of the concepts and principles of agronomic and horticultural crop disease management, including disease diagnosis, monitoring, and using models to forecast disease events. Prerequisite: PLPA 3004 or instructor consent.

**PLPA4333 Biotechnology in Agriculture (Fa)** Discussion of the techniques, applications, and issues of biotechnology as it is being used in modern agriculture. Coverage includes the basics of molecular biology, production of transgenic plants and animals, and new applications in the agricultural, food, and medical marketplace. Lecture and discussion, 3 hours per week. (Same as BIOL 4333)

**PLPA462V Internship (Irregular) (1-6)** Supervised practical work experience in pest management to develop and demonstrate professional competence. A maximum of 6 hours credit per semester or summer session is permitted. Faculty approval of projects proposal prior to enrollment, and written or oral reports are required. May be repeated for up to 9 hours of degree credit.

**PLPA5001 Seminar (Sp, Fa)** Review of scientific literature and oral reports on current research in plant pathology. Prerequisite: Graduate standing. May be repeated for up to 4 hours of degree credit.

**PLPA502V Special Problems Research (Sp, Su, Fa) (1-6)** Original investigations of assigned problems in plant pathology. Prerequisite: Graduate standing.

**PLPA504V Special Topics (Irregular) (1-18)** Lecture topics of current interest not covered in other courses in plant pathology or other related areas. Prerequisite: Graduate standing. May be repeated for up to 18 hours of degree credit.

**PLPA5303 Advanced Plant Pathology: Host-Pathogen Interactions (Odd years, Sp)** Presentation of important contemporary concepts relative to disease resistance and the physiology, biochemistry, and molecular biology of plant-pathogen interactions. Lecture 3 hours per week. Prerequisite: PLPA 3004 or equivalent and graduate standing.

**PLPA5313 Advanced Plant Pathology: Ecology and Epidemiology (Even years, Sp)** Presentation of important contemporary concepts relative to the ecology and epidemiology of foliar and soil-borne plant pathogens. Lecture 3 hours per week. Prerequisite: PLPA 3004 and graduate standing.

**PLPA5404 Diseases of Economic Crops (Su)** Diagnosis

and management of important diseases of cotton, fruits, rice, trees, soybeans, wheat, and vegetables will be covered in a lecture, laboratory, and field format. Lecture 2 hours, laboratory 4 hours per week. Four 1-day field trips will be involved. Corequisite: Lab component. Prerequisite: PLPA 3004.

**PLPA5603 Plant Pathogenic Fungi (Odd years, Fa)** Plant Pathogenic Fungi is structured as an integrated lecture/laboratory class designed for students that are interested in developing an understanding and appreciation for taxonomy, biology, and ecology of plant pathogenic fungi and related saprophytic fungi. Corequisite: Lab component. Prerequisite: PLPA 3004 or BIOL 4424 or graduate standing.

**PLPA600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**PLPA6203 Plant Virology (Even years, Fa)** Lecture emphasizing discussion of recent advances in plant virology. Laboratory concerned with techniques and equipment used in plant virus studies, including transmission of viruses, characterization utilizing ultracentrifugation, spectrophotometry, electrophoresis, electron microscopy, and serology. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Prerequisite: Graduate standing.

**PLPA6303 Plant Nematology (Even years, Fa)** Nematodes and their relationship to plant diseases, with consideration of identification, morphology, biology, distribution, association with disease complexes and control. Lecture 2 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: Graduate standing.

**PLPA6503 Plant Bacteriology (Odd years, Sp)** Current concepts and techniques in plant bacteriology, including taxonomic, ecological and molecular aspects of plant pathogenic bacteria and their interactions with hosts. Lecture 2 hours, laboratory 2 hours per weeks. Corequisite: Lab component. Prerequisite: BIOL 2013 and BIOL 2011L. May be repeated for up to 3 hours of degree credit.

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#### Political Science (PLSC)

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**PLSC2003 American National Government (Sp, Su, Fa)** Survey of the history, basic ideas, structure, and political processes of the national government of the United States, including the fundamental relationships of the federal system. Required of all political science majors.

**PLSC2003H Honors American National Government (Fa)** Survey of the history, basic ideas, structure, and political processes of the national government of the United States, including the fundamental relationships of the federal system.

**PLSC2013 Introduction to Comparative Politics (Sp, Su, Fa)** An introductory survey of comparative political systems.

**PLSC2203 State and Local Government (Odd years, Fa)** Organization and functions of state and local governments in the United States, intergovernmental relations, administration, adjudication, and the organization and function of political parties on state and local levels.

**PLSC2813 Introduction to International Relations (Sp, Fa)** Introduction to the international system, theories of international behavior, political economy, conflict and peacemaking, the third world, international law and organizations, and the nature of the post-cold war world. (Same as IREL 2813)

**PLSC300V Internship in Public Affairs (Sp, Su, Fa) (1-3)** Work experience in a public agency arranged by the student under the guidance of a faculty member. Paper required. May be repeated for up to 6 hours of degree credit.

**PLSC3103 Public Administration (Sp)** Trends and organization of public administration, dynamics of management; fiscal and personnel management; administrative powers and responsibility. Prerequisite: PLSC 2003.

**PLSC3153 Public Policy (Fa)** A study of public policy formulation, implementation, and evaluation at various levels of government. Prerequisite: PLSC 2003.

**PLSC3183 Public Personnel Management (Irregular)** Development of the merit system in government, career systems, human resource planning and development, labor relations, diversity issues, and the legal dimension of public personnel systems. Prerequisite: PLSC 2003.

**PLSC3213 The South and the Law: Race, Gender, and Citizenship (Fa)** Examines the experience of racial and ethnic minorities, as well as women, in the post-Civil War South. Explores legal ramifications and tracks cultural and political legacies of landmark cases and/or legislative acts.

**PLSC3223 Arkansas Politics (Sp)** The political system in Arkansas including the political process, public policy, social problems, political behavior, governmental structure, and contemporary issues. Prerequisite: PLSC 2003.

**PLSC3233 The American Congress (Fa)** Thorough examination of the constitutional role of the legislative branch under the

Constitution; the internal procedures and personalities of the Senate and House; the central place of Congress in shaping domestic and foreign policy. Prerequisite: PLSC 2003.

**PLSC3243 The Judicial Process (Fa)** The structure and operation of the state and national court systems. Emphasis is upon the role of the judiciary in the American political system and the political aspects and consequences of judicial decision-making. Prerequisite: PLSC 2003.

**PLSC3253 Urban Politics (Sp)** Analysis of comparative urban systems, including political process, public policy, social problems, governmental structure, and voter behavior. Prerequisite: PLSC 2003.

**PLSC3263 Latino Politics (Fa)** Analyzes the social, economic, and political issues impacting the Latino (or Hispanic) community in the United States. Attention is paid to how the community itself responds to and influences these factors.

**PLSC3273 Cultures of the South (Sp)** Survey of the diverse ethnic and racial groups of the American South with special emphasis on social and cultural traits related to contemporary developments. (Same as ANTH 3253, SOCI 3253)

**PLSC3293 African American Politics (Fa)** This is a survey course designed to provide students with a comprehensive overview of African American political participation in the United States. In addition to analyzing important events in African American Politics, the course attempts to explain evolving patterns of political participation in Black America. (Same as AAST 3293, PLSC 4293)

**PLSC3503 Governments and Politics of East Asia (Fa)** Comparative analysis of structures, processes, and problems of the political systems of the Democratic Republic of Vietnam, Japan, and the Peoples Republic of China. Prerequisite: PLSC 2013.

**PLSC3523 Politics of the Middle East (Fa)** Survey of the unity and diversity in the political development of the Middle East, as evident in historical legacies, state formation, civil society, social class, and political identity.

**PLSC3553 Western European Politics (Irregular)** Comparative analysis of Western European parliamentary systems with special attention to political traditions, constitutional arrangements, socio-economic structure, and the political and legislative processes in countries such as Britain, France, and Germany. Prerequisite: PLSC 2003 or PLSC 2013.

**PLSC3573 Governments and Politics of Latin America (Irregular)** Comparative survey of Latin America political forces and institutions with special attention to patterns and problems of political change and development in that area. Prerequisite: PLSC 2013.

**PLSC3603 Scope and Methods of Political Science (Irregular)** The basic principles and assumptions of political inquiry (methodology) and research techniques for gathering and analyzing data about political phenomena. Prerequisite: PLSC 2003.

**PLSC3803 International Organization (Sp)** The theory and practice of international organizations past and present, with emphasis on the United States and a critical examination of current trends. Prerequisite: Junior standing.

**PLSC3813 International Law (Fa)** Analysis of the traditional principles of public international law including the law of war, the law of sea and air, and the legal nature of statehood; and analysis of selected principles of private international law relevant to such topics as the multinational corporation, international arbitration, commerce with Communist states, and the expropriation of foreign property. Prerequisite: Junior standing.

**PLSC3823 Theories of International Relations (Sp)** Analysis of major intellectual traditions in the field of international relations, including realism, liberalism, and social constructivism. Emphasis will be placed on how they help us to understand war, revolution, global capitalism, nationalism, peace, and other significant international phenomena. Prerequisite: PLSC 2003 and PLSC 2013.

**PLSC3853 American Foreign Policy (Fa)** The structure and process for making and implementing the foreign policy of the United States, and an evaluation of current policies in the contemporary international milieu. Prerequisite: PLSC 2003 or PLSC 2013.

**PLSC390V Special Topics (Sp, Su, Fa) (1-3)** Special topics in political science.

**PLSC3913 American Political Thought Before 1900 (Irregular)** Major ideas, issues, and arguments in American Political Thought from the colonial period to approximately 1900. May be repeated for credit.

**PLSC3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy in political science. May be repeated for credit.

**PLSC3933 Contemporary American Political Thought (Irregular)** Twentieth century American political thought, including who should participate, expanding concepts of freedom, political economy, equality, feminism, rights, conservatism and liberalism.

**PLSC394V Readings in Political Science (Sp, Su, Fa) (1-3)** For advanced students who wish to study some field of political science beyond the course offering available in that field. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**PLSC3983 Politics in Literature (Sp)** Analysis of political theories and issues through extensive reading and discussion of selected works of literature. Prerequisite: PLSC 2003 or PLSC 2013.

**PLSC399VH Honors Course (Irregular) (1-3)** Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**PLSC400V Special Topics (Irregular) (1-3)** Topics in political science not usually covered in other courses. May be repeated for credit.

**PLSC4103 Introduction to Urban Planning (Fa)** Reviews the many forms, functions, and purposes of American cities. Covers basic planning theories, surveys the various sub-fields of planning, discusses trends in the planning field, and utilizes computer simulations. Prerequisite: PLSC 3253.

**PLSC4193 Administrative Law (Sp)** Legal aspects of the administrative process and the effect of legal principles and processes upon administrative decision-making. Emphasis is given to the limitation of administrative discretion and the judicial review of administrative decision. Prerequisite: PLSC 3103 or PLSC 4253.

**PLSC4203 American Political Parties (Irregular)** The nature, function, and history of political parties in the United States with emphasis on party membership, organization, campaign techniques, finance and electoral alliances. Prerequisite: PLSC 2003.

**PLSC4213 Campaigns and Elections (Irregular)** This course examines the American electoral process. It is an empirical course that provides opportunities for original analysis of survey data and election returns. Emphasis is placed on the most recent federal election. Prerequisite: PLSC 2003

**PLSC4233 The American Chief Executive (Sp)** Offices and roles of the President and state governors of the United States focusing on the evolution of the offices in terms of responsibilities and political leadership. Prerequisite: PLSC 2003.

**PLSC4243 Minority Politics (Even years, Sp)** Reviews political action and concepts of political activity by minority groups, focusing on contemporary political behavior.

**PLSC4253 The U.S. Constitution I (Sp)** United States Supreme Court decisions involving the functions and powers of Congress, the Supreme Court, and the President and federalism. Prerequisite: PLSC 2003.

**PLSC4263 The U.S. Constitution II (Irregular)** United States Supreme Court decisions interpreting the political, economic, and civil rights of individuals and groups. Prerequisite: PLSC 2003.

**PLSC4283 Federalism and Intergovernmental Relations (Even years, Sp)** Analysis of changes in intergovernmental relations in the American federal system. Discussions will focus on political, economic/fiscal and administrative aspects of policy changes of the pre-and post-Reagan eras.

**PLSC4293 African American Politics (Fa)** This is a survey course designed to provide students with a comprehensive overview of African American political participation in the United States. In addition to analyzing important events in African American Politics, the course attempts to explain evolving patterns of political participation in Black America. (Same as AAST 3293, PLSC 3293)

**PLSC4303 History of Political Parties in the U.S. 1789-1896 (Even years, Fa)** Origin and development of the American party system from the implementation of the Constitution to the election of McKinley. (Same as HIST 4503)

**PLSC4313 History of Political Parties in the United States Since 1896 (Odd years, Sp)** Response of the party system to America's emergence as an industrial nation and world power from the election of 1896 to present. (Same as HIST 4513)

**PLSC4323 Racial Identity, Politics, and Public Policy (Even years, Sp)** Examines how race and perceived racial differences affect political discourse, mobilization, representation, and political outcomes. Prerequisite: PLSC 4293 or AAST 1003 or 3233 or 3243.

**PLSC4333 Southern Politics (Sp)** Evaluates the significance of the southern region within the national political scene, as well as discuss the unique political history and workings of the region. Explores the various groups within the region that continue to fight for political influence and power.

**PLSC4373 Political Communication (Even years, Sp)** Study

of the nature and function of the communication process as it operates in the political environment. (Same as COMM 4373)

**PLSC4513 Creating Democracies (Even years, Fa)** Analyses of the creation of democracies in Europe, South America, Asia, Africa, the Middle East, East Europe, and the former Soviet Union. Prerequisite: PLSC 2013.

**PLSC4563 Government and Politics of Russia (Even years, Sp)** Study of Russian and Soviet politics after 1917 and of the democratization of Russia and the other successor states. Prerequisite: PLSC 2003 or PLSC 2013.

**PLSC4573 Gender and Politics (Irregular)** Examines the significance of gender in politics. Includes discussion of the women's movement and feminist theory, but emphasizes the content and process of public policy as it relates to women and men. Focus is on the U.S. but final third is devoted to comparative topics. Prerequisite: PLSC 2003 or PLSC 2013.

**PLSC4593 Islam and Politics (Fa)** Compares contemporary Islamist political movements. Seeks to explain causes, debates, agendas, and strategies of Islamists in the political realm. Addresses sovereignty, the rule of law, visions of the good state and society, and relations between nationalism, religion and political development. Focus on Middle East with comparative reference to other cases.

**PLSC4803 Foreign Policy Analysis (Irregular)** Comparative analysis of foreign policy, with attention paid to explanations at a variety of levels, such as the individual, group, organizational, societal, systemic.

**PLSC4813 Politics of the Cold War (Even years, Sp)** Examines the cold war from different perspectives; nature of the international system during the cold war; American and Soviet perceptions of the cold war; domestic political considerations; impact of the cold war on the economy, culture, and society; end of the cold war; the post-cold war world.

**PLSC4823 Foreign Policy of East Asia (Sp)** This course provides an introduction to the international relations of two major East Asian states, China and Japan. Key topics include: China and Japan's interaction with the world political and economic systems; domestic sources of international behavior and major dimensions of foreign policy in the 1980s and 1990s.

**PLSC4833 International Political Economy (Fa)** This course provides an analysis of the interaction between politics and markets in the world economy. Its central objective is to illustrate how political and state actions have shaped and been shaped by the development of the global economy.

**PLSC4843 The Middle East in World Affairs (Sp)** An analysis of geo-political and socio-economic characteristics of Middle Eastern societies and their impact on world economic and political order. Special attention to such issues as the Arab-Israeli conflict, the promotion of lasting peace in the region, impact of oil on world politics, the involvement of superpowers, rehabilitation of Palestinian refugees and the role of the United Nations.

**PLSC4853 International Norms and Corporate Social Responsibility (Sp)** This course focuses on the interplay between international social expectations and business strategy. How norms prevail and why norms emerge will be observed from a business vantage point. Pre- or corequisite: PLSC 2003 or PLSC 2013.

**PLSC4873 Inter-American Politics (Irregular)** An analysis of the political themes, regional organization, and hemispheric relations that constitute the inter-American system, with special emphasis on conflict and cooperation in the hemispheric policies of the American republics. Prerequisite: Junior standing.

**PLSC4933 African American Political Ideology (Odd years, Sp)** A survey course designed to identify and examine characteristics and functions of several variants of black political ideology/thought. (Same as AAST 4933)

**PLSC498V Senior Thesis (Sp, Su, Fa) (1-6)**

**PLSC499VH Honors Essay (Sp, Su, Fa) (1-3)** Not part of the 30 hours requirement for the major. May be repeated for up to 6 hours of degree credit.

**PLSC5103 Human Behavior in Complex Organizations (Fa)** Review of the fundamental literature and a systematic analysis of various theories and research focusing on organization and behavior in public administration, including the discussion of organizational development, human motivation, leadership, rationality, efficiency and conflict management in public organizations. Prerequisite: Graduate standing.

**PLSC5113 Seminar in Human Resource Management (Fa)** Intensive study of public personnel policies and practices, including legal foundations, classification and compensation plans, recruitment and selection processes, training, employment policies and morale, employee relations and organization. Prerequisite: Graduate standing.

**PLSC5123 Public Budgeting and Finance (Fa)** Focuses on

the budgeting process and governmental fiscal policy formulation, adoption, and execution. Prerequisite: Graduate standing.

**PLSC5133 Management of Service Sector Organizations (Irregular)** This course provides an overview of the principal management functions in public and nonprofit organizations. Topics include financial management, HR development, program development. The relationships among volunteer boards of trustees, fund raising, public relations, and program personnel are analyzed, and the complex environments with service sector agencies are explored.

**PLSC5143 Administrative Law (Sp)** A seminar which examines the constitutional and statutory basis and authority of public organizations. Special attention focuses on the nature of the rule-making and adjudicatory powers of public agencies and on executive, legislative, and judicial restraints on such activities. Also considered are the role, scope, and place of public regulatory activities. Prerequisite: Graduate standing.

**PLSC5153 Environmental Politics and Policy (Even years, Fa)** Surveys recent patterns of environmentalism in the U.S. and explores the nature of policy making with regard to environmental and economic development issues. Several debates are presented, such as conservation vs. preservation, multiple use vs. sustainability, intergovernmental policy implementation, incentives, and free market environmentalism.

**PLSC5163 Public Policy (Fa)** Research seminar examining the study of public policy making in complex human systems. Attention given to issues dealing with cognitive limitations in decisional settings, the use of reasoned persuasion vs. power, the appropriate application of technical analysis. Prerequisite: Graduate standing.

**PLSC5173 Community Development (Irregular)** Community development encompasses the political, social, and economic issues that shape contemporary communities. The seminar examines substantive issues in community development, related theories, and techniques. A major focus of the course will be on low-income and minority neighborhoods and efforts to create more inclusive communities in the U.S. and abroad.

**PLSC5193 Seminar in Public Administration (Fa)** Introduction to and synthesis of public administration theory, functions, history, public accountability and management concerns, economic impact of administrative decisions, current problems, and issues in the public sector. Prerequisite: Graduate standing.

**PLSC5203 Seminar in American Political Institutions (Fa)** Research seminar dealing with selected aspects of the major governmental institutions in the United States. Prerequisite: Graduate standing.

**PLSC5213 Seminar in American Political Behavior (Sp)** Reading seminar surveying major works on representative processes in American national politics, including political opinion, political leadership, political participation, voting behavior, political parties, and interest groups. Prerequisite: Graduate standing.

**PLSC5233 The American Chief Executive (Odd years, Sp)** Study of the origin, background, and evolution of the Office of the President of the United States, with a review of the president's powers in the areas of politics, administration, and legislation.

**PLSC5243 Seminar in State Politics and Policy (Even Years, Fa)** Research seminar dealing with selected aspects of state political institutions and politics such as policy diffusion, institutional professionalization, and representation. Prerequisite: Graduate standing.

**PLSC5383 Seminar in Political Communication (Irregular)** Research seminar focusing on selected topics such as candidate imagery, diffusion of political information, or political symbolism. Prerequisite: Graduate standing. (Same as COMM 5383)

**PLSC5503 Comparative Political Analysis (Fa)** A selection of topics to provide the theoretical, conceptual and methodological and foundation for the analysis of contemporary political systems. Prerequisite: Graduate standing.

**PLSC5513 Seminar in Politics of the Middle East (Irregular)** Explores the major lines of inquiry on the politics of the state and society in the context of endogenous and exogenous forces that have influenced conceptions of power, legitimacy, and identity. Prerequisite: Graduate standing.

**PLSC5523 Topics in Politics of the Middle East (Irregular)** In-depth analysis of specific political phenomena in the contemporary Middle East. Inquiry will vary but may focus on gender, political economy, politics of inclusion and exclusion (democratization and authoritarianism), or the politics of oil. Prerequisite: Graduate standing.

**PLSC5803 Seminar in International Politics (Fa)** Research seminar providing intensive coverage of selected topics in theories of international relations, the comparative study of

foreign policy making, and international organizations. Prerequisite: Graduate standing.

**PLSC5833 Seminar in Contemporary Problems (Fa)** Seminar with concentrated reading in selected and specialized areas of contemporary international relations. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**PLSC5843 International Legal Order (Fa)** Analysis of distinctive characteristics of contemporary international law. Topics include role of legal order in controlling the use of force in international relations and the impact of social and political environment on growth of international law and relations among international political systems. Prerequisite: Graduate standing.

**PLSC590V Directed Readings in Political Science (Sp, Su, Fa) (1-3)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**PLSC5913 Research Methods in Political Science (Fa)** Methods relevant to research in the various fields of political science. Required of all graduate students in political science. Prerequisite: Graduate standing.

**PLSC592V Internship in Political Science (Sp, Su, Fa) (1-6)** Internship in a local, state, regional, or federal agency. Paper required on a significant aspect of internship experience. Prerequisite: Graduate standing.

**PLSC593V Special Topics (Sp, Su, Fa) (1-3)** Topics in political science not usually covered in other courses. Prerequisite: Graduate Standing. May be repeated for up to 3 hours of degree credit.

**PLSC595V Research Problems in Political Science (Sp, Su, Fa) (1-3)** Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**PLSC5983 Mixed Methods Research Design (Sp)** An advanced overview of a particular type of multi-point research design. Mixed methods research combines quantitative and qualitative research strategies in a single research project.

**PLSC600V Master's Thesis (Sp, Su, Fa) (1-6)**

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Poultry Science (POSC)

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**POSC1002 Introduction to Careers in Poultry Science (Fa)** To introduce the student to the career opportunities in the poultry science industry. Corequisite: Lab component.

**POSC1012 Avian Biology (Sp)** Students will be introduced to biological sciences associated with poultry. Topics will include avian origin, anatomy, physiology and behavior. Course will serve as foundation for poultry production courses. Lecture 2 hours.

**POSC1062 Sustainable Integrated Small Animal Farming (Sp)** Practical information on small scale animal production, including practical strategies for farm planning, issues of economic and environmental sustainability, best management practices, biosecurity, disease prevention, and farm safety will be presented. (Same as ANSC 1062)

**POSC2343 Poultry Production (Fa)** To develop a basic foundation about the practices utilized to produce broilers and turkeys. Course will highlight hatchery function and management; embryo development and hatching; chick/poultry transportation, preparation and maintenance of facilities for rearing birds, bird environment, nutrition, and health. Also to be covered are the different roles associated with live production in an integrated company. Corequisite: Lab component.

**POSC2353 Poultry Breeder Management (Sp)** Students will be introduced to the management practices used in production of young and adult chickens, turkeys, and other poultry with special emphasis on broiler, breeder, and market egg production. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component. Pre- or Corequisite: POSC 1012.

**POSC3013 Exotic Companion Birds (Odd years, Fa)** Topics include basic care, health, breeding, bird evolution, anatomy, and nutritional management of commonly kept exotic companion birds, including parrots, cockatoos, macaws, finches, canaries, and pigeons. Discussion will include housing and care for individual pet birds and large scale breeding and production. Lecture/discussion 3 hours per week. Prerequisite: BIOL 1543.

**POSC3032 Animal Physiology I (Fa)** Fundamental aspects of neural/muscle/bone tissues and the cardiovascular system. The normal structure and functions of these systems will be emphasized. Lecture 2 hours per week. Prerequisite: BIOL 1543 and CHEM 1123 or CHEM 1074. (Same as ANSC 3032)

**POSC3042 Animal Physiology II (Sp)** Fundamental aspects of renal, respiratory, digestive, and endocrine physiology will be covered. The normal structure and function of these systems will be emphasized. Lecture 2 hours per week. Prerequisite: BIOL 1543 and CHEM 1123 or CHEM 1073. (Same as ANSC 3042)

**POSC3123 Principles of Genetics (Fa)** Fundamentals of heredity, with special emphasis on the improvement of farm animals. Lecture 3 hours per week. Prerequisite: BIOL 1543 and MATH 1203 or higher. (Same as ANSC 3123)

**POSC3223 Poultry Diseases (Fa)** Common diseases affecting poultry reared under commercial conditions will be covered including diagnosis, therapy and prevention. Immunity, sanitation practices, and chemoprophylaxis will also be covered. Lecture 3 hours per week with some demonstrations, slides and videotapes. Prerequisite: BIOL 2013 and BIOL 2011 and junior standing.

**POSC3381 Poultry Judging and Selection (Sp, Fa)** Practice in production judging and flock selection. Laboratory 3 hours per week. May be repeated for up to 4 hours of degree credit.

**POSC3554 Avian Anatomy (Sp)** Detailed coverage of the external and internal anatomy of poultry, including formation and development of the egg and embryo. Lecture 3 hours, laboratory 2 hours per week. Corequisite: Lab component. Prerequisite: BIOL 1543.

**POSC400V Special Problems (Sp, Su, Fa) (1-9)** Special problems in the poultry sciences for advanced students. May be repeated for up to 9 hours of degree credit.

**POSC401V Internship in Poultry Science (Sp, Su, Fa) (1-6)** Supervised work experience with private or government organizations to introduce students to professional areas of work in poultry science. Prerequisite: Junior standing. May be repeated for up to 8 hours of degree credit.

**POSC4033 Statistical Process Control in the Food Industry (Irregular)** Analysis of processing data related to compliance with regulatory limits, quality & safety limits and internal & external customer specifications. Emphasizes statistical process control chart development, including understanding data and chart selection, calculating statistical limits, and interpreting process performance. Prerequisite: Instructor consent.

**POSC410V Special Topics in Poultry Science (Irregular) (1-4)** Topics not covered in other courses or for a more intensive study of specific topics in poultry science.

**POSC4213 Integrated Poultry Management Systems (Even years, Sp)** Major managerial systems in the integrated commercial poultry industry. Development of an understanding of the basic decision making processes of poultry companies and the factors influencing those decisions. Prerequisite: POSC 2353 and AGECE 1103 and AGECE 2303.

**POSC4233 Value Added Muscle Foods (Even years, Sp)** An intense study of muscle structure and how it relates to the development of further processed meat products. Muscle ultrastructure, protein functionality, product development, and quality analysis will be covered. In class hands on activities will also be included to allow students to obtain experience of producing processed meat products. Prerequisite: POSC 4314.

**POSC4314 Egg and Meat Technology (Fa)** Study of the science and practice of processing poultry meat and egg products; examination of the physical, chemical, functional and microbiological characteristics of value added poultry products; factors affecting consumer acceptance and marketing of poultry products and the efficiency of production. Corequisite: Lab component. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1074 and CHEM 1071L) and BIOL 1543 and BIOL 1541L.

**POSC4333 Poultry Breeding (Odd years, Fa)** Application of new developments in poultry breeding for efficient egg and meat production. Not intended for students interested in a career in veterinary sciences. Lecture 3 hours per week. Prerequisite: MATH 1203 or higher and junior standing.

**POSC4343 Poultry Nutrition (Sp)** Principles of nutrition as applied to the formulation of practical chicken and turkey rations. Lecture 3 hours per week. Prerequisite: CHEM 2613 or CHEM 3603 and junior standing.

**POSC4801 Undergraduate Seminar (Odd years, Sp)** Required by all poultry science majors. Prerequisite: Junior or Senior standing and COMM 1313.

**POSC4811 Seminar: Professionalism (Odd years, Fa)** Addressing issues associated with preparation for finding and retaining your first job in the poultry industry. Lecture 1 hour per week. Prerequisite: Junior or Senior standing.

**POSC4821 Seminar: Problem Solving (Even years, Sp)** Real world problem solving of poultry production systems. Lecture 1 hour per week. Prerequisite: Junior/ senior standing.

**POSC4831 Seminar: Processing Regulations (Even years, Fa)** Processing plant procedures and regulations with an emphasis on problem solving. Lecture 1 hour per week. Prerequisite: Junior or senior standing.

**POSC4923 Brain and Behavior (Fa)** Covers cellular through neural systems, major brain functions and comparative neuroanatomy. Topics include ion channels, membrane and action potentials, synaptic integration, neurotransmitters, major



brain regions of mammals and birds, sensory and autonomic nervous systems, neuroendocrine system, and control by the brain of critical functions and behavior. Lecture 3 hours per week. Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 or ANSC/POSC 3042, or PSYC 2003, or BIOL 2213, or BIOL 2443, or BIOL 2533.

**POSC500V Special Problems (Sp, Su, Fa) (1-6)** Work in special problems of poultry industry. Prerequisite: Graduate standing.

**POSC510V Special Topics in Poultry Sciences (Irregular) (1-4)** Topics not covered in other courses or a more intensive study of specific topics in poultry science. Prerequisite: Graduate standing. May be repeated for credit.

**POSC5113 Food Toxicology and Contaminants (Irregular)** During this course, the student will learn basic concepts of food toxicology, study the different physiological processes involved in food borne intoxications, and learn about potential health problems associated with exposure to these compounds. Prerequisite: Graduate study.

**POSC5123 Advanced Animal Genetics (Even years, Fa)** Specialized study of animal genetics. Lecture 3 hours per week. Prerequisite: POSC 3123 or ANSC 3123. (Same as ANSC 5123)

**POSC5143 Biochemical Nutrition (Even years, Fa)** Inter-relationship of nutrition and physiological chemistry; structure and metabolism of physiological significant carbohydrates, lipids, and proteins; integration of metabolism with provision of tissue fuels; specie differences in regulatory control of tissue and whole body metabolism of nutrients. Prerequisite: CHEM 3813. (Same as ANSC 5143)

**POSC5152 Protein and Amino Acid Nutrition (Even years, Sp)** Students will be introduced to the basic processes of protein digestion, amino acid absorption, transport, metabolism, and utilization along with how biochemical function of proteins and their dynamic state affect nutritional status for animals and man. Prerequisite: CHEM 3813. (Same as ANSC 5152)

**POSC5233 Value Added Muscle Foods (Even years, Sp)** An intense study of muscle structure and how it relates to the development of further processed meat products. Muscle ultrastructure, protein functionality, product development, and quality analysis will be covered. In class hands on activities will also be included to allow students to obtain experience of producing processed meat products.

**POSC5313 Domestic Animal Bacteriology (Fa)** A study of bacteria pathogenic for domestic animals. Lecture 3 hours per week.

**POSC5343 Advanced Immunology (Sp)** Aspects of innate, cell-mediated, and humoral immunity in mammalian and avian species. Molecular mechanisms underlying the function of the immune system are emphasized. A course in Basic Immunology prior to enrollment in Advanced Immunology is recommended but not required. Lecture 3 hours per week. (Same as BIOL 5343)

**POSC5352L Immunology in the Laboratory (Sp)** Laboratory course on immune-diagnostic laboratory techniques and uses of antibodies as a research tool. Included are cell isolation and characterization procedures, immunochemistry, flow cytometry, ELISA and cell culture assay systems. Laboratory 6 hours per week. Prerequisite: POSC 5343 or BIOL 5343 or BIOL 4713.

**POSC5742 Advanced Poultry Diseases (Odd years, Sp)** An in-depth coverage of the most important diseases of poultry with a focus on understanding mechanisms of pathogenesis, diagnostic techniques and principles of prevention. Lecture/discussion 2 hours per week. Prerequisite: POSC 3223.

**POSC5743L Advanced Analytical Methods in Animal Sciences Laboratory (Fa)** Introduction into theory and application of current advanced analytical techniques used in animal research. Two 3-hour laboratory periods per week. (Same as ANSC 5743L)

**POSC5873 Molecular Analysis of Foodborne Pathogens (Fa)** Course topics will include molecular detection and identification of foodborne pathogens, the molecular response of foodborne pathogens to their environments, functional genomic approaches, and analysis of complex microbial communities. Lecture/discussion 3 hours per week.

**POSC5901 Graduate Seminar (Sp, Fa)** Critical review of the current scientific literature pertaining to the field of poultry science. Oral reports. Recitation 1 hour per week. Prerequisite: Senior standing.

**POSC5923 Brain and Behavior (Fa)** Covers cellular through nervous systems, major brain functions and comparative neuroanatomy. Topics include ion channels, membrane and action potentials, synaptic integration, neurotransmitters, major brain regions of mammals and birds, sensory and autonomic

nervous systems, neuroendocrinology, and control by the brain of critical functions and behavior. Lecture 3 hours per week; Neuroscience Journal Club 1 hour per week (for first 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 and ANSC/POSC 3042, or PSYC 2003, or BIOL 2213, or BIOL 2443, or BIOL 2533.

**POSC5932 Cardiovascular Physiology of Domestic Animals (Fa)** Cardiovascular physiology, including mechanisms of heart function and excitation, and blood vessel mechanisms associated with the circulatory system in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 and ANSC/POSC 3042. (Same as ANSC 5932)

**POSC5942 Endocrine Physiology of Domestic Animals (Fa)** Endocrine physiology, including mechanisms of hormone secretion, function, and regulation. Mechanisms associated with the endocrine system will be discussed for domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 and ANSC/POSC 3042. (Same as ANSC 5942)

**POSC5952 Respiratory Physiology of Domestic Animals (Sp)** Respiratory physiology, including mechanisms of lung function and gas exchange. Mechanisms associated with the interaction of the respiratory system with other bodily systems in domestic animals and poultry will be discussed. Lecture 3 hours; drill 1 hour per week for first 8 weeks of semester. Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 and ANSC/POSC 3042. (Same as ANSC 5952)

**POSC5962 Gastrointestinal/Digestive Physiology of Domestic Animals (Fa)** Gastrointestinal and hepatic physiology, including mechanisms of digestion, absorption of nutrients with emphasis on cellular control mechanisms in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 and ANSC/POSC 3042. (Same as ANSC 5962)

**POSC5972 Renal Physiology of Domestic Animals (Sp)** Renal physiology, including mechanisms of renal clearance with emphasis on cellular control mechanisms in domestic animals and poultry. Lecture 3 hours; drill 1 hour per week (for second 8 weeks of semester). Pre- or Corequisite: CHEM 3813. Corequisite: Drill component. Prerequisite: ANSC/POSC 3032 and ANSC/POSC 3042. (Same as ANSC 5972)

**POSC600V Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**POSC6343 Vitamin Nutrition in Domestic Animals (Even years, Sp)** The vitamins required by domestic animals with emphasis upon their role in animal nutrition, physiological functions, and consequences of failure to meet the requirement of the animal. Lecture 3 hours per week. Prerequisite: (ANSC 3143 or POSC 4343) and CHEM 3813. (Same as ANSC 6343)

**POSC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing.

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Psychology (PSYC)

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**PSYC2003 General Psychology (Sp, Su, Fa)** An introduction to the field of Psychology, including the investigation of the biological bases of behavior; learning and cognitive processes; developmental and social psychology; and personality, psychopathology, and the treatment of psychological disorders. Students will be expected to complete a research requirement.

**PSYC2003H Honors General Psychology (Sp, Fa)** An introduction to the field of Psychology, including the investigation of the biological bases of behavior; learning and cognitive processes; developmental and social psychology; and personality, psychopathology, and the treatment of psychological disorders. Students will be expected to complete a research requirement.

**PSYC2013 Introduction to Statistics for Psychologists (Sp, Su, Fa)** Introduction to the descriptive and inferential statistics commonly used by psychologists. A grade of C or better in PSYC 2013 is required as a prerequisite for PSYC 3073. Corequisite: Drill component. Prerequisite: PSYC 2003 and MATH 2043 or MATH 2053 or MATH 2554, with a grade of C or better, and a Psychology major.

**PSYC206V Directed Readings (Sp, Su, Fa) (1-4)** For undergraduate majors in psychology. Prerequisite: Six hours of psychology; Instructor's permission. May be repeated for up to 6 hours of degree credit.

**PSYC207V Laboratory Experience (Sp, Su, Fa) (1-4)** Labo-

ratory experience in psychology obtained by working as part of a faculty member's research team. Prerequisite: PSYC 2003 and Instructor's permission. May be repeated for up to 6 hours of degree credit.

**PSYC3013 Social Psychology (Sp, Fa)** Theories and representative research in social psychology, emphasizing the influence of the social world on human behavior. Introduction to the problems, theories, and experiments of social psychology. Prerequisite: PSYC 2003.

**PSYC3023 Abnormal Psychology (Sp, Fa)** Theories and representative research about the causes and treatment of the major forms of abnormal behavior. Prerequisite: PSYC 2003.

**PSYC3073 Research Methods (Sp, Fa)** Training in execution and interpretation of experiments using the classical experimental designs. Limited enrollment. Prerequisite: PSYC 2013 and (MATH 2043, or MATH 2053, or MATH 2554) with a grade of "C" or better and a psychology major.

**PSYC3093 Developmental Psychology (Sp, Fa)** Theories and representative research in the psychological factors influencing development, including both hereditary and environmental influences, from conception through adolescence. Prerequisite: PSYC 2003.

**PSYC3103 Cognitive Psychology (Sp)** Introduction to theories and research in cognition including memory, language, and problem-solving. Prerequisite: PSYC 2003.

**PSYC328V Advanced Research (Sp, Fa) (1-3)** A lecture/laboratory course covering research in a specialized area of psychology. Provides experience with design, conduct, analysis, and presentation of research projects related to class topics. Successful completion of the class, including a formal paper in APA style, with a grade of C or better will fulfill the senior writing requirement. Prerequisite: PSYC 3073 with a grade of C or better.

**PSYC3923H Honors Colloquium (Irregular)** Treats a special topic or issue, offered as part of the honors program. May be repeated when the content is changed. Prerequisite: honors candidacy (not restricted to candidacy in psychology).

**PSYC399VH Honors Course (Sp, Su, Fa) (1-6)** Prerequisite: Junior standing and instructor's permission. May be repeated for up to 12 hours of degree credit.

**PSYC4033 Educational Psychology (Irregular)** Psychological theories and concepts applied to the educational process. Investigates the learner and instructional variables in a wide range of educational settings. Prerequisite: Six hours of psychology, not including PSYC 2014.

**PSYC4053 Psychological Tests (Irregular)** Nature and theory of individual and group tests of intelligence, personality, interests, and attitudes. Prerequisite: Nine hours of psychology, including a C or better in PSYC 2013.

**PSYC4063 Psychology of Personality (Irregular)** Theories and representative research concerning the development and nature of the normal personality. Prerequisite: Six hours of psychology, not including PSYC 2014.

**PSYC4073 Psychology of Learning (Sp)** Theories and representative research on basic principles of learning and memory in both animals and humans. Prerequisite: Six hours of psychology, not including PSYC 2013.

**PSYC409V Psychology Seminar (Irregular) (1-6)** Provides intensive coverage of specialized psychological topics. Prerequisite: Six hours of psychology, not including PSYC 2013. May be repeated for up to 18 hours of degree credit.

**PSYC4123 Perception (Irregular)** Theories and representative research in the areas of sensation and perception. Prerequisite: Six hours of psychology, not including PSYC 2013.

**PSYC4143 History and Systems of Psychology (Irregular)** Examination of the concepts, methods, and systems which have contributed to the development of modern psychology. Prerequisite: Fifteen hours of psychology and senior standing.

**PSYC4183 Behavioral Neuroscience (Fa)** Examination of the biological basis of behavior. Surveys the anatomy, physiology, and pharmacology of the mammalian brain and examines brain mechanisms underlying a wide range of behaviors and cognitive processes. Prerequisite: Six hours of psychology, not including PSYC 2013.

**PSYC4193 Comparative Psychology (Sp)** Analysis of animal behavior from an evolutionary perspective, with emphasis on the role of the environment and interactions with other animals in shaping the evolution of behavior within a species, and the evolution of differences in behavior between species. Prerequisite: Six hours of psychology, not including PSYC 2013.

**PSYC4283 Advanced Seminar (Sp, Fa)** A seminar/discussion class covering research in specialized areas of psychology. Students will read original sources and present their ideas and conclusions several formats. Successful completion of the class, including a formal paper in APA style, with a grade of C or better will fulfill the senior writing requirement. Prerequisite:

Eighteen hours of psychology including a grade of at least a C in PSYC 3073; senior standing. May be repeated for up to 6 hours of degree credit.

**PSYC5013 Advanced Developmental Psychology (Sp)** Critical examination of the research relevant to the psychological factors influencing the growth processes of the individual from birth to maturity. Prerequisite: PSYC 4073.

**PSYC5023 Neuropsychological Assessment (Irregular)** Introduction to the principles, techniques, and tools of assessment in clinical neuropsychology. Includes training in the interpretation, integration, and reporting of results. Prerequisite: PSYC 5043; enrollment in the Psychology graduate program.

**PSYC5033 Psychopathology (Fa)** Psychological and somatic factors contributing to pathological behavior. Interrelations of these factors will be analyzed in terms of how they lead to differential abnormal states. Prerequisite: PSYC 3023; enrollment in the Graduate Program in Psychology, or consent.

**PSYC5043 Assessment of Intellectual and Cognitive Abilities (Fa)** Training in the theory, administration and interpretation of individual tests of intelligence and mental ability. Prerequisite: PSYC 4053; Enrollment in the Psychology Graduate Program.

**PSYC5053 Advanced Personality Assessment and Clinical Diagnosis (Fa)** Guidelines for using standardized instruments and structured interviews in the diagnosis and clinical assessment of major psychological disorders. Includes training in the interpretation, integration, and reporting of results. Prerequisite: PSYC 5043 and PSYC 5163.

**PSYC5063 Advanced Social Psychology (Sp)** Theory, methodology, and contemporary research in the major areas of social psychology. Topics include attitude theory and measurement, group processes, social and cultural factors.

**PSYC5073 Introduction to Clinical Practice: Core Skills and Ethical Guidelines (Sp, Fa)** An introduction to clinical practice focusing on a) interview methods and techniques and b) ethical principles and guidelines. Prerequisite: Enrollment in the Psychology graduate program.

**PSYC5080 Observational Practicum (Sp, Su, Fa)** Observation of senior therapists in the provision of psychodiagnostic and psychotherapeutic techniques. Pre- or Corequisite: Psychology Ph.D. students only. May be repeated for up to 0 hours of degree credit.

**PSYC5113 Theories of Learning (Fa)** Major concepts in each of the important theories of learning. Prerequisite: PSYC 4073.

**PSYC5123 Cognitive Psychology (Even years, Sp)** Contemporary theories and research on human information processing including topics such as memory, language, thinking, and problem solving.

**PSYC5133 Inferential Statistics for Psychology (Fa)** Inferential statistics, including representative parametric tests of significance. Special emphasis on analysis of variance, covariance, and component variance estimators as applied to psychological research. Prerequisite: PSYC 2013 or STAT 2013.

**PSYC5143 Advanced Descriptive Statistics for Psychology (Sp)** Special correlation techniques followed by a survey of representative nonparametric tests of significance. Major emphasis on advanced analysis of variance theory and designs. Prerequisite: PSYC 5133.

**PSYC5153 Advanced History and Systems of Psychology (Fa)** Advanced examination of the concepts, methods, and systems which have contributed to the development of modern psychology.

**PSYC5163 Personality: Theory & Disorder (Sp)** An introduction to empirically based theories of personality and personality disorders with an emphasis on clinical application and intervention. Prerequisite: Enrollment in the Psychology graduate program or consent.

**PSYC523V Research Practicum (Sp, Fa) (1-3)** Presentation, evaluation, and discussion of on-going research proposals. Required of all experimental graduate students in the first 2 years of their program.

**PSYC5313 Introduction to Clinical Science: Research Design and Ethical Guidelines (Fa)** Provides a) guidelines for designing and conducting empirical research in clinical psychology, b) ethical principles that regulate clinical research, and c) supervised opportunities to develop a clinical research proposal. Prerequisite: Enrollment in the Psychology graduate program.

**PSYC600V Master's Thesis (Sp, Su, Fa) (1-6)**

**PSYC602V Seminar: Teaching Psychology (Sp, Fa) (1-3)** Survey of the literature on teaching of psychology in college. Includes: planning the course, method, examining and advising students. Prerequisite: Teaching assistant.

**PSYC607V Clinical Practicum III (Sp, Fa) (1-3)** Provides supervised experience in the application of the more complex and lesser known psychodiagnostic techniques and training

and experience in psychotherapeutic techniques with the more severe functional disorders. Level of responsibility and independence to increase in 608V. Prerequisite: PSYC 5073; Enrollment in the Psychology graduate program.

**PSYC6083 Clinical Supervision and Consultation (Sp, Fa)** An introduction to empirically based models of clinical supervision and professional consultation for clinical psychologists. Prerequisite: PSYC 607V; enrollment in the Psychology graduate program.

**PSYC609V Clinical Graduate Seminar (Sp, Fa) (1-3)** Provides intensive coverage of specialized clinical topics. Open to all graduate students. May be repeated for up to 3 hours of degree credit.

**PSYC611V Individual Research (Sp, Su, Fa) (1-18)** May be repeated for up to 18 hours of degree credit.

**PSYC6133 Advanced Behavioral Neuroscience (Fa)** Examination of the biological basis of behavior, with emphasis on underlying neural mechanisms.

**PSYC6163 Psychotherapy (Sp)** A conceptual overview of psychotherapy, with an emphasis on a) common mechanisms, and b) cognitive and interpersonal approaches. Prerequisite: PSYC 5033.

**PSYC6213 Behavior Therapy (Even years, Fa)** Provides clinical experience and training in the major behavior modification technique. Includes also a critical evaluation of theory, research, and issues in the area. Prerequisite: Enrollment in the Psychology graduate program.

**PSYC6223 Diversity Issues in Clinical Psychology (Sp)** The impact of clients' diversity on assessment, treatment, and research in clinical psychology. Broad coverage with an emphasis on implications for clinical practice. Prerequisite: Enrollment in the Psychology graduate program or consent.

**PSYC6323 Seminar in Developmental Psychology (Odd years, Fa)** Discussion of selected topics in the area of human development. Emphasis will be on a review of current theory and empirical research. Topics selected for discussion could range from early development (child psychology), to later development (psychology of adulthood and aging-gerontology), to current attempts to integrate the field (life-span developmental psychology).

**PSYC6343 Seminar in Quantitative Methods (Irregular)** Discussion of selected mathematical approaches to theorizing and research in psychology. Emphasis will be on generalization of a given approach across several content areas of psychology. Hence, while each area must be treated in reasonable depth, current thinking and research spanning more than one content area will be stressed.

**PSYC6353 Seminar in Learning/Memory/Cognition (Odd years, Sp)** Discussion of selected topics in learning, memory, or cognition. Emphasis on current theory and empirical research. Topics selected for discussion may be in the areas of learning, memory, problem solving, or language.

**PSYC6373 Seminar in Personality and Social Psychology (Fa)** Discussion of selected topics in social psychology and personality. Current theoretical positions and recent research findings are emphasized. Topics selected for discussion will be in areas of intrapersonal processes, interpersonal processes, group processes or any of various areas of personality.

**PSYC6413 Seminar in Physiological Psychology (Odd years, Sp)** Discussion of selected topics in physiological psychology. Emphasis will be on a review of current theory and empirical research. Each offering of the seminar will examine the biological basis of a specific aspect of behavior, utilizing both animal and human data.

**PSYC698V Field Work (Sp, Su, Fa) (1-3)** Provides academic credit for field work in multidisciplinary setting, involving supervised experiences in assessment and psychotherapy. May be repeated for credit.

**PSYC699V Clinical Psychology Internship (Sp, Su, Fa) (1-3)** Supervised experience in a multidisciplinary setting of assessment and psychotherapy. May be repeated for credit.

**PSYC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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#### Plant Sciences (PTSC)

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**PTSC6101 Colloquium in Plant Sciences (Sp)** Advanced discussion of topics in plant science on a participatory basis. Topics in plant pathology, horticulture and forestry will be treated. Prerequisite: Graduate standing. May be repeated for up to 2 hours of degree credit.

**PTSC6203 Laboratory Instrumentation in Plant Science (Irregular)** Principles, capabilities, and operation of laboratory instrumentation utilized in plant science research. Lecture 2 hours, laboratory 3 hours per week. Corequisite: Lab component.

**PTSC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Graduate standing.

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#### Public Policy (PUBP)

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**PUBP6001 Pro-Seminar (Fa)** An introduction to the field of public policy and to the program. The seminar will address topics such as the meaning of public policy, policy research, the dissertation process, and particular issues of public policy concern. Prerequisite: Admission to program.

**PUBP6023 Law and Public Policy (Fa)** This course focuses on the legal aspects of public policy, with emphasis on the regulatory process and its legal constraints. Also considered are the process of administrative decision making, judicial review, legislative oversight, and public access to government information. Pre- or corequisite: PUBP 6012.

**PUBP604V Special Topics in Public Policy (Irregular) (1-6)** Designed to cover specialized topics not usually presented in depth in regular courses. May be repeated for up to 6 hours of degree credit.

**PUBP6103 Policy Leadership Seminar (Irregular)** This interdisciplinary seminar will explore the relationship between policy, public administration, and organizations in the community. Stakeholder groups will be considered as part of the newer approaches to practice-driven scholarship. The class will examine innovative approaches to decision making, strategic management and policy leadership in complex interorganizational and interagency settings.

**PUBP6113 Agenda Setting and Policy Formulation (Irregular)** This course is a seminar on agenda and policy formation focusing on the classic theoretical and empirical literature. The course is designed to introduce graduate students to a variety of theories typologies, concepts, and ideas relating to the study of public policy.

**PUBP612V Research Problems in Policy (Sp, Su, Fa) (1-6)** May be repeated for up to 6 hours of degree credit.

**PUBP6134 Capstone Seminar in Public Policy (Sp, Fa)** This course is intended to integrate various policy interests in a specific community based project.

**PUBP700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: candidacy. May be repeated for up to 18 hours of degree credit.

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#### Recreation and Sport Management (RESM)

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**RESM1003 Professional Foundations of Leisure (Sp, Fa)** An analysis of the historical and philosophical development of recreation, sport and leisure. Theories of play, recreation, sport and leisure are studied. Economic, political, technical, and social forces are examined as these influence recreation, sport, parks, and leisure services is examined in context with diverse service delivery systems. Prerequisite: RESM major or RESM minor or by instructor consent.

**RESM1023 Recreation and Natural Resources (Sp, Su, Fa)** An examination of the use and management of natural resources for outdoor recreation with consideration of multiple use, environmental ethics, risk management, and other current considerations. Several field visits will be required as part of the class, including a weekend outing. Prerequisite: RESM major or RESM minor or by instructor consent.

**RESM201V Recreation and Sport Practicum (Sp, Su, Fa) (1-3)** Students are assigned to assist in leisure-oriented programs for exposure to organizational structure, services, and programming of cooperating recreational and sport agencies. Students may take 1-3 hours per semester; each credit hour is a 45-hour experience. Students must complete 3 different experiences before internship. Prerequisite: RESM 1003 or instructor consent. May be repeated for credit.

**RESM2063 The Commercial Recreation, Sport and Tourism Enterprise (Fa)** Examination of the commercial recreation, sport and tourism industries. The operational requirement of a wide range of recreation businesses will be studied. Case study and field investigation methods will be emphasized. Prerequisite: RESM 1003 or instructor consent.

**RESM2093 Inclusive and Special Recreation and Sport (Sp)** An introduction to the basic concepts of inclusive and special recreation and sport services integrated with knowledge and skill sets required to provide accessible recreation and leisure programming for people with disabilities. Prerequisite: RESM 1003 or instructor consent.

**RESM2813 Recreation and Sport Leadership (Sp, Fa)** Development of knowledge related to leadership theory, group dynamics, and face-to-face leadership techniques. Students gain an understanding of leadership theories as they are applied in a field setting. Pre or Corequisite: COMM 1313.

**RESM2853 Leisure and Society (Sp, Su, Fa)** This course is an examination of leisure and its effect on society. Course

content includes identification and exploration of motivating factors related to various traditional and contemporary leisure expressions as it occurs across diverse populations.

**RESM2853H Honors Leisure and Society (Sp, Fa)** This course is an examination of leisure and its effect on society. Course content includes identification and exploration of motivating factors related to various traditional and contemporary leisure expressions as it occurs across diverse populations.

**RESM3023 Sport Management Fundamentals (Fa)** This course is designed to present an overview of the fundamentals of sport management in professional and intercollegiate sport, as well as issues facing sport organizations and how management techniques can be applied to solve sport business problems. A description of career opportunities in sport will be presented with special interest in helping the student design a course of study that best meets his/her goals. Prerequisite: RESM 1003 or instructor consent.

**RESM3833 Program Planning in Recreation and Sport (Sp)** Development of the fundamentals of program planning using modern techniques of identifying and analyzing program activity areas and community needs. Includes program development and application with a variety of population groups and representative leisure service areas. Prerequisite: RESM 1003 or instructor consent.

**RESM3843 Recreation and Sport Facilities (Sp)** Planning concepts, design principles, and maintenance techniques are emphasized. Also, technical design concepts and firsthand experiences in maintenance of facilities are included. Prerequisite: RESM 1003 or instructor consent.

**RESM3873 Sport and Recreation Risk Management (Fa)** In-depth look at risk management and related legal issues affecting recreation and sport administration. Pre- or Corequisite: RESM major or RESM minor or by instructor consent. Prerequisite: Junior standing, and RESM 1003 or instructor consent.

**RESM4003 Innovative Practices in Recreation and Sport (Sp)** Management techniques for recreation and sport programs and facilities. Prerequisite: Senior standing and RESM 1003, or instructor consent.

**RESM4013 Contemporary Issues in Leisure and Sport (Sp)** Discussion of selected topics and review of current literature in the recreation and sport field. Analysis of current trends and professional issues are emphasized. Certification at the instructor level or higher in at least 2 areas of expertise must be completed before a grade is assigned in this course. Prerequisite: Senior standing and RESM 1003, or instructor consent.

**RESM4023 Outdoor Adventure Leadership (Su)** This course considers the values and scope of outdoor recreation programs, leadership and skill development with practical experience in a wilderness environment. The course will include a canoe trip through the wilderness, and skill training in such areas as orienteering and rock climbing; and leadership development in interpersonal and processing skills. The graduate portion of the class is geared toward leading and trip planning for taking college age and older students into remote areas.

**RESM405V Independent Study in Recreation and Sport (Sp, Su, Fa) (1-3)** Provides student an opportunity to pursue special study of research problems. May be repeated for credit.

**RESM4083 Research and Evaluation in Recreation and Sport Management (Sp)** An introduction to the applied methods and techniques of research and evaluation in recreation and sport services. General consideration given to research applications such as needs assessment, program evaluation, and marketing studies. Emphasis placed on the logic underlying the research process. Prerequisite: Senior standing and RESM 1003, or instructor consent.

**RESM4083H Honors Research and Evaluation in Recreation and Sport Management (Sp)** An introduction to the applied methods and techniques of research and evaluation in recreation and sport services. General consideration given to research applications such as needs assessment, program evaluation, and marketing studies. Emphasis placed on the logic underlying the research process.

**RESM440V Internship (Sp, Su, Fa) (1-12)** This experiential based course requires 40 hours per week of work in an approved agency for a full semester. It is recommended that students register for the summer session after completion of their course work. Prerequisite: RESM 3873.

**RESM4411 Pre-Internship Preparation (Fa)** Enables student preparation for internship experiences and eventual employment. Course will assist students in preparation of resumes; provide opportunities for interview practice; the development of job search and application skills, as well as other requisites for entering the professional workforce. Prerequisite: RESM 1003 and Senior standing.

**RESM480V Workshop (Irregular) (1-3)** May be repeated for up to 3 hours of degree credit.

**RESM5003 Graduate Prerequisites (Fa)** Gives students entering a recreation and sport degree program with no course background in recreation and sport the necessary understanding of the recreation and sport field. This course will not count toward a graduate degree in recreation and sport.

**RESM5273 The Intramural Sports Program (Odd Years, Fa)** Historical development, aim and objectives, organization, administration, units of competition, program of activities, schedule making, scoring plans, rules and regulations, awards, and special administrative problems.

**RESM5293 Sport Management (Fa)** Deals primarily with high school athletics and considers historical development, objectives, controlling agencies, eligibility and contest regulations, local organization and administration, staff program, finances, inventories, facilities and equipment, safety, legal aspects, awards, publicity, and public relations.

**RESM5463 Sports Facilities Management (Su)** Considers basic elements and procedures in the planning, design, construction, operation, and maintenance of sport facilities; management considerations in conducting various types of events.

**RESM560V Workshop (Irregular) (1-3)** May be repeated for up to 3 hours of degree credit.

**RESM574V Internship (Irregular) (1-3)**

**RESM5813 Principles of Recreation and Sport (Su)** Considers history, philosophy, current trends, basic issues, and fundamental principles of recreation and sport. Using these principles as basic criteria, students make critical appraisals of current practices in organization and administration of recreation and sport programs, program content, leadership methods, and evaluative procedures.

**RESM5833 Recreation and Sport for Special Populations (Irregular)** Skills, knowledge, and concepts within recreation and sport which are appropriate to planning and implementing recreation and sport programs and services for the handicapped.

**RESM5843 Tourism (Fa)** Explores major concepts of tourism to discover what makes tourism work, how tourism is organized, and its social and economic effects.

**RESM5853 Strategic Organizational Design in Recreation and Sport Management (Sp)** Nature, background, significance, and trends in recreation in the school and community. Attention is given to departmental organization, administrative practices, program financing, personnel, safety, and legal aspects.

**RESM5873 Leadership in Recreation and Sport Management Services (Su)** Considers research, theory, and practical applications of leadership principles utilized in the provision of recreation and sport management services. Focus is on motivation, attitude, communication, group dynamics, and problem solving.

**RESM5883 Recreation and Sport Services Promotion (Su)** Examines specific strategies for promoting recreation and sport programs in the local community.

**RESM5893 Public and Private Finance in Recreation and Sport Management (Fa)** Develops an understanding of both public and private finance management for students in public and private management positions. Provides an understanding of the budgeting processes and techniques used in obtaining and controlling funds, including private sector finance problems in areas of credit, pricing, indexing, and debt management.

**RESM600V Master's Thesis (Sp, Su, Fa) (1-18)**

**RESM605V Independent Study (Sp, Su, Fa) (1-3)** May be repeated for up to 3 hours of degree credit.

**RESM612V Directed Reading in Recreation and Sport (Sp, Su, Fa) (1-3)** Critical analysis of literature in the area of recreation and sport.

**RESM6133 Issues in RESM (Irregular)** A review of the significant social, demographic, behavioral, developmental, and technological issues that influence health, kinesiology, and recreation and sport management programs. Pre- or Corequisite: for doctoral level students only.

**RESM6533 Legal and Political Aspects (Sp)** An overview of major legislation affecting recreation and sport management professions; how to operate within these laws; and methods for influencing new legislation. Also discusses political aspects of professions both outside and inside government agencies.

**RESM674V Internship (Sp, Su, Fa) (1-3)** Students will learn diverse teaching techniques and implement them in an ongoing undergraduate recreation and sport management class serving as the teaching laboratory. The "what" "when" and "how" relative to integrating various teaching techniques with specific content areas in the class will be explored by both the student and the instructor.

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 Rehabilitation Education (RHAB)
 

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**RHAB534V Supervised Rehabilitation Counseling (Sp, Su, Fa) (1-3)** Gives the student practice in counseling under supervision with rehabilitation clients in selected settings and agencies.

**RHAB5363 Employer Relations and Placement Practicum (Sp, Su, Fa)** Students address the placement needs of rehabilitation agencies and their clients by implementing the RehabMark approach to employer development. Prerequisite: RHAB 5493.

**RHAB5373 Multicultural/Gender Issues in Rehabilitation (Su)** This course examines multicultural and gender issues of importance to rehabilitation practice and research, including study of women and men with disabilities within different minority cultures. The course uses a power analysis and a minority model of disability as a basis for understanding the relationship between disability, gender, race and ethnicity.

**RHAB5423 Vocational Rehabilitation Foundations (Fa)** Survey of the philosophy of vocational rehabilitation, including history and legislation.

**RHAB5433 Medical Aspects of Disability (Sp)** Orientation to medical and medically related aspects of various disabling conditions with emphasis on the severely disabled.

**RHAB5443 Rehabilitation Case Management (Sp)** Counseling process in the rehabilitation setting. Focusing upon effective counseling strategies, representative cases, and effective case management methods.

**RHAB5453 Psychological Aspects of Disability (Sp)** Intensive study of the psychological aspects of adjustment to atypical physique and prolonged handicapping condition.

**RHAB5463 Independent Living and Community Adjustment (Fa)** Study of the problems and practices involved in developing and maintaining independent living rehabilitation programs for people who are disabled physically, developmentally, and mentally.

**RHAB5473 Placement of Persons with Disabilities (Su)** Focuses on placement theory and practice as they apply to persons who experience disabilities. Special attention is given to RehabMark approach.

**RHAB5483 Rehabilitation Counseling Research (Fa)** An in-depth examination of rehabilitation research methodology and issues to prepare students to critically evaluate and use rehabilitation counseling research in their professional practice.

**RHAB5493 Vocational Evaluation and Adjustment (Sp)** An in-depth examination of theories and techniques related to evaluation of vocational potential and work adjustment of people with disabilities.

**RHAB574V Internship (Sp, Su, Fa) (1-9)**

**RHAB599V Seminar (Sp, Su, Fa) (1-18)** May be repeated for up to 18 hours of degree credit.

**RHAB605V Independent Study (Sp, Su, Fa) (1-18)**

**RHAB6203 Disability Policy in the U.S. (Fa)** An analysis of public policy approaches to disability in the U.S. Examines the political and philosophical origins of disability policy; reviews major disability legislation and its effects on policy stakeholders; describes recent initiatives; and analyzes evolution of disability policy within context of changing societal, economic, and political conditions.

**RHAB6213 Advanced Psychosocial Aspects of Disability (Odd years, Fa)** A theoretical and applied study of techniques that enable people to cope with 2 major life events: disability and unemployment.

**RHAB6233 Employment Practices and Interventions (Sp)** An intensive study of the employment experiences of workers with disabilities with emphasis on disincentives and barriers to employment and interventions to enable people with disabilities to participate in employment. Prerequisite: RHAB 5493 or equivalent.

**RHAB6243 Advanced Rehabilitation Research (Sp)** An advanced doctoral level course to facilitate the application of scientific values, research skills, and behavior to the generation of rehabilitation knowledge and problem solving.

**RHAB625V Teaching Internship in Rehabilitation (Sp, Su, Fa) (1-18)** Graduate teaching experience in the rehabilitation counseling curriculum. Under the supervision of a faculty member, will participate in the development of syllabi, course materials and examinations. Will team teach graduate rehabilitation courses with the faculty member. May be repeated for up to 18 hours of degree credit.

**RHAB6263 Clinical Supervision of Practicum Students (Su)** The study and practice of supervising master's rehabilitation counseling students in a clinical practicum setting. Prerequisite: Doctoral standing.

**RHAB675V Internship (Sp, Su, Fa) (1-18)** Advanced supervised practice in a rehabilitation setting.

**RHAB699V Seminar (Sp, Su, Fa) (1-18)** Discussion of pertinent topics and issues in the rehabilitation field. Prerequisite: Advanced graduate standing. May be repeated for up to 18 hours of degree credit.

**RHAB700V Doctoral Dissertation (Sp, Su, Fa) (1-18)** Prerequisite: Candidacy.

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Rural Sociology (RSOC)

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**RSOC2603 Rural Sociology (Sp)** Meaning of sociology and sociological concepts with reference to rural society; interdependence of rural and urban population in ecological areas; institutions; social change and adjustment.

**RSOC4603 Environmental Sociology (Sp)** The course provides a social perspective on environmental issues. It examines the linkage between society, ecological systems and the physical environment. It provides conceptual framework(s) for analyzing environmental issues, considers the role of humans in environmental issues, and enhances understanding the complexity of the relationship between societal organization and environmental change. (Same as SOCI 4603)

**RSOC500V Special Problems (Sp, Su, Fa) (1-6)** Gives experience in executing research and in analyzing a sociological problem of agriculture. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**RSOC5603 Community and Natural Resources (Irregular)** Introduction to the breadth of considerations involved in community resource management, including theoretical frameworks, methodological investigations and applied practices to enhance the ability of community development professionals to work with their communities to plan, develop and monitor the conservation and development of natural resources with multiple functions.

**RSOC600V Master's Thesis (Sp, Su, Fa) (1-6)** Prerequisite: Graduate standing.

**RSOC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)**

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Russian (RUSS)

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**RUSS1003 Elementary Russian I (Fa)**

**RUSS1013 Elementary Russian II (Sp)** Elementary courses stress correct pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**RUSS2003 Intermediate Russian I (Fa)** Intermediate courses stress correct pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery of basic grammar and limited reading ability.

**RUSS2013 Intermediate Russian II (Sp)** Continued development of basic, speaking comprehension and writing skills and intensive development of reading skills.

**RUSS3013 Introduction to Literature (Irregular)** Development of reading skills and introduction to literary analysis. Prerequisite: RUSS 2013 or equivalent.

**RUSS3023 Listening Comprehension (Irregular)** Provides intensive practice in listening to recordings taken from such sources as television broadcasts, lectures, and readings of literature. This is supplemented by conversation and by comprehension tests. Prerequisite: RUSS 2003.

**RUSS4123 Survey of Russian Literature from Its Beginning to the 1917 Revolution (Irregular)** The instructor will discuss the historical and cultural backgrounds while focusing on major writers and will deal with literature as an outlet for social criticism. There will be textual analysis. It will be taught in English. (Same as WLIT 4123)

**RUSS4133 Survey of Russian Literature Since the 1917 Revolution (Irregular)** The instructor will discuss the historical and cultural backgrounds while focusing on major writers and will deal with literature as an outlet for social criticism. There will be textual analysis. It will be taught in English with readings in English. (Same as WLIT 4133)

**RUSS475V Special Investigations (Sp, Fa) (1-6)** May be repeated for credit.

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Social Work (SCWK)

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**SCWK2133 Introduction to Social Work (Sp, Su, Fa)** Introduction to social work as a profession and to social welfare institutions from the perspective of the generalist, entry level social worker. Emphasis on empowerment function of social work.

**SCWK3163 On Death and Dying (Sp, Su, Fa)** Reviews the theory and humanistic importance of the concepts of death and dying in society. An experimental option and interdisciplinary faculty presenters will be part of the format. (Same as HUMN 3163)

**SCWK3193 Human Diversity and Social Work (Sp, Su, Fa)**

An introduction to information basic concepts related to human diversity and social work. Provides content on differences and similarities in the experiences, needs, and beliefs of people distinguished by race, ethnicity, culture, class, gender, sexual orientation, religion, physical or mental ability, age or national origin. Prerequisite: Social Work major or minor.

**SCWK3233 Juvenile Delinquency (Sp, Su, Fa)** Nature, causes, extent, and methods of treatment of juvenile delinquency.

**SCWK3633 Child Welfare: 21st Century Perspectives (Sp, Su, Fa)** Study of the needs of deprived children with some attention to methods and standards of care. Cultural competence and family-centered practice are emphasized.

**SCWK399VH Honors Course (Irregular) (1-18)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**SCWK405V Special Topics in Social Work (Irregular) (1-6)** Comprehensive study of various topics of importance in contemporary social welfare and social work practice. Prerequisite: Junior standing. May be repeated for credit.

**SCWK4073 Social Work Research and Technology I (Sp, Fa)** An overview of forms and sources of social work research including existing social data, techniques for collecting original social data, and techniques of organization, interpretation, and presentation of data. Students will also become proficient in the use of current technology for social work research and practice. Pre- or Corequisite: One of the following: STAT 2303, SOCI 3303/3301L, PSYC 2013, or EDFD 2403. Prerequisite: SCWK 4093 and SCWK 4153.

**SCWK4093 Human Behavior and the Social Environment I (Sp, Fa)** (Formerly SCWK 3093) Provides a conceptual framework for knowledge of human behavior and the social environment with a focus on individuals. Social systems, life-course, assets, and resiliency-based approaches are presented. Special attention is given to the impact of discrimination and oppression on the ability to reach or maintain optimal health and well-being. Prerequisite: COMM 1313, PSYC 2003, SOCI 2013, SCWK 2133, and SCWK 3193 and (BIOL 1543 and BIOL 1541L, or ANTH 1013 and ANTH 1011L).

**SCWK4103 Human Behavior and the Social Environment II (Sp, Fa)** (Formerly SCWK 3103) This course applies the basic framework for creating and organizing knowledge of human behavior and the social environment acquired in HBSE I to the understanding of family, group, organizational, community, and global systems. Attention is given to discrimination, oppression, the impact of technology, and poverty at each system level. Prerequisite: SCWK 4093 and SCWK 4153.

**SCWK4143 Addiction and the Family (Sp)** Introduction to the biophysical basis of chemical and behavior compulsions with special focus on family impacts. Childhood development within addictive families is also examined. Social work intervention with substance abusing families is highlighted.

**SCWK4153 Social Welfare Policy (Sp, Fa)** (Formerly SCWK 3153) Describes and analyzes the policies and services rendered by local, state, regional, national, and international agencies as well as the policy implications for social work practice. Students prepare to advocate social policy changes designed to improve social conditions, promote social and economic justice, and to empower at-risk populations. Prerequisite: COMM 1313, PLSC 2003, SCWK 2133, and SCWK 3193.

**SCWK4183 Social Work With Elders (Sp, Fa)** Survey of theories of gerontology, service programs and unmet needs of the aging citizen.

**SCWK4233 Seminar: Children and Family Services (Fa)** An examination of selected current issues in the field of children and family services through discussion, individual study, and interaction with professionals in the field.

**SCWK4333 Social Work Practice I (Sp, Fa)** This is the first in the sequence of practice courses introducing students to the generalist approach to micro social work. This course focuses on developing a solid foundation for practice with individuals, including learning basic communication and helping skills, values, principles, and the connection of theory to practice. Pre- or Corequisite: SCWK 4103. Prerequisite: SCWK 4093 and SCWK 4153.

**SCWK4343 Social Work Practice II (Sp, Fa)** This is the second course in the social work practice sequence, emphasizing theories, models, and techniques related to generalist practice with families and groups. The course elaborates on system theory as it impacts groups and families, and use of experiential teaching methods. Corequisite: SCWK 4733. Prerequisite: SCWK 4103 and SCWK 4333.

**SCWK4412 Field Seminar I (Sp, Su, Fa)** An integrative seminar to assist students in comparing their practice experiences, integrating knowledge acquired in the classroom, and expanding knowledge beyond the scope of the practicum setting.

Corequisite: SCWK 4434 and social work majors only.

**SCWK4422 Field Seminar II (Sp, Su, Fa)** An integrative seminar to assist students in comparing their practice experiences, integrating knowledge acquired in the classroom, and expanding knowledge beyond the scope of the practicum setting. Corequisite: SCWK 4444. Prerequisite: SCWK majors only.

**SCWK4434 Social Work Internship I (Sp, Su, Fa)** Arranged in connection with social service agencies. Credit is based on completion of all course objectives, including a minimum of 225 hours of field work under the supervision of a licensed social worker. Corequisite: SCWK 4412. Prerequisite: Social work major, SCWK 4073, SCWK 4103, and SCWK 4333.

**SCWK4444 Social Work Internship II (Sp, Su, Fa)** Arranged in connection with social service agencies. Credit is based on completion of all course objectives, including a minimum of 225 hours of field work under the supervision of a licensed social worker. Corequisite: SCWK 4422. Prerequisite: SCWK majors only, SCWK 4343, SCWK 4733 and SCWK 4434.

**SCWK4733 Social Work Practice III (Sp, Fa)** Students acquire and practice the skills, knowledge, and values necessary for culturally competent generalist social work practice with organizations and communities. Special attention is given to the implications of discrimination and oppression for attaining social and economic justice. Pre- or Corequisite: SCWK 4343. Prerequisite: SCWK 4103 and SCWK 4333.

**SCWK496V Independent Study (Sp, Su, Fa) (1-6)** Independent Study designed to meet the particular needs of individual students. May be repeated for up to 6 hours of degree credit.

**SCWK5003 Foundations of Culturally Competent Social Work Practice (Fa)** The purpose of this course is the acquisition and demonstration of beginning graduate-level social work values and ethics, knowledge, and skills necessary for cultural competence in work with individuals, families, groups, organizations, communities, and global contexts. A multi-systems life-course conceptual framework is used. Prerequisite: Admission into the two-year or part-time MSW program.

**SCWK5013 Bridge Course: Evidenced Based Social Work (Su)** This course prepares MSW students to transition from the foundation course to the advanced concentration courses. Students will become familiar with the mission and conceptual framework underlying the advanced concentration and develop beginning knowledge of traditional and alternative approaches to client system assessment. Prerequisite: Admission into the advanced standing MSW program or completion of foundation courses.

**SCWK5073 Social Work Research and Technology II (Fa)** This course includes content necessary for thesis proposal development. A significant component for this course focuses on using research tools to begin the thesis. The course provides an orientation to participatory action research, and to the scientific and systematic evaluation of service delivery and personal professional practice. Corequisite: SCWK 6000L and SCWK 6003. Prerequisite: Completion of year one for two-year students or summer semester for advanced standing students.

**SCWK5143 Global Social and Economic Justice and Oppression (Fa)** The role and responsibilities of the social work profession are examined in an international comparative context. Particular emphasis is given to social workers' responsibilities to advance global social and economic justice and reduce human oppression through community, social, economic, and organizational development strategies. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5153 Children, Youth, and Family (Irregular)** This course focuses on the development, revision, and impact of policy and practice in children, youth, and family services. Current issues in policy and practice will be examined. Students will interact with community agencies and utilize class assignments to advocate improvements in current policy and practice. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5163 Social Work Management, Administration and Supervision (Sp, Su)** This course develops advanced skills in management, administration, and supervision in social work organizations. Emphasis is placed on developing leadership skills in ethics, budgeting, finance, resource development, information management, evaluation, staff hiring, supervision and development, and the use of technology in organizational leadership, development, and maintenance. Prerequisite: Graduate standing and SCWK 5003 or SCWK 5013.

**SCWK5173 Advanced Practice with Families and Couples (Fa)** The purpose of this course is to provide advanced understanding of the knowledge, skills and values needed to assess and intervene effectively with traditional and non-traditional families and couples. The course will examine social systems and life-course strengths approaches to understand how families and couples function. Students will design interventions. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5183 Advanced Practice with Individuals (Sp)** This course develops advanced skills in social work practice on a micro level. Students learn to analyze and compare practice models. They gain skills in selecting a practice model and integrating multiple models based on client needs. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5193 Advanced Practice and Policy in Aging (Fa)** This course focuses on social work practice with, and policies for, older persons. Current, past, and future practices and policies for older persons across systems and the life course are explored. Emphasis is placed on the influences of personal, social, economic, and cultural diversity on the well-being of older persons. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5213 Advanced Practice and Policy in Mental Health (Sp)** This advanced course prepares students to identify mental disorders, plan intervention strategies with clients from a strengths perspective, and understand mental health programs and policies through which services are delivered. Differential diagnosis and the impact of socioeconomic status, gender, race, and sexual orientation on diagnosis and treatment decisions are addressed. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5253 Spirituality in Social Work (Sp, Fa)** This course provides a framework of knowledge, values, skills and experiences for spiritually-sensitive social work practice. It prepares students to respond competently and ethically to diverse spiritual and religious perspectives by using a comparative, critically reflective approach to content. Prerequisite: SCWK 3103 or SCWK 5003 or SCWK 5013.

**SCWK5343 Advanced Practice with Groups (Sp, Su)** This course provides advanced knowledge, skills, and values needed to assess and intervene effectively with populations seen in the social work practice of group therapy. This course examines group dynamics, life-course and strengths perspectives, and client-centered assessment of needs and their application in agency settings. Prerequisite: SCWK 5003 or SCWK 5013.

**SCWK5412 Foundation Field Seminar (Sp)** A required course for MSW students without an accredited undergraduate degree in social work. The purpose of the seminar is to allow students to integrate classroom content with experiences in the field, to learn peer supervision and consultation, and to learn from the experiences of other students in the field. Corequisite: SCWK 5434.

**SCWK5434 Foundation Field Internship (Sp)** This course is required of all graduate students entering the MSW program without an accredited undergraduate degree in social work. Minimum of 330 clock hours of agency-based professional social work practicum experience, supervised by a licensed MSW, is required. Corequisite: SCWK 5412. Prerequisite: SCWK 5003, SCWK 4333, SCWK 4073, SCWK 4093, and SCWK 4153.

**SCWK5442 Field Seminar III (Su)** This seminar is required of all graduate students entering the MSW program with advanced standing. Students integrate classroom content with experiences in the field, learn peer supervision and consultation, and learn from the experience of other students in the field. Corequisite: SCWK 5444. Prerequisite: Admission to graduate program with advanced standing.

**SCWK5444 Field Internship III (Su)** This course is required of all graduate students entering the MSW program with advanced standing. A minimum of 240 clock hours of agency-based professional social work practicum experience, supervised by a licensed MSW, is required. Corequisite: SCWK 5442. Prerequisite: Admission to graduate program with advanced standing.

**SCWK596V Independent Study (Sp, Su, Fa) (1-6)** Independent study designed to meet the particular needs of individual graduate students. May be repeated for up to 6 hours of degree credit.

**SCWK6000L Thesis Laboratory (Sp, Su)** This laboratory is required for completion of the thesis, which is developed through components of the graduate Research & Technology sequence. Other courses in the graduate curriculum provide support for the conceptualization and development of the thesis. This laboratory is taken in conjunction with SCWK 5073 and SCWK 6073. Corequisite: SCWK 5073 and SCWK 6073.

**SCWK6003 Advanced Practice I Using the Multi-System Life Course Perspective (Fa)** In this first course of a two-semester sequence, students select a community problem, provide services to clients, and address the problem through policy analysis. A review of literature regarding theory and practice, paradigm analysis, development of a practice model, and implementation of micro and mezzo interventions in the field are examined. Corequisite: SCWK 6444, SCWK 6442, and SCWK 5073.

**SCWK6013 Advanced Practice II Using the Multi-System**

**Life Course Perspective (Sp)** In this second of a two-course sequence students provide services to social work clients. This course covers application of life course theory and multi-system and diversity perspectives. Issues across the life course are considered in addressing interventions through program development, a grant proposal submission, and implementation of macro interventions. Corequisite: SCWK 6073, SCWK 6454, and SCWK 6452. Prerequisite: SCWK 6003.

**SCWK6073 Social Work Research and Technology III (Sp)** In this final research course, students collect and analyze data as planned in the thesis proposal submitted for Research and Technology II. Course content focuses on the advanced research skills necessary to complete the thesis. Students write a research report of their findings and submit it for publication. Corequisite: Lab component and SCWK 6013 and SCWK 6000L. Prerequisite: SCWK 5073.

**SCWK6442 Advanced Field Seminar I (Fa)** The first of two advanced field seminars required of all students in the MSW program. The purpose of the seminar is to allow students to integrate classroom content with experiences in the field, to practice peer supervision and consultation, and to learn from the experiences of other students in the field. Corequisite: SCWK 6444. Prerequisite: SCWK 5412 or SCWK 5442.

**SCWK6444 Advanced Field Internship I (Fa)** This is the first of two advanced field internships required of all graduate students in the MSW program. A minimum of 330 clock hours of agency-based professional social work practicum experience, supervised by a licensed MSW, is required. Corequisite: SCWK 6442. Prerequisite: SCWK 5434 or SCWK 5444.

**SCWK6452 Advanced Field Seminar II (Sp)** This is the second of two advanced field seminars required of all students in the MSW program. The purpose of the seminar is to allow students to integrate classroom content with experiences in the field, to demonstrate peer supervision and consultation, and to learn from the experiences of other students in the field. Corequisite: SCWK 6454. Prerequisite: SCWK 6442.

**SCWK6454 Advanced Field Internship II (Sp)** This is the second of two advanced Field Internship courses required of all graduate students in the MSW program. A minimum of 330 clock hours of agency-based professional social work practicum experience supervised by a licensed MSW is required. Corequisite: SCWK 6452. Prerequisite: SCWK 6442.

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#### Sociology (SOCI)

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**SOCI2013 General Sociology (Sp, Su, Fa)** Group relations, culture, personality, social institutions, collective behavior, and social change.

**SOCI2013H Honors General Sociology (Sp, Su, Fa)** Group relations, culture, personality, social institutions, collective behavior, and social change.

**SOCI2033 Social Problems (Sp, Su, Fa)** Social disorganization, social strains, and deviant behavior, including consideration of war, poverty, ethnic relations, delinquency, drug addiction, mental illness, and population problems.

**SOCI2043 Marriage and the Family (Fa)** A sociological analysis of courtship, marriage, and parenthood patterns including gender relations in and diverse forms of contemporary American families.

**SOCI3023 Criminology (Sp, Su, Fa)** A survey of theories of crime causation, development of law, corrections, victimization, and police and policy. Prerequisite: SOCI 2013 or SOCI 2033. (Same as CMJS 3023)

**SOCI3043 Contemporary Caribbean (Irregular)** The background, development, social organization, problems, and prospects of the contemporary people of the Caribbean Islands and related territories.

**SOCI3103 Religion and Society (Sp)** Comparative study of religious organization, beliefs, practitioners, and rituals. Examination of major social science issues in the study of religion.

**SOCI3153 Urban Sociology (Fa)** The processes of urbanization; the nature of urban social organization; the impact of urban culture on non-urban society; implications for policy and planning; including study of foreign as well as American communities. Prerequisite: SOCI 2013.

**SOCI3193 Race, Class, and Gender in America (Fa)** Introduction to sociological theories and research on social inequality in the United States. Course focuses on the three prominent lines of social division in this society: class, gender, and race. Prerequisite: SOCI 2013.

**SOCI3203 Corrections (Fa)** A study of the origins, development, and practices related to corrections, including incarceration, community corrections and supervision, and intermediate sanctions. Prerequisite: CMJS 2003. (Same as CMJS 3203)

**SOCI3223 Social Psychology (Fa)** Current theories and re-

search in social interaction, with emphasis on symbolic processes, role theory, theories of interpersonal behavior, socialization, and the relation of institutional structures to individual behavior. Prerequisite: SOCI 2013.

**SOCI3253 Cultures of the South (Sp)** Survey of the diverse ethnic and racial groups of the American South with special emphasis on social and cultural traits related to contemporary developments. (Same as ANTH 3253, PLSC 3273)

**SOCI3301L Social Data and Analysis Laboratory (Sp, Fa)** Applied statistics lab to accompany SOCI 3303. Corequisite: SOCI 3303.

**SOCI3303 Social Data and Analysis (Sp, Fa)** An introduction to descriptive and inferential statistics with special emphasis on those techniques most commonly used in social research. Corequisite: SOCI 3301L. Prerequisite: SOCI 2013.

**SOCI3313 Social Research (Sp, Fa)** Study and experience in current methods of social research with emphasis on sociological measurement and design. Prerequisite: SOCI 2013.

**SOCI3513 Criminal Evidence (Sp)** Examination of how criminal evidence is collected by police and used by prosecutors and defense attorneys within a constitutional framework. Prerequisite: CMJS 2003 (Same as CMJS 3513)

**SOCI3723 Deviant Behavior (Fa)** Prevalence, theories, stereotypical responses, and treatment programs for behaviors such as vagrancies, alcoholism, violence, and sexual deviancy which deviate from social norms.

**SOCI399VH Honors Course (Sp, Fa) (1-6)** Prerequisite: junior standing. May be repeated for up to 12 hours of degree credit.

**SOCI4003 Internship in Sociology (Sp, Su, Fa)** (Formerly SOCI 4006) Supervised experience in municipal, county, or state agencies, or any other agency which is approved by the instructor. Prerequisite: SOCI 2013.

**SOCI4013 Special Topics in Sociology (Sp, Su, Fa)** Designed to cover specialized topics not usually presented in depth in regular courses. Prerequisite: SOCI 2013. May be repeated for up to 6 hours of degree credit.

**SOCI4023 Social Theory (Fa)** Nineteenth and 20th century sociological theory. Present-day currents in sociology are studied and related to political, philosophical, and psychological contemporary thought. Prerequisite: SOCI 2013 and junior standing.

**SOCI403V Individual Study in Sociology (Sp, Su, Fa) (1-3)** A reading and conference course on special topics in sociology for advanced students.

**SOCI4043 Seminar in Sociology (Sp)** Prerequisite: Senior standing.

**SOCI4063 Organizations in Society (Fa)** An introduction to the study of organizations; provides a broad overview of issues and problems related to organizations in society. Prerequisite: SOCI 2013.

**SOCI4073 Peoples of East Africa (Fa)** The major institutional structures, dynamics and problems of the Africans, Asians, and Europeans of contemporary Uganda, Kenya, Tanzania, Somalia, Sudan, and Ethiopia. Prerequisite: SOCI 2013.

**SOCI4113 Terrorism and Social Control (Irregular)** Examination of the causes, consequences, and counterterrorism policies affecting terrorism committed against Americans, whether domestic or international. Prerequisite: CMJS 2003 (Same as CMJS 4113)

**SOCI4123 Black Ghetto (Irregular)** The origin, continuity, problems, and personalities, of the Black American community and its contributions to national and international life. Prerequisite: SOCI 2013.

**SOCI4133 The Family (Irregular)** A sociological analysis of the interactions and relationships which constitute the family as a group and as an institution, to include issues of gender and family diversity. Prerequisite: SOCI 2013 or SOCI 2033.

**SOCI4603 Environmental Sociology (Sp)** The course provides a social perspective on environmental issues. It examines the linkage between society, ecological systems and the physical environment. It provides conceptual framework(s) for analyzing environmental issues, considers the role of humans in environmental issues, and enhances understanding the complexity of the relationship between societal organization and environmental change. Prerequisite: Junior or above standing. (Same as RSOC 4603)

**SOCI5001 Proseminar (Fa)** An informal forum for graduate students and faculty to present and discuss ongoing research interests as well as the current state of the discipline. Prerequisite: Graduate standing.

**SOCI500V Advanced Problems in Sociology (Sp, Su, Fa) (1-3)** Individual research on problems or problem areas. Prerequisite: Graduate standing.

**SOCI5013 Advanced Social Research (Fa)** Supervised field experience and other projects in social research. Prerequisite:

SOCI 3301L, SOCI 3303, and SOCI 3313 or instructor consent.

**SOCI503V Special Topics (Irregular) (1-6)** Designed to cover specialized topics not usually presented in depth in regular courses. Prerequisite: Graduate Standing. May be repeated for up to 6 hours of degree credit.

**SOCI5043 Public Policy, Children and Families (Sp)** The study of the impact of public policy on children and families, and the ways in which policies are created, modified, and changed. Includes the history of public policy concerning children and families.

**SOCI5083 Applied Qualitative Research (Fa)** An introduction to research strategies including intensive interviewing, participant observational fieldwork, content analysis, historical analysis, and comparative research. Emphasis on the practical aspects of designing and executing research involving multiple methods of data gathering and analysis. Prerequisite: Graduate standing.

**SOCI5113 Seminar in Social Inequality (Fa)** Major theories of stratification; types of stratification systems, comparisons of modern and traditional systems; emergent trends. Prerequisite: Graduate standing.

**SOCI5133 The Community (Even years, Sp)** A sociological analysis of the theory, methods and materials used in the study of the community. Prerequisite: Graduate standing.

**SOCI5153 Sociological Perspective on Social Psychology (Sp)** Principles, concepts and methods used in analyzing effects of social structures and processes on the self and interaction. Topics include exchange theory, role analysis, symbolic interactionism, social construction of reality, socialization, interpersonal competence, organizational and leadership development, social dislocation, and stress. Prerequisite: Graduate standing.

**SOCI5233 Theories of Deviance (Irregular)** A survey of major theories-classical, developmental, ecological, functionalist, conflict, subcultural, control, and phenomenological-explaining morally condemned differences in society. Particular emphasis is on practical implications of each perspective for policy and social control. Prerequisite: Graduate standing.

**SOCI5253 Classical Social Theory (Fa)** A survey of social theory up to the late 20th century. An introduction to the classical sociological themes that continue to inform research, analysis, and policy formation. Major issues will include the relationship between the individual and the community, and the sources of stability, conflict, and change. Prerequisite: Graduate standing.

**SOCI5263 Contemporary Social Theory (Fa)** Analysis of contemporary social theories & major theoretical debates. Emphasis is on critical evaluation & application of theoretical perspectives to current social issues affecting families and communities. Prerequisite: SOCI 5253.

**SOCI5311L Applied Data Analysis Laboratory (Sp)** Provides instruction for data transformations required for the advanced statistical procedures used in the Statistical Package for the Social Sciences (SPSS). Also provides instruction in the use of advanced statistical procedures covered in SOCI 5313. Prerequisite: SOCI 3303 and SOCI 3301L or an equivalent course in statistics.

**SOCI5313 Applied Data Analysis (Sp, Fa)** Covers basic concepts and applications of the general linear model to a variety of sociological research issues and problems. Also provides an introduction to binary dependent and multivariate categorical data analysis for sociological research. Prerequisite: SOCI 3303 and SOCI 3301L and SOCI 5013. Familiarity with statistical computer programs is assumed.

**SOCI5413 Seminar in Criminological Theory (Sp)** An examination of the causation of crime, focusing primarily on sociological theories. Prerequisite: Graduate standing.

**SOCI5423 Research in Criminology (Irregular)** Examination of empirical research in criminology, focusing on methodological problems, strategies, and findings. Prerequisite: Graduate standing.

**SOCI5433 Victimization (Irregular)** Study of the causes, correlates, and consequences of victimization, focusing on theories of victimization and the role of victims in the criminal justice system. Prerequisite: Graduate standing.

**SOCI5443 Seminar in Terrorism (Irregular)** Examination of the causes and consequences of terrorism. Prerequisite: Graduate standing.

**SOCI5453 Social Control (Irregular)** Study of sociological theories and research on formal social control, primarily institutional responses to criminal behavior. Prerequisite: Graduate standing.

**SOCI5463 White Collar Crime (Irregular)** Study of the nature of white collar, professional, and corporate crime. Prerequisite: Graduate standing.

**SOCI5503 Research Internship (Sp, Fa)** Supervised research experience in field setting. Prerequisite: Graduate standing.

**SOCI600V Master's Thesis (Sp, Su, Fa) (1-6)**

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Space and Planetary Sciences (SPAC)

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**SPAC300V Space & Planetary Sciences Research (Irregular) (1-3)** This course covers research in space and planetary sciences performed by undergraduate students in the University. Prerequisite: Junior Standing and Instructor Consent. May be repeated for up to 6 hours of degree credit.

**SPAC3923H Honors Colloquium (Irregular)** Covers special topics in the space and planetary sciences. Not restricted to any particular major. Prerequisite: Honors candidacy or permission of the instructor. May be repeated for up to 6 hours of degree credit.

**SPAC5033 Planetary Systems (Odd years, Fa)** The nature of the solar system and other planetary systems as deduced from observations and theoretical modelling. Structure and evolution of terrestrial and Jovian planets and their satellites. Planetary atmospheres, magnetospheres, and the solar wind; planetary interiors. Theoretical and observed properties of exoplanetary systems; astrobiology.

**SPAC5111L Space and Planetary Lab (Fa)** Laboratory course in space and planetary sciences consisting of experiments in the five major areas of space and planetary sciences: planetary astronomy, planetary geology, planetary atmospheres, origin and evolution of life and orbital mechanics and astronautics. Intended for students enrolled in the graduate programs in space and planetary sciences.

**SPAC5123 Internship (Sp, Fa)** Internship for graduate students in the space and planetary sciences graduate degree programs and concentrations in the graduate programs in physics, biology, geosciences and mechanical engineering. Students conduct a phase of their research, normally for one month, at a national or industrial laboratory in North America or overseas.

**SPAC5161 Seminar (Sp, Fa)** Seminars organized by the Arkansas-Oklahoma Center for Space and Planetary Sciences covering topics on the cutting edge of research in the field for graduate students conducting research with a faculty member in the space and planetary sciences as part of their graduate degree programs or concentrations in the graduate programs in physics, biology, geology, geography and mechanical engineering.

**SPAC5211 SPAC Proseminar (Sp)** Introductory course consisting of discourses and case studies in ethics, communications and public policy in the administration of space and planetary sciences. Prerequisite: Admission to program or instructor consent.

**SPAC5313 Planetary Atmospheres (Irregular)** Origins of planetary atmospheres, structures of atmospheres, climate evolution, dynamics of atmospheres, levels in the atmosphere, the upper atmosphere, escape of atmospheres, and comparative planetology of atmospheres. (Same as CHEG 5313)

**SPAC5413 Planetary Geology (Even years, Sp)** Exploration of the solar system, geology and stratigraphy, meteorite impacts, planetary surfaces, planetary crusts, basaltic volcanism, planetary interiors, chemical composition of the planets, origin and evolution of the Moon and planets.

**SPAC5513 Biochemical Evolution (Odd years, Sp)** Abiotic synthesis of biomolecules on Earth, the origin of cells; genetic information, origin of life on Earth and elsewhere, evolution and diversity, ecological niches, bacteria, archaea, and eukaryotic, novel metabolic reshaping of the environment, life being reshaped by the environment, molecular data, and evolution. Prerequisite: CHEM 5813.

**SPAC5553 Astrobiology (Even years, Sp)** Discusses the scientific basis for the possible existence of extraterrestrial life. Includes origin and evolution of life on Earth, possibility of life elsewhere in the solar system (including Mars), and the possibility of life on planets around other stars. Prerequisite: Instructor Consent. (Same as BIOL 5553)

**SPAC5613 Astronautics (Irregular)** Study of spacecraft design and operations. Prerequisite: Admission to program or instructor consent.

**SPAC600V Master's Thesis (Sp, Su, Fa) (1-10)**

**SPAC700V Doctoral Dissertation (Sp, Su, Fa) (1-18)**

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Spanish (SPAN)

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**SPAN1003 Elementary Spanish I (Sp, Fa)**

**SPAN1013 Elementary Spanish II (Sp, Fa)** Elementary courses stress pronunciation, aural comprehension, and simple speaking ability, and lead to active mastery basic grammar and limited reading ability.

**SPAN2003 Intermediate Spanish I (Sp, Fa)** Intermediate courses lead to greater facility in spoken language and to more advanced reading skills.

**SPAN2013 Intermediate Spanish II (Sp, Fa)** Continued development of basic speaking comprehension and writing skills and intensive development of reading skills.

**SPAN2013H Honors Intermediate Spanish II (Sp, Fa)** Continued development of basic speaking comprehension and writing skills and intensive development of reading skills.

**SPAN3003 Advanced Spanish (Sp, Fa)** Further intensive practice to strengthen written and oral expression. Includes a review of the essentials of Spanish grammar. Prerequisite: SPAN 2013 or equivalent.

**SPAN3003 Advanced Spanish (Sp, Fa)** Further intensive practice to strengthen written and oral expression. Includes a review of the essentials of Spanish grammar. Prerequisite: SPAN 2013 or equivalent.

**SPAN3003I Advanced Spanish (Sp, Fa)** Further intensive practice to strengthen written and oral expression. Includes a review of the essentials of Spanish grammar. Prerequisite: SPAN 2013 or equivalent. (Same as SPAN 3003, SPAN 3003)

**SPAN3033 Conversation and Composition (Sp, Fa)** Three hours per week of guided conversation (oral) and composition (written) practice for the post-intermediate student. Prerequisite: SPAN 3003.

**SPAN3103 Cultural Readings (Sp, Fa)** A course designed to build vocabulary and to strengthen reading skills and oral expression through extensive practice with culturally authentic materials. Prerequisite: SPAN 2013 or equivalent.

**SPAN3113 Introduction to Literature (Sp, Fa)** Further development of reading skills and introduction to literary commentary and analysis. Prerequisite: (SPAN 3003 and SPAN 3103) or equivalent.

**SPAN3123 Spanish for Heritage Speakers (Irregular)** Advanced course for native Spanish speakers. A study of literary and cultural texts related to Hispanics in the U.S. A review of key language structures, and formal Spanish training for academic and professional contexts. Native speakers can take this course in lieu of SPAN 3103 and SPAN 3003.

**SPAN399VH Honors Spanish Course (Sp, Fa) (1-6)** Prerequisite: Junior standing. May be repeated for up to 12 hours of degree credit.

**SPAN4003 Advanced Grammar (Fa)** For majors and advanced students covering the problematic areas of Spanish syntax and usage. Prerequisite: SPAN 3003 and SPAN 3103.

**SPAN4103 Monuments of Spanish Literature I (Irregular)** Monuments of the major works of Spanish literature from El Cid through the 17th century. Prerequisite: SPAN 3113.

**SPAN4113 Monuments of Spanish Literature II (Irregular)** Monuments of Spanish literature from the 18th century to the present. Prerequisite: SPAN 3113.

**SPAN4133 Survey of Spanish-American Literature I (Irregular)** Survey of Spanish-American literature from the Colonial period to mid-19th Century, including pre-Hispanic Indigenous Literatures. Prerequisite: SPAN 3113.

**SPAN4193 Survey of Spanish-American Literature II (Irregular)** Survey of Spanish-American literature from Modernism to the present, including U.S. Latino literature. Prerequisite: SPAN 3113.

**SPAN4213 Spanish Civilization (Irregular)** A wide-ranging exploration of Spanish history and culture from the Middle Ages to the present. Prerequisite: SPAN 3113.

**SPAN4223 Latin American Civilization (Irregular)** Prerequisite: SPAN 3113.

**SPAN4243 Literature and Culture in the Hispanic United States (Irregular)** An exploration of the history and culture, art and politics of the major Hispanic groups in the United States. Focus on contemporary attitudes and issues. Prerequisite: SPAN 3113.

**SPAN4253 Latin American Cinema and Society (Irregular)** This course examines key issues in Latin American culture and history through films, documentaries, and literary and cultural texts. Topics included are: Human Rights, Ethnicity, Gender, Revisions of the past. Prerequisite: SPAN 3113.

**SPAN4333 Business Spanish I (Fa)** Enhances ability to relate to Spanish-speaking business environments by providing a solid foundation in vocabulary and discourse related to functional business areas such as organization of a company structure, management, banking and accounting, capital investment, personnel and office systems, production of goods and services, marketing, finance, and import-export. Prerequisite: SPAN 3003.

**SPAN4553 Latin America Today (Irregular)** An exploration of recent and contemporary issues in Latin American culture and society, including social classes, ethnicity, urbanization, family, education, and religion, as well as popular culture and artistic

movements. Prerequisite: SPAN 3113.

**SPAN470V Special Topics (Irregular) (1-3)** May be offered in a topic not specifically covered by courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**SPAN475V Special Investigations (Sp, Fa) (1-6)** May be repeated for credit.

**SPAN4883 Indigenous Literatures of Mesoamerica, the Andes and the Amazon (Irregular)** A study of native oral narratives, literary texts and other writing forms in the Americas, from ancient times to the present, including the Andean Khipus, Mesoamerican Codices, and Amazonian mythic narratives. Prerequisite: SPAN 3113. (Same as SPAN 5883)

**SPAN5203 Medieval Spanish Literature (Irregular)** From the 'Jarchas' to the Celestina.

**SPAN5233 Golden Age Novel (Irregular)** Major works of Spanish prose fiction from the 16th and 17th centuries, with close reading of major works.

**SPAN5243 Golden Age Poetry and Drama (Irregular)** History and development of those genres in the 16th and 17th centuries, with close reading of major works.

**SPAN5253 Colonial Literature and Culture (Irregular)** An introductory course to the history, culture and literature of colonial Spanish America from 1492 until 1810. The course will cover representative colonial and indigenous texts and their contexts including Renaissance, Baroque, and travel literature of the Eighteenth Century. The course will be taught in Spanish.

**SPAN5273 Nineteenth Century Survey (Irregular)** From Neoclassicism through Naturalism.

**SPAN5283 Nineteenth Century Drama and Poetry (Irregular)** From Romanticism to the Generation of 1898.

**SPAN5343 Advanced Survey of Spanish Literature Since 1898 (Irregular)** Intensive survey of the literature of Spain from the Generation of 1898 to the present. Prerequisite: graduate standing.

**SPAN5393 19th Century Spanish American Literature (Irregular)** Study of representative literary works from Independence (1810) to 1900's. The course covers Neoclassicism, Romanticism, Realism/Naturalism, and Modernism and the role of literature in the nation-building process. The course will be taught in Spanish.

**SPAN5403 Spanish American Theatre (Irregular)** Historical examination of the theatre in Spanish America, with close analysis particularly of representative works and movements in the 20th century.

**SPAN5433 Cervantes: Don Quijote (Irregular)** A close reading of Spain's greatest literary masterpiece.

**SPAN5453 Cinema and Literature (Irregular)** This course examines several Latin American and Spanish texts and their film adaptations as well as the main film making trends in the Hispanic world.

**SPAN5463 20th Century Spanish American Literature (Irregular)** Critical survey of major movements and outstanding and representative works in 20th century prose and poetry, from the Mexican Revolution and the avant-garde to the contemporary boom and post-boom.

**SPAN5703 Special Topics (Irregular)** May be offered in a subject not specifically covered by the courses otherwise listed. May be repeated for up to 6 hours of degree credit.

**SPAN575V Special Investigations (Irregular) (1-6)** May be repeated for credit.

**SPAN5773 Indigenismo Literature (Irregular)** A study of 'indigenismo', an intellectual and literary tradition in Latin America examining the history of exploitation and marginalization of indigenous peoples. Readings include texts by Mariategui, Icaza, Andrade, Asturias, Arguedas, Castellanos, and also 'indigenista' works in music and the plastic arts.

**SPAN5883 Indigenous Literatures (Irregular)** A study of native oral narratives, literary texts and other writing forms in the Americas, from ancient times to the present, including the Andean Khipus, Mesoamerican Codices, and Amazonian mythic narratives. (Same as SPAN 4883)

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Supply Chain Management (SPCM)

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**SPCM3443 Principles of Transportation (Fa)** Examines forms of transportation and institutional factors that influence transportation decisions; regulation, public policy, other governmental variables reviewed in detail. An introduction to physical distribution's interaction with transportation explored. Prerequisite: ECON 2013 and ECON 2023 or ECON 2143.

**SPCM3613 Business Logistics (Fa)** Management of logistics functions in the firm including physical supply and distribution activities such as transportation, storage facility location, inventory control, materials handling, warehousing, and organi-

zation. Prerequisite: (ECON 2013 and ECON 2023) or ECON 2143.

**SPCM3623 Purchasing and Inventory Systems (Fa)** Management of the purchasing function, including organization, procedures, supplier selection and development, quality control, price determination, global sourcing, and methods of inventory control. Prerequisite: SPCM 3613.

**SPCM3643 International Transportation and Logistics (Sp)** Logistics activities in international business with special emphasis on transportation, global sourcing, customs issues, governmental influence, facility location in global environment, and import-export opportunities. Special emphasis is placed on current events and their effect on the marketing and logistics activities of U.S.-based organizations. Prerequisite: ECON 2013 and ECON 2023, or ECON 2143.

**SPCM4633 Transportation Carrier Management (Fa)** Reviews special management techniques and analytical framework available for solving problems associated with transportation companies. Prerequisite: SPCM 3443.

**SPCM4653 Transportation and Logistics Strategy (Sp)** Design and management of transportation and logistics systems for firms of varying size and different supply and market conditions. This capstone course relies heavily on computer assisted cases and lectures from visiting transportation and logistics executives. Prerequisite: SPCM 3443 and SPCM 3613.

**SPCM466V Independent Study in Transportation and Logistics (Sp, Su, Fa) (1-3)** Permits students to explore selected topics in transportation/logistics.

**SPCM560V Special Topics in Logistics (Irregular) (1-3)** Explores current events, concepts, and new developments in the field of logistics and transportation. Topics are selected by the Marketing and Transportation faculty for each semester the course is offered. May be repeated for up to 3 hours of degree credit.

**SPCM5633 Retail and Consumer Products Supply Chain Management (Sp)** Supply chain management is the integration of key business processes from end user through suppliers. The focus of this course is on the core processes that must be linked throughout the supply chain with an emphasis on logistics processes. Foundational topics in logistics and supply chain management will be covered.

**SPCM5643 Transportation Strategies in the Supply Chain (Fa)** This course focuses on the setting of objectives and the design of optimal transportation strategy and alternative means of implementing transportation strategies within different types of organizations.

**SPCM5653 Global Logistics and Supply Management (Irregular)** This course examines the planning and management of logistics, but emphasizes supplier selection and development, logistics options, strategic alliances, and performance measurement. Emphasis is placed on the integration of purchasing, materials management, and multi-firm logistics planning. International logistics is also addressed within each of these topics. Prerequisite: TLOG 5633.

**SPCM5663 Supply Chain Management (Fa)** This course examines the planning and management of supply chain activities including supplier selection and development, demand management, quick response, vendor managed inventory, logistics options, strategic alliances, and performance measurement. Emphasis is placed on the integration of purchasing, materials management, and multi-firm logistics planning.

**SPCM5673 Modeling Retail & Consumer Products Logistics (Irregular)** This is a more quantitative approach to measuring logistics performance, modeling tradeoffs and making decisions. Topics include forecasting, inventory management, network optimization, and transportation routing. Prerequisite: SPCM 5633.

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Statistics (STAT)

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**STAT2023 Biostatistics (Sp)** An introductory course in biostatistics emphasizing methods for collecting, graphing, and understanding data. Special emphasis is placed upon available methods for both exploratory and confirmatory data analysis. Particular attention is given to statistical methods for data sets with discrete variables. Pre- or Corequisite: MATH 2554. Corequisite: Lab component.

**STAT2303 Principles of Statistics (Sp)** A problem-oriented course with applications from many fields. Emphasis on understanding the nature of statistical orderliness implied by probability laws. Statistical analysis is treated as a means of decision making in the face of uncertainty. Prerequisite: Math 1203 or 1204 each with a grade of "C" or better, or a score of at least 80% on the University of Arkansas Mastery of Algebra Exam, or a score of at least 26 on the math component of the

ACT exam, or a score of at least 600 on the math component of the SAT.

**STAT3013 Introduction to Probability and Statistics (Sp, Su, Fa)** A calculus-based introduction to the foundations of probability and statistics. Emphasis is placed upon understanding elementary properties of probabilities, events, statistical densities and distributions, properties of random variables, law of large numbers, and their relationship to sampling and statistical inference. Prerequisite: MATH 2564.

**STAT4001L Statistics Methods Laboratory (Sp, Fa)** Emphasis on use of integrated statistical packages to complement statistical methodology being covered concurrently in STAT 4003. Corequisite: STAT 4003.

**STAT4003 Statistical Methods (Sp, Fa)** Concepts of probability, sampling, regression, and experimental design. Corequisite: STAT 4001L. Prerequisite: MATH 2554.

**STAT4033 Nonparametric Statistical Methods (Sp, Su, Fa)** Chi square tests. Kolmogorov-Smirnov goodness-of-fit tests, the Mann-Whitney and Wilcoxon 2-sampling tests, and various nonparametric measures of association. Prerequisite: MATH 1203 and junior standing.

**STAT4373 Experimental Design (Sp)** Topics in the design and analysis of planned experiments, including randomized block, Latin square, split plot, and BIB designs, use of fractional factorial replication, and repeated measures. Prerequisite: STAT 4003.

**STAT5103 Introduction to Probability Theory (Fa)** Fundamentals of probability, distribution theory, and random variables; expected value, moments, and generating functions; classic parametric families of distributions; central limit theorems, inequalities, and laws of large numbers. Prerequisite: MATH 2574 and graduate standing in mathematics or statistics, or departmental consent.

**STAT5113 Statistical Inference (Sp)** Statistical theory of estimation and testing hypothesis. Prerequisite: STAT 5103 and graduate standing in mathematics or statistics, or departmental consent.

**STAT5313 Regression Analysis I (Sp)** Matrix formulation of least squares and multiple regression models. Estimability and use of the generalized inverse in analysis of variance and covariance models of less than full rank. Computational aspects are emphasized. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

**STAT5333 Analysis of Categorical Responses (Sp)** A modern treatment, including extensions of classical probit analysis, multivariate logistic models, GSK model, loglinear models in analysis of multiway contingency tables, and nonmetric multidimensional scaling. Prerequisite: STAT 5313, and graduate standing in mathematics or statistics, or departmental consent.

**STAT5343 Stochastic Processes (Sp, Su, Fa)** Markov chains, branching processes, birth-death processes, queuing theory with application. Prerequisite: STAT 5103, and graduate standing in mathematics or statistics, or departmental consent.

**STAT5353 Methods of Multivariate Analysis II (Sp)** Hotelling's T<sup>2</sup> procedures, multivariate analysis of variance, discriminant function analysis and problems of classification, multidimensional scaling, and cluster analysis. Prerequisite: STAT 5313, and graduate standing in mathematics or statistics, or departmental consent.

**STAT5383 Time Series Analysis (Sp, Su, Fa)** Identification, estimation and forecasting of time series. Spectral analysis including the fast Fourier transform computational aspects are emphasized. Prerequisite: STAT 5103, and graduate standing in mathematics or statistics, or departmental consent.

**STAT5413 Spatial Statistics (Fa)** Applied spatial statistics, covering univariate spatial modeling (kriging), multivariate spatial modeling (co-kriging), methods of estimation and inference, and spatial sampling designs. Special relevance to remote sensing. Prerequisite: STAT 5313, and graduate standing in mathematics or statistics, or departmental consent.

**STAT550V Statistical Consulting (Sp, Su, Fa) (1-3)** Designed to give students a statistical consulting practicum. Students meet with clients, analyze data and prepare reports for the clients. May be repeated for up to 6 hours of degree credit.

**STAT610V Research in Statistics (Irregular) (1-4)** Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

**STAT639V Topics in Statistics (Irregular) (1-3)** Current state of the art on methodology in one of the topics: multivariate analysis, time series analysis, sequential analysis, factor analysis, or biostatistics. May be repeated for credit. Prerequisite: Graduate standing in mathematics or statistics, or departmental consent.

## Sustainability (SUST)

**SUST1103 Foundations of Sustainability (Sp)** Foundations of Sustainability is an interdisciplinary course to introduce concepts and theories of sustainability at global, regional, and local levels. Emphasis is on four thematic areas of sustainability: social, natural, built and managed systems. The aim is to increase environmental literacy for engagement of sustainability into students' own disciplines.

**SUST2103 Applications of Sustainability (Fa)** Applications of Sustainability is an interdisciplinary course introducing data gathering, data analysis or interpretation, and synthesis of data applied to problems in sustainability. Students engage in hands-on, inquiry-based investigation of sustainability issues across four thematic areas: social systems, natural systems, built systems (Architecture & Engineering), and managed systems (Agriculture & Business).

**SUST4103 Capstone Experience in Sustainability (Sp, Su, Fa)** A capstone experience focused on service learning, research learning, or internship in sustainability. Student engagement in community service, research, or relevant work on sustainability through a summer internship or equivalent experience provides opportunities for students to apply sustainability theories and principles learned from prior course work toward advancing sustainability across society.

## Swahili (SWAH)

**SWAH1003 Elementary Swahili I (Irregular)** Stresses correct pronunciation, aural comprehension, simple speaking ability, and leads to mastery of basic grammar and limited reading ability.

**SWAH1013 Elementary Swahili II (Irregular)** Continues to stress correct pronunciation, aural comprehension, and speaking ability and continues to build mastery of basic grammar and limited reading ability. Prerequisite: SWAH 1003

**SWAH1116 Intensive Swahili I (Irregular)** Equivalent to 1003 and 1013. Stresses correct pronunciation, aural comprehension, and simple speaking ability, and leads to mastery of basic grammar and limited reading ability.

**SWAH2003 Intermediate Swahili I (Irregular)** Leads to greater facility in spoken language and develops more advanced reading and writing skills. Prerequisite: SWAH 1003 and SWAH 1013.

**SWAH2013 Intermediate Swahili II (Irregular)** Leads to greater facility in spoken language and develops more advanced reading and writing skills. Prerequisite: SWAH 1003, SWAH 1013 and SWAH 2003.

**SWAH2116 Intensive Swahili II (Irregular)** Equivalent to 2003 and 2013. Leads to greater facility in speaking, comprehension, and writing skills and intensive development of reading skills. Prerequisite: SWAH 1116 or SWAH 1003 and SWAH 1013.

## Technology Education (TEED)

**TEED1103 The Nature of Technology (Sp)** Foundational study of the close relationship between nature, emerging technologies, and technological literacy throughout history.

**TEED1603 Industrial Safety (Irregular)** Study of accidents, causes, the cost of accidents, appraising safety performance, safety inspection, planning and maintaining a safe environment, and organization and operation of school laboratories and industrial accident prevention programs.

**TEED2103 Technology and Society (Fa)** An examination of the complex relationships between society, values, and technological development in developed and under-developed nations.

**TEED3103 Frameworks for Resolving Technological Challenges (Even years, Sp)** Foundational concepts of engineering and design, including analysis and use of technology problem solving tools of research, experimentation and trouble-shooting.

**TEED3203 The Technology of Communicating (Irregular)** Conceptual foundations and methodologies for teaching information and communications technology.

**TEED3303 The Technologies of Energy and Movement (Irregular)** Conceptual foundations and methodologies for teaching energy, power, and transportation technologies at the secondary level. Prerequisite: TEED 1103 or TEED 2103.

**TEED4033 Introduction to STEM Education (Sp Su)** This course provides an introduction to the foundations of STEM education disciplines and the strategies used to deliver integrative STEM education in the elementary and secondary school setting. The nature of STEM education disciplines, STEM pedagogy, teaching strategies, integrative STEM learn-

ing, STEM careers, and problem-centered instruction are addressed.

**TEED4103 Engineering Design for Technology Education Capstone (Irregular)** Analysis of engineering design, focus on design processes, physical and computer modeling, and materials processing. Prerequisite: TEED 1103 and TEED 3103.

**TEED459V Industrial Internship (Sp, Su, Fa) (1-12)** In an actual industrial setting, the student will study managerial functions, organizational practices, product design, production fabrication, routing, quality control, work schedules, industrial relations, and related activities of American industrial society. May be repeated for up to 15 hours of degree credit.

**TEED5023 Creativity and Innovation in STEM (Su, Fa)** This introductory course in technology and engineering education (TEED) focuses on the development and introduction of TEED activities to support science and mathematics instruction in the elementary classroom. Through hands-on, problem-based learning challenges, students will develop and understanding of the engineering design process and the integration of STEM often used to solve real-world problems. Prerequisite: TEED 4033.

## U A Clinton School (UACS)

**UACS501V Special Topics in Public Service (Irregular) (1-3)** Designed to cover specialized topics not usually presented in depth in regular courses. May be repeated for up to 6 hours of degree credit.

**UACS502V Advanced Problems in Public Service (Irregular) (1-3)** Provides an opportunity for individual study.

**UACS5101 Ethical and Legal Dimensions of Public Service (Irregular)** This course will provide an overview of the primary ethical principles and legal concepts that guide difficult decisions in the public realm. Traditional academic study of ethical and legal theory will be combined with practical approaches to problem solving. Students will explore issues of economic, political, and social justice through case studies of current issues. Students will construct cases that are relevant to their own fields and present them to the class, identifying ethical and legal constraints on decision-making and implementation.

**UACS5303 Communication Processes and Conflict Transformation (Irregular)** The course is designed to increase the student's personal communication effectiveness as a leader and public servant, and to enable students to understand the application of communication processes in the public arena.

**UACS5313 Dynamics of Social Change (Irregular)** The course deals with the elements of social change in a democratic society, and how these intersect with and are affected by economic and political forces. A critical examination of the various justifications for promoting or discouraging social change will be undertaken, and the inherent strengths and weaknesses of these various approaches will be analyzed. Real-world cases will be used, and a culminating exercise will be a strategic assessment of the Lower Mississippi Delta.

**UACS5323 Leadership in Public Service (Irregular)** This course is designed to increase students' knowledge of leadership concepts and best practices, provide opportunities and experiences that improve leadership skills and techniques, and enhance capabilities in organizational management. Students will assess their leadership strengths and weaknesses, as well as develop an action plan to match their career goals. They will improve knowledge and skills in building diverse teams, in initiating/managing change, in addressing uncertainty, and in leading non-governmental organizations. At the end of the course, students should be able to design leadership strategies to successfully address a spectrum of issues in public service and in promoting the community good.

**UACS5333 Analysis for Decision Making in Public Service (Irregular)** This course is intended to provide students with analytical tools that enhance their skills in diagnosing problems and formulating solutions within organizations and communities. Instruction will focus on evaluating community assets as a balance to assessing community need. Underlying values of social justice and collaborative problem-solving provide a benchmark for these activities. Students, working in teams, will be challenged to apply their skills to cases related to affordable housing and homelessness.

## Vocational and Adult Education (VAED)

**VAED1011 Career Exploration (Sp)** This course examines career exploration strategies using commonly accepted theory in career development. The focus is on decision-making principles, understanding personal characteristics, exploring academic majors, researching occupations and creating a career plan.

**VAED3401 Career Planning and Professional Development for Juniors and Seniors (Irregular)** This course examines the career planning process of self-assessment, exploring career opportunities in the world of work and learning assertive job search strategies that result in the development of a "Life after College" career plan.

## Walton College of Business (WCOB)

**WCOB1012 Legal Environment of Business (Sp, Su, Fa)** Introduction to the legal and ethical environment in which businesses operate. Topics covered in this survey course include: foundations of the American legal system, regulatory environment, torts, criminal law, laws affecting contracts and property, employment law, and forms of doing business.

**WCOB1023 Business Foundations (Sp, Su, Fa)** Surveys the areas of business and presents business processes that are common to most enterprises through a hands-on, interactive business experience. Also develops the double-entry accounting framework that captures and reports information about business process performance. Topics include: analysis and recording of transactions, accounting cycle, and preparation of financial statements. Prerequisite: COMM 1313 with grade of C or better and WCOB 1120.

**WCOB1023H Honors Business Foundations (Sp)** Surveys the areas of business and presents business processes that are common to most enterprises through a hands-on, interactive business experience. Also develops the double-entry accounting framework that captures and reports information about business process performance. Topics include: analysis and recording of transactions, accounting cycle, and preparation of financial statements. Prerequisite: COMM 1313 with grade of C or better and WCOB 1120. WCOB 1111 with a grade of C or better for Walton College majors.

**WCOB1033 Data Analysis and Interpretation (Sp, Su, Fa)** This is an introductory level course covering topics involving estimation of population characteristics, research design and hypothesis testing, as well as measuring and predicting relationships. The course should enable the students to develop an understanding regarding the application and interpretation of basic data analysis techniques with an emphasis on statistical applications. Prerequisite: WCOB 1120 and (MATH 2053 with grade of "C" or better or MATH 2554 with a grade of "C" or better).

**WCOB1033H Honors Data Analysis and Interpretation (Irregular)** This is an introductory level course covering topics involving estimation of population characteristics, research design and hypothesis testing, as well as measuring and predicting relationships. The course should enable the students to develop an understanding regarding the application and interpretation of basic data analysis techniques with an emphasis on statistical applications. Prerequisite: WCOB 1120 and (MATH 2053 with grade of "C" or better or MATH 2554 with a grade of "C" or better).

**WCOB1111 Freshman Business Connection (Fa)** Development of personal development skills, including time management; stress management and academic planning, necessary for success; introduction to business career options and opportunities.

**WCOB1111H Honors Freshman Business Connection (Irregular)** Development of personal development skills, including time management; stress management and academic planning, necessary for success; introduction to business career options and opportunities.

**WCOB1120 Computer Competency Requirement (Sp, Su, Fa)** Students entering the Walton College are expected to possess basic competencies in MS Windows, Word, Excel, PowerPoint, and Blackboard, and be familiar with e-mail and the Internet. Students need to pass a competency test. Deficiencies may be remedied through appropriate self-paced, computer-based instruction.

**WCOB200V Study Abroad (Su) (1-15)** Open to freshmen and sophomore undergraduate students studying abroad in officially sanctioned programs. May be repeated for up to 24 hours of degree credit.

**WCOB2013 Markets and Consumers (Sp, Su, Fa)** Key decisions required to understand the existence of markets and how buyers within those markets may be accessed profitably. Key concepts include an overview of competitive markets, buyer behavior, developing new markets and products, promotion and distribution channels, pricing and profitability concepts, the sales and collections process, and strategic planning. Prerequisite: WCOB 1023, WCOB 1033, ECON 2023, and WCOB 1012--each with a grade of "C" or better.

**WCOB2013H Honors Markets and Consumers (Irregular)**



Key decisions required to understand the existence of markets and how buyers within those markets may be accessed profitably. Key concepts include an overview of competitive markets, buyer behavior, developing new markets and products, promotion and distribution channels, pricing and profitability concepts, the sales and collections process, and strategic planning. Prerequisite: WCOB 1023, WCOB 1033, ECON 2023, and WCOB 1012--each with a grade of "C" or better.

**WCOB2023 Production and Delivery of Goods and Services (Sp, Su, Fa)** This course is designed to provide students with a broad understanding of the production and delivery of goods/services. The course focuses on concepts and methodologies for managing the flow of material and information throughout the production and delivery of goods/services. Prerequisite: WCOB 1023, WCOB 1033, ECON 2023, and WCOB 1012--each with a grade of "C" or better.

**WCOB2033 Acquiring and Managing Human Capital (Sp, Su, Fa)** Study of the process of acquiring and managing human resources, focusing on the organizational behavior, legal, economic, and technical issues concerned with business decisions about acquiring, motivating, and retaining employees; emphasis given to the development, implementation, and assessment of policies and practices consistent with legal, social, human, and environmental dynamics. Prerequisite: WCOB 1023, WCOB 1033, ECON 2023, and WCOB 1012--each with a grade of "C" or better.

**WCOB2033H Honors Acquiring and Managing Human Capital (Irregular)** Study of the process of acquiring and managing human resources, focusing on the organizational behavior, legal, economic, and technical issues concerned with business decisions about acquiring, motivating, and retaining employees; emphasis given to the development, implementation, and assessment of policies and practices consistent with legal, social, human, and environmental dynamics. Prerequisite: WCOB 1023, WCOB 1033, ECON 2023, and WCOB 1012--each with a grade of "C" or better.

**WCOB2043 Acquiring and Managing Financial Resources (Sp, Su, Fa)** Key decisions within business processes related to the acquisition and management of capital resources, including decisions regarding what to acquire, how to finance the acquisition, and issues related to the accounting for those capital resources. The identification of key decisions leads to decision models and the identification of information needs. Prerequisite: WCOB 1023, WCOB 1033, ECON 2023, and WCOB 1012--each with a grade of "C" or better.

**WCOB210V Special Topics in Business (Sp) (3-6)** Special topics of an interdisciplinary nature. May be repeated for up to 6 hours of degree credit.

**WCOB3003H Honors College Colloquium (Sp, Fa)** An interdisciplinary course exploring events, concepts, and/or new developments in the field of business administration. Prerequisite: Junior or senior standing. May be repeated for up to 6 hours of degree credit.

**WCOB300V Study Abroad (Sp, Su, Fa) (1-15)** Open to undergraduate students studying abroad in officially sanctioned programs. May be repeated for up to 24 hours of degree credit.

**WCOB3016 Business Strategy and Planning (Sp, Fa)** Integrative study of the managerial decisions; introduces students to an understanding of strategic competitiveness and the way in which business strategy is formulated and implemented; uses a combination of theoretical and experiential approaches to designing business plans for key decisions, implementing these decisions, and monitoring their effects. Prerequisite: A business student must complete the pre-business requirements before enrolling for this course. WCOB 2013, WCOB 2023, WCOB 2033, and WCOB 2043 must each be completed with a grade of "C" or better. This course is restricted to Walton College students.

**WCOB3016H Honors Business Strategy and Planning (Fa)** Integrative study of the managerial decisions; introduces students to an understanding of strategic competitiveness and the way in which business strategy is formulated and implemented; uses a combination of theoretical and experiential approaches to designing business plans for key decisions, implementing these decisions, and monitoring their effects. Prerequisite: a business student must complete the pre-business requirements before enrolling for this course. WCOB 2013, WCOB 2023, WCOB 2033, and WCOB 2043 must each be completed with a grade of "C" or better. This course is restricted to Walton College students.

**WCOB3023 Sustainability in Business (Irregular)** The course focuses on the theoretical and practical bases for pursuing sustainability in business and society. Students learn four definitions of sustainability, measured on four axes expressed by: 1987 UN Brundtland Report (intergenerational equity), Triple-play (people, planet, profits), resource sustainability, and

economic justice (fair global system of rules, fairly enforced). Prerequisite: Junior standing.

**WCOB3033 The African American Experience in Business (Irregular)** This course is designed to provide the student with a comprehensive and critical analysis of the history of the African American experience as a member of the business sector of the United States economics. The course will review information that includes and demonstrates activities prior to slavery, during, and after slavery.

**WCOB3043 From Books to Boardrooms (Sp, Su, Fa)** Examines career choices and skills necessary to be successful as a professional in the workforce. Self-assessment and career exploration strategies are examined using career development theories. Incorporates career path management principles to include exploring occupations, networking, enhancing business communications, job searching, workplace success skills, and college to work transition. Business majors may not use course towards upper level business credit, but may be used toward non-business elective credit. Prerequisite: Junior standing.

**WCOB310V Cooperative Education (Sp, Su, Fa) (1-3)** Co-op allows students to earn one or two hours of credit per semester for work related to their major. Accumulated credit may not exceed six hours. Eligibility requires: 1) junior standing in the college, 2) completion of the pre-business core and 3) the prescribed GPA. See catalog for details. Prerequisite: Junior standing and completion of pre-business core. May be repeated for up to 6 hours of degree credit.

**WCOB410V Special Topics in Business (Irregular) (1-6)** Special business topics of an interdisciplinary nature. May be repeated for up to 6 hours of degree credit.

**WCOB410VH Honors special Topics in Business (Irregular) (1-6)** Special business topics of an interdisciplinary nature. May be repeated for up to 6 hours of degree credit.

**WCOB4213 ERP Fundamentals (Sp, Fa)** An introduction to enterprise resource planning systems. Students should gain an understanding of the scope of these integrated systems that reach across organizational boundaries and can change how a company does business. Implementation issues are covered, including the importance of change management. Prerequisite: WCOB 2023 and WCOB 2043 or CSCE 2014 each with a grade of "C" or better.

**WCOB4223 ERP Configuration and Implementation (Fa)** The process of configuring and implementing an enterprise resource planning system. Business process analysis and integration. Students will develop a company and set up several modules in SAP R/3 for use. Develop understanding of how the business processes work and integrate. Prerequisite: WCOB 4213.

**WCOB455V Service Learning Practicum (Sp, Su, Fa) (1-3)** Through participation in this practicum, students learn while providing services that benefit the community. The goal is for students to learn, practice, and teach the principles of free enterprise. The students assess community needs and design service projects that enable them to apply course content knowledge while developing organizational, communication, time-management, and leadership skills. May be repeated for up to 6 hours of degree credit.

**WCOB4993H Honors Thesis (Sp, Fa)** Provides Honors Students with an opportunity to explore a business topic in depth through an independent research project. Prerequisite: Good standing in the Walton College Honors Program.

**WCOB500V Study Abroad (Sp, Su, Fa) (1-6)** Open to graduate students studying abroad in officially sanctioned programs. May be repeated for up to 12 hours of degree credit.

**WCOB5023 Sustainability in Business (Sp, Fa)** The course focuses on the theoretical and practical bases for pursuing sustainability in business and society.

**WCOB510V Special Topics in Business (Irregular) (1-3)** Special business topics of an interdisciplinary nature. May be repeated for up to 6 hours of degree credit.

**WCOB5213 ERP Fundamentals (Su, Fa)** An introduction to enterprise resource planning systems. Students should gain an understanding of the scope of these integrated systems that reach across organizational boundaries and can change how a company does business. Implementation issues are covered, including the importance of change management. Prerequisite: Graduate standing.

**WCOB5223 ERP Configuration and Implementation (Fa)** The process of configuring and implementing an enterprise resource planning system. Business process analysis and integration. Students will develop a company and set up several modules in SAP R/3 for use. Develop understanding of how the business processes work and integrate. Prerequisite: WCOB 5213 or equivalent.

**WCOB5843 Cross-Sector Collaboration for Sustainability**

**(Irregular)** This course explores how organizations in the three sectors of society work together in value creation by addressing social and environmental problems. Focusing on business and nonprofit organizations, we investigate the forces that bring about and influence these collaborations from practical and theoretical perspectives, and managerial responses to collaboration challenges. Prerequisite: Graduate status.

**WCOB6111 Seminar in Business Administration Teaching I (Fa)** This course in college level teaching is designed for graduate students and new college teachers with specific emphasis on the Business Administration learning and classroom management. The purpose of this course is to introduce graduate students to principles of teaching and learning and to prepare these future teachers to lifelong learners in the classroom as teachers. Prerequisite: Graduate standing.

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#### Workforce Development (WDED)

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**WDED5213 Foundations of Adult Education (Sp)** History of the adult education movement in America, characteristics, interests, abilities, and educational needs of adults; the role of the public school in adult education; methods and techniques of conducting adult classes.

**WDED5223 Principles of ABE/GED/ESL (Su)** An introductory course to teaching adults at the Adult Basic Education (ABE), General Education Development (GED-High School Equivalency), and English as a Second Language (ESL) levels. Will address instructional needs assessment, curriculum development and evaluation, and techniques of teaching basic skills in various settings including public schools, vocational-technical schools, technical institutes, technical colleges, community organizations, and the workplace.

**WDED5233 Teaching Disadvantaged Adults (Su)** A survey of the diversity of adult learners comprising that population described as educationally disadvantaged. Consideration given to the various physical, mental, social, and economic factors which contribute to the uniqueness of this body of individual differing abilities.

**WDED5433 School-To-Workforce (Su)** This course is designed to provide information on the role of the school in workforce development and to introduce a teacher to the skills desired in a seamless educational curriculum model.

**WDED5513 Principles of Adult Learning (Fa)** The learner in adult education programs is examined from young adulthood to death. Emphasis is given to understanding the effect this knowledge has on the teaching-learning process in adult education and to how adult education programs are designed to serve the uniqueness demanded by adult learning situations.

**WDED5563 Introduction to Distance Learning (Sp)** This course is designed to build a knowledge base about distance learning environments, especially online learning. This course emphasizes interaction among pedagogical models, instructional models, and learning technologies. The content is contextualized within higher learning, K-12 school, and corporate training.

**WDED5583 Internship (Sp, Su, Fa)** Site-based activity designed for those seeking Adult Education Licensure. Pre- or Corequisite: WDED 5513. Prerequisite: WDED 5223.

**WDED6113 Nontraditional Student (Irregular)** An overview of activities that could ultimately promote greater access and success for adult learners with higher education and/or advanced training.

**WDED6123 Adult Learner: The Later Years (Sp, Su, Fa)** Directed toward people who are most likely to interact with older adults in a learner setting. Emphasis is on understanding the educational needs, wants, and characteristics of older learners so that appealing, valuable, and efficient instruction can be developed.

**WDED6213 Training in the Workplace (Su)** An introduction to and survey of current theories and practices in training in the workplace. Students are expected to explore selected interdisciplinary topics in areas such as adult education, vocational education, human resource development, organizational behavior, instructional technology, and economics as they relate to training in the workplace.

**WDED6223 Organization Development (Sp)** This course teaches development of organization activities that intervene in the interaction of people systems to increase the effectiveness of using a variety of applied behavioral sciences. It includes the dynamics of organizations, the genesis of organizational theory and evolution of organizational dynamics, including examination of system structure, chaos theory, group dynamics and interaction, leadership theories, diversity issues impacting organizations, and techniques of change agent intervention.

**WDED6233 Learning Organization (Fa)** This course emphasizes the theory and practice of learning organizations,

especially the processes that facilitate individual and group learning.

**WDED6513 Leadership Models and Concepts (Sp, Su)** This doctoral course concentrates on using commonly accepted principles of leadership to develop skills needed in workforce development education settings.

**WDED6523 Curriculum Design (Sp, Su, Fa)** Determining principles of curriculum development, implementation, and evaluation with emphasis in adult and human resource development education.

**WDED6533 Adult Literacy (Su)** This course is based upon theoretical models of adult learning and teaching methods. The course addresses the historical background of literacy programs, evolution of teaching techniques, social economic and community, needs, curriculum development and evaluation, and techniques of teaching adult literacy in various settings, including public schools, vocational and technical schools, technical institutes, technical colleges, community organizations, and the workplace.

**WDED6543 Program Planning and Evaluation in Workforce Development (Sp)** Emphasis is given to understanding the theoretical foundation upon which the programming and evaluation processes are predicated, developing a theoretical mode, and acquiring the conceptual tools necessary for analyzing the programming process in any workforce development education organization.

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World Literature (WLIT)

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**WLIT1113 World Literature I (Sp, Su, Fa)** An introduction to literature from the beginning of civilization to about 1650.

**WLIT1113H Honors World Literature I (Sp, Su, Fa)** Introduction to the study of both western and non-western literature. Prerequisite: Participation in Fulbright College Scholars Program or English ACT score of 28 or above.

**WLIT1123 World Literature II (Sp, Su, Fa)** An introduction to literature from 1650 to the present. Prerequisite: WLIT 1113.

**WLIT1123H Honors World Literature II (Sp, Su, Fa)** A continuation of the study of literary masterpieces of the world. Prerequisite: WLIT 1113H and participation in the Fulbright College Scholars Program or English ACT score of 28 or above.

**WLIT2323 Greek and Roman Mythology (Irregular)** A study of the stories, figures, and motifs in the mythology of Greece and Rome. Prerequisite: ENGL 1013 and ENGL 1023.

**WLIT3623 The Bible as Literature (Irregular)** The several translations of the Bible; its qualities as great literature; its influence upon literature in English; types of literary forms. (Same as ENGL 3623)

**WLIT3723 Classical Arabic Literature (Irregular)** Arabic literature from the 1) pre-Islamic era; 2) dawn of Islam, 610-661 C.E.; 3) Umayyad era, 661-750; Abbasid era, peaking in the ninth and tenth centuries. May include selected post-classical but pre-modern works. No Arabic required; students with Arabic encouraged to engage original text.

**WLIT3723H Honors Classical Arabic Literature (Irregular)** Arabic literature from the 1) pre-Islamic era; 2) dawn of Islam, 610-661 C.E.; 3) Umayyad era, 661-750; Abbasid era, peaking in the ninth and tenth centuries. May include selected post-classical but pre-modern works. No Arabic required; students with Arabic encouraged to engage original text.

**WLIT3743 Arab American Literature (Odd years, Sp)** Literature by Arab immigrants to North America and their descendants, probing pertinent contexts including the rise of ethnic studies in the U.S. No Arabic required.

**WLIT3743H Honors Arab American Literature (Odd years, Sp)** Literature by Arab immigrants to North America and their descendants, probing pertinent contexts including the rise of ethnic studies in the U.S. No Arabic required.

**WLIT3983 Special Studies (Irregular)** Covers a topic not usually presented in depth in regular courses. Not an independent study. May be repeated for up to 6 hours of degree credit.

**WLIT4123 Survey of Russian Literature from Its Beginning to the 1917 Revolution (Irregular)** The instructor will discuss the historical and cultural backgrounds while focusing on major writers and will deal with literature as an outlet for social criticism. There will be textual analysis. It will be taught in English. (Same as RUSS 4123)

**WLIT4133 Survey of Russian Literature Since the 1917 Revolution (Irregular)** The instructor will discuss the historical and cultural backgrounds while focusing on major writers and will deal with literature as an outlet for social criticism. There will be textual analysis. It will be taught in English with readings in English. (Same as RUSS 4133)

**WLIT4993 African Literature (Irregular)** A study of modern African fiction, drama, poetry, and film from various parts of

Africa in their cultural context. Works are in English or English translation.

**WLIT5193 Introduction to Comparative Literature (Irregular)** Literary theory, genres, movements, and influences. Prerequisite: WLIT 1113.

**WLIT5623 The Bible as Literature (Irregular)** The several translations of the Bible; its qualities as great literature; its influence upon literature in English; types of literary forms. (Same as ENGL 5623)

**WLIT575V Special Investigations on World Literatures and Cultures (Irregular) (1-6)** Independent study of a special topic in world literatures and cultures. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**WLIT600V Master's Thesis (Sp, Su, Fa) (1-6)**

**WLIT603V Special Studies in Comparative Literature (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

**WLIT6703 Psychoanalysis and Culture (Irregular)** Readings of key texts in Psychoanalytic thought and cultural criticism including Freud, Lacan, Kristeva, Certeau, Zizek, and others. Selections of Psychoanalytic approaches to literature, film and gender and trauma studies.

**WLIT6803 Postcolonial Theory and Subaltern Studies (Irregular)** Seminar examining the geopolitical (imperial, colonial and national) implications of knowledge and culture. Selected readings of early postcolonial texts by Cesaire, Fanon, and Fernandez Retamar, as well as more recent texts by Said, Spivak, Bhabha, Mignolo, Beverly and Chakrabarty among others. May be repeated for up to 6 hours of degree credit.

**WLIT690V Seminar (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

**WLIT700V Doctoral Dissertation (Sp, Su, Fa) (1-18)**

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World Languages, Literature and Cultures (WLLC)

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**WLLC2413 Migrant Experiences in Multicultural Europe (Irregular)** Introduction to the great diversity of Europe. Through three five-week units, students will participate in discussions regarding the identity of the inhabitants of France, Germany, and Italy. The course is team taught by faculty in French, German, and Italian. Does not count toward the foreign language requirement.

**WLLC3173 Introduction to Linguistics (Irregular)** Introduction to language study with stress upon modern linguistic theory and analysis. Data drawn from various languages reveal linguistic universals as well as phonological, syntactic, and semantic systems of individual languages. Related topics: language history, dialectology, language and its relation to culture and society, the history of linguistic scholarship. Prerequisite: Junior standing. (Same as ANTH 3173, COMM 3173, ENGL 3173)

**WLLC3923H Honors Colloquium (Irregular)** Covers a special topic or issue, offered as part of the honors program. Prerequisite: Honors candidacy (not restricted to candidacy in foreign languages). May be repeated for credit.

**WLLC398V Special Studies (Irregular) (1-6)** A course (not independent study) which covers a topic or author not usually presented in depth in regular courses. May be repeated for credit.

**WLLC4023 Language, Culture and Web 2.0 Technologies (Sp)** This course provides senior level undergraduate and graduate students with innovative ways to teach and communicate through the use of Web 2.0 technologies as applied to second languages. Topics of discussion include instructional systems design, Web 2.0 technologies (blogs, wikis, Facebook, and other interactive tools), presentation technologies, online facilitation, and effective utilization of technological tools in language and culture courses. Prerequisite: Senior standing.

**WLLC4023H Honors Language, Culture and Web 2.0 Technologies (Sp)** This course provides senior level undergraduate and graduate students with innovative ways to teach and communicate through the use of Web 2.0 technologies as applied to second languages. Topics of discussion include instructional systems design, Web 2.0 technologies (blogs, wikis, Facebook, and other interactive tools), presentation technologies, online facilitation, and effective utilization of technological tools in language and culture courses. Prerequisite: Senior standing.

**WLLC4033 Language, Culture and Video Development (Irregular)** This course provides senior level undergraduates and graduate students with the knowledge and skills needed to teach and communicate through the use of video as applied to second languages. Topics of discussion include instructional systems design, videotaping, editing and development for internet and DVD delivery, and effective utilization of video in

teaching and communication. Prerequisite: Senior standing.

**WLLC4033H Honors Language, Culture and Video Development (Irregular)** This course provides senior level undergraduates and graduate students with the knowledge and skills needed to teach and communicate through the use of video as applied to second languages. Topics of discussion include instructional systems design, videotaping, editing and development for internet and DVD delivery, and effective utilization of video in teaching and communication. Prerequisite: Senior standing.

**WLLC423V Culture and Civilization: Field Studies (Irregular) (1-18)** May be taken by students participating in overseas work study programs approved by the department. May be repeated for credit.

**WLLC423VH Honors Culture and Civilization: Field Studies (Irregular) (1-18)** May be taken by students participating in overseas work study programs approved by the department. May be repeated for credit.

**WLLC504V Translation Workshop (Irregular) (1-6)** Problems of translation and the role of the translator as both scholar and creative writer; involves primarily the discussion in workshop of the translations of poetry, drama, and fiction done by the students, some emphasis upon comparative studies of existing translations of well-known works. Primary material will vary. Prerequisite: Reading knowledge of a foreign language. (Same as ENGL 5043)

**WLLC5063 Teaching Foreign Languages on the College Level (Irregular) (1-18)** Focus on basic methodological concepts and their practical application to college foreign language instruction.

**WLLC5463 Descriptive Linguistics (Fa)** A scientific study of language with primary emphasis on modern linguistic theory and analysis. Topics include phonology, morphology, syntax, semantics, language acquisition, and historical development of world languages. (Same as ANTH 5473, COMM 5463, ENGL 5463)

**WLLC575V Special Investigations (Irregular) (1-6)** May be repeated for up to 6 hours of degree credit.

# Index

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## A

- Abbreviations, course, 307
- Academic advising, 25
- Academic bankruptcy, 18
- Academic calendar, 4, 5
- Academic facilities and resources, 50
- Academic Honors Societies, 13; also see colleges
- Academic integrity, 34
- Academic, satisfactory progress, 39
- Academic scholarship office, 20
- Academic regulations, 34, also see colleges
  - academic status, 39
  - additional Bachelor's degree, 44
  - advanced standing programs, 45
  - attendance, 37
  - core requirements, 39-41
  - dismissal, 39
  - eight-semester degree completion plan, 42
  - final examination policy, 37
  - grade forgiveness, 38
  - grades and marks, 38
  - graduation honors, 38
  - graduation rates, 43
  - graduation requirements, 39
  - honor roll, 38
  - integrity, 34
  - photographic and video images, 44
  - privacy (FERPA), 44
  - progress, suspension, dismissal, 39
  - religious observances, 37
  - requirements for graduation, 39
  - senior scholar, 38
  - student academic appeals, 45
  - suspension, 39
  - term paper assistance, 37
  - transfer of credit, 43
  - University Core, (State Minimum Core), 39-41
  - waiver of academic policies, 44
- Accelerated admission, 16
- Accounting, 214, 308
- Accreditations, 12
- Adding and dropping courses, 26
- Additional bachelor's degree, 44
- Administrative officers, 7
- Admission, 15
  - academic bankruptcy, 18
  - English language use, 19
  - graduate school, 19
  - how to apply, 16, 17
  - international students, 18
  - law school, 19
  - non-degree seeking students, 17
  - preparatory curriculum for freshmen, 16
  - returning students, 17
  - transfer admission, 16
  - when to apply, 16, 17
- Advanced standing programs, 43
  - Advanced Placement, 46-47
  - CLEP credit, 45
  - credit by examination, 45
  - International Baccalaureate (IB), 46
  - placement and proficiency tests, 18
- Advising, academic, 25
- Aerospace Studies, 282, 310
- African and African American Studies, 135, 308
- Agricultural and Extension Education, 78, 311
  - Agricultural Communications, 78
  - Agricultural Education, 78, 311
  - Agricultural Systems Technology Management, 78
- Agricultural Economics and Agribusiness, 81, 310
  - Agricultural Business, 81
  - Global Agricultural, Food and Life Sciences, 82
- Agricultural Experiment Station, 51
- Agricultural, Food & Life Sciences, Dale Bumpers College of, 73
  - accreditations, 75
  - academic advising, 74
  - academic requirements, 77
  - admission requirements, 77
  - degree requirements, 77
  - degrees offered, 75
  - facilities, 73
  - fields of study, 75
  - grading system, 78
  - history, 73
  - honor societies, 74
  - honors program, 76

- majors and minors, 75
    - organizations, 74
    - pre-veterinary medicine, 76
    - scholarships, 74
    - study abroad, 77
  - Agricultural Mechanization, courses, 312
  - Agricultural Statistics, courses, 313
  - Air Force Reserve Officer Training Corps (ROTC), 14, 282, 310
    - scholarships, 24
  - Alumni scholarships, 24
  - American Studies, 135, 313
  - Animal Science, 83, 313
  - Anthropology, 137, 314
  - AP exam, 46
  - Apparel Studies, 97
  - Application fee, 15
  - Application for,
    - financial aid, 20
    - graduation, 40
    - Graduate School, 19
    - School of Law, 19
    - undergraduate admission, 15
  - Applied Sustainability Center, 51
  - Arabic, courses, 311
  - Architecture, Fay Jones School of, 106
    - academic regulations, 110
    - accreditations, 114
    - admission, 107
    - Architecture, department of, 115, 316
    - Community Design Center, (UACDC), 62, 107
    - degrees offered, 107
    - Design Studio, 106
    - digital design and fabrication, 106
    - Garvan Woodland Gardens, 57, 107
    - honors, 112
    - Interior Design, department of, 119, 367
    - Landscape Architecture, department of, 120, 373
    - library resources, 106
    - materials shop, 106
    - minors, 107
    - organizations, 109
    - scholarships, 109
  - Arkansas Archeological Survey, 51
  - Arkansas Biotechnology Center, 52
  - Arkansas Center for Space and Planetary Sciences, 52
  - Arkansas Cooperative Fish and Wildlife Research Unit, 52
  - Arkansas High Performance Computing Center, 52
  - Arkansas Household Research Panel, 52
  - Arkansas Leadership Academy, 52
  - Arkansas Union, 65
  - Arkansas Water Resources Center, 52
  - Army Reserve Officer Training Corps (ROTC), 14, 282, 383
    - scholarships, 24
  - Art Education, courses, 317
  - Art History, courses, 317
  - Art, 139, 318
  - Arts and Sciences, 123, 144, 318
  - Arts and Sciences, Fulbright College of, 123
    - academic regulations, 130
    - accreditations, 134
  - admission, 129
    - combined academic and medical or dental degree, 131
    - degree requirements, 130
    - degrees offered, 124
    - facilities, 123
    - fields of study, 124
    - health-related professions, 128
    - honors studies, 131
    - majors, 124
    - minors, 124
    - pre-professional programs, 124
    - scholarships, 130
    - student organizations, 130
    - teacher education programs, 125
  - Asian Studies, 142, 313
  - Associated Student Government, 67, see Code of Student Life
  - Astronomy, courses, 319
  - Athletic Training, courses, 320
  - Attendance, 37
  - Auditing courses, 26
- ## B
- Bachelor of Architecture, 115
  - Bachelor of Arts, 132
  - Bachelor of Fine Arts, 134
  - Bachelor of Interior Design, 119
  - Bachelor of Landscape Architecture, 120
  - Bachelor of Music, 133
  - Bachelor of Science, 132
  - Bachelor of Science in Agricultural, Food and Life Sciences, 75
  - Bachelor of Science in Biological Engineering, 266
  - Bachelor of Science in Business Administration, 203
  - Bachelor of Science in Chemical Engineering, 268
  - Bachelor of Science in Civil Engineering, 270
  - Bachelor of Science in Computer Engineering, 271
  - Bachelor of Science in Education, 236
  - Bachelor of Science in Electrical Engineering, 274
  - Bachelor of Science in Human Environmental Sciences, 97
  - Bachelor of Science in Industrial Engineering, 276
  - Bachelor of Science in International Business, 210
  - Bachelor of Science in Mechanical Engineering, 277
  - Bachelor of Science in Nursing, 249
  - Banking, see Finance
  - Bankruptcy, academic, 18
  - Bessie Boehm Moore Center for Economic Education, 53
  - Biochemistry, Chemistry and, 147, 328
  - Biological and Agricultural Engineering, 266, 320
  - Biological Sciences, 143, 322
  - Biomedical Engineering, 267, 325
  - Blair, Diane, Center for the Study of Southern Politics and Society, 57
  - Board of Trustees, 6
  - Botany, courses; see Biology
  - Boyer, Sylvia Hack, Center for Student Services, 235
  - Bumpers College of Agricultural, Food and Life Sciences, 73
  - Business minors for nonbusiness students, 145, 213
  - Business Economics, 216
  - Business Education, 241
  - Business Law, courses, 325

Business, Sam M. Walton College of, 203  
 academic regulations, 205  
 accreditations, 213  
 admission, 204  
 Business Administration minors for non-business students, 145, 213  
 cooperative education, 204  
 degree requirements, 207  
 degrees offered, 203  
 facilities, 203  
 fields of study, 207  
 graduation requirements, 206  
 honors, 207  
 majors, 204  
 minors, 204  
 minors in Fulbright College, 213  
 pre-business requirements, 205  
 scholarships, 204  
 student organizations, 204

**C**

Calendar, academic, 4, 5  
 Career and Technical Education, 241, 326  
 Career Development Center, 64  
 Cartography, 138, 163  
 Cell and Molecular Biology, courses, 327  
 Center for Advanced Computing and Communications, 53  
 Center for Advanced Spatial Technologies (CAST), 53  
 Center for Arkansas and Regional Studies, 53  
 Center for Business and Economic Research, 53  
 Center for Communication and Media Research, 54  
 Center for Children and Youth, 54  
 Center for Engineering Logistics and Distribution, 54  
 Center for Executive Education, 54  
 Center for Information Security and Reliability, 54  
 Center for Innovation in Healthcare Logistics, 55  
 Center for Community Engagement, 66  
 Center for Mathematics and Science Education, 55  
 Center for Protein Structure and Function, 55  
 Center for Retailing Excellence, 55  
 Center for Semiconductor Physics in Nanostructures, 55  
 Center for Social Research, 55  
 Center for Statistical Research and Consulting, 56  
 Center for the Utilization of Rehabilitation Resources  
 for Education, Networking, Training and Service, 56  
 Center of Excellence for Poultry Science, 56  
 Chancellor, 7  
 Chancellor's message, 8  
 Change of address, 25  
 Chemical Engineering, 268, 327  
 Chemistry and Biochemistry, 147, 328  
 Childhood Education, 244  
 Chinese, courses, 330  
 Civil Engineering, 270, 340  
 Class attendance, 35  
 Classical Studies, 150, 335  
 CLEP credit, 45

Clinton School of Public Service, courses, 406  
 Code of Student Life, available from the Dean of Students  
 College of (also see School of),  
 Agricultural, Food and Life Sciences, Dale Bumpers, 73  
 Arts and Sciences, J. William Fulbright, 123  
 Business, Sam M. Walton, 203  
 Education and Health Professions, 235  
 Engineering, 261  
 Honors College, 68  
 College Level Exam Program (CLEP), 45  
 College Scholarships, 20  
 Combined academic and medical or dental degree, 127  
 Communication, 150, 336  
 Communication Disorders, 258, 326  
 Community and Family Institute, 56  
 Community Design Center, 62, 107  
 Community Health Promotion, 253, 330  
 Competency-Based Teacher Development, 244  
 Computer Science and Computer Engineering, 271, 338  
 Computing facilities, 48  
 Contract, student/university, 2  
 Cooperative Education Program, 14  
 Core, 39-41  
 Cost estimates, 28  
 Counselor Education, courses, 335  
 Course,  
 descriptions, 307  
 load, 27  
 numbering, 307  
 prefixes, 307  
 Courses that do not count toward a degree, 26  
 Credit by examination, 43  
 Advanced Placement (AP), 46-47  
 CLEP, 45  
 International Baccalaureate (IB), 46  
 Placement and proficiency tests, 18  
 Credit, transfer of, 41  
 Criminal Justice, 198, 335  
 Crop Management, 85  
 Crop, Soil, and Environmental Science, 85, 339  
 Curriculum and Instruction, 240, 331

**D**

Dale Bumpers College of Agricultural, Food and Life Sciences, 73  
 Dance, courses, 341  
 Dance Education/Activity, courses, 341  
 David and Barbara Pryor Center for Arkansas Oral and Visual History, 57  
 Deans, 7  
 Degree Completion Policy, Eight Semester, 42  
 Degree program requirements, 38, see colleges  
 Degree requirements  
 additional bachelor's degree, 44  
 general for baccalaureate degree, 39  
 graduation honors, 37, see also colleges and schools  
 University Core, 39-41  
 Degrees offered, See colleges and schools  
 Developmental Course Placement, Arkansas State Requirements for, 25

Diane Blair Center for the Study of Southern Politics and Society, 54  
 Disabilities, students with, 64  
 Dismissal, 39  
 Drama, 153, 341  
 Dropping and adding courses, 26

## E

Earth Science, 162  
 Economics,  
     Agriculture, 81, 310  
     Arts and Sciences, 155, 344  
     Business 216, 344  
 Education and Health Professions, College of, 235  
     academic regulations, 237  
     accreditations, 240  
     admission, 237  
     degree requirements, 240  
     degrees offered, 236  
     facilities, 235  
     fields of study, 236  
     honors, 239  
     majors, 236  
     minors, 236  
     scholarships, 237  
     student organizations, 237  
     teacher licensure, 236  
 Education, courses, 346  
 Education Reform, courses, 346  
 Educational Foundations, courses, 345  
 Educational Leadership, courses, 345  
 Educational Statistics and Research Methods, courses, 352  
 Educational Technology, courses, 353  
 Eight Semester Degree Completion Policy, 42  
 Eleanor Mann School of Nursing, 249, 390  
 Electrical Engineering, 274, 346  
 Elementary Education, 248  
 Engineering, College of, 261  
     academic regulations, 264  
     accreditations, 265  
     admission, 262  
     cooperative education, 259  
     degree requirements, 264  
     degrees offered, 262  
     facilities and laboratory fees, 263  
     fields of study, 262  
     honors, 262  
     organizations, 264  
     scholarships, 263  
 Engineering Experiment Station, 57  
 Engineering Research Center, 57  
 English composition requirement, 40  
 English language use by non-native speakers, 19  
 English proficiency for admission, 19  
 English, 157, 349  
 English as a second language, courses, 344  
 Enhanced Learning Center, 48  
 Enrollment requirement, 38

Enrollment services, 15  
 Entomology, 89, 352  
 Environmental Dynamics, courses, 349  
 Environmental science, courses, 351  
 Environmental Sciences, School of Human, 97  
 Environmental, Soil, and Water Science, 87  
 Equine science, 85  
 Ethnomusicology, courses, 374  
 European Studies, 159, 353  
 Extension Education, courses, 353

## F

Faculty, All University, 284  
 Family and Community Institute, 56  
 Family and Consumer Sciences Education, 242  
 Family Educational Rights and Privacy Act (FERPA), 42  
 Fay Jones School of Architecture, see "Architecture, Fay Jones School of"  
 Fees, 28  
 Fields of study, 10  
 Final examination policy, 37  
 Finance, 219, 354  
 Financial Aid and Scholarships, 20  
     application procedure, 20  
     college and departmental scholarships, 23  
     determining need, 20  
     satisfactory academic progress, 20  
     scholarships for new students, 21  
     special scholarships and conditions, 24  
 Fine Arts requirement, 40  
 First-ranked senior scholars, 39  
 Food Safety Manager certificate of proficiency, 96  
 Food Science, 89, 353  
 Food, Human Nutrition & Hospitality, 98  
     Dietetics, 98  
     General Foods and Nutrition, 99  
     Hospitality and Restaurant Management, 100  
 Foreign Languages, see World Languages, Literatures, and Cultures,  
     and individual language names  
 French, 199, 355  
 Freshman,  
     admission requirements, 16  
     orientation, 25  
 Fulbright College, 123  
 Fulbright Institute of International Relations, 57, 161  
 Full-time student course load, 27

## G

Garrison Financial Institute, 57  
 Garvan Woodland Gardens, 57, 107  
 Gender Studies, 161  
 General Business, see Management  
 General Engineering, courses, 358  
 General Human and Environmental Sciences, 102, 359  
 Genesis Technology Incubator, 58  
 Geographical Information Systems (GIS), 138, 163  
 Geography, 162, 355

Geology, 163, 356  
 Geosciences, 161, 357  
 German, 200, 357  
 Gerontology, courses, 358  
 Glossary, 305  
 Grade forgiveness, 38  
 Grade-point calculations, 38  
 Grades and Marks, 38  
 Grading system, agriculture, 78  
 Grading system, architecture, 110  
 Graduate and professional study, 13  
 Graduate School admission, 19  
 Graduate standing, 19  
 Graduate studies, 13, also see Graduate School Catalog  
 Graduation Honors, 38, see colleges  
 Graduation rates, 43  
 Graduation requirements, 39  
 Greek life, 66  
 Greek, courses, 359

## H

Handbook, see Code of Student Life  
 Handicapped, see disabilities  
 Hazard Analysis and Critical Control Point Coordinator  
     certificate of proficiency, 96  
 Health Center, 65  
 Health, Human Performance and Recreation, 252, 361  
 Health Professions, College of Education and, 235  
 Health-related professions, 128  
 High Density Electronics Center, 58  
 High school preparation, 16  
 Higher Education, courses, 362  
 Historic Preservation minor, 163  
 History and civil government requirement, 40  
 History of the University, 9  
 History, 163, 362  
 Honor roll, 37  
 Honor societies, campuswide academic, 13  
 Honor societies, campuswide leadership, 13  
 Honorary Organizations, 13, see colleges  
 Honors College, 68  
     Academic Regulations, 69  
     admission to Honors College, 69  
     Advanced Placement Summer Institute, 68  
     grants, 68  
     scholarships, 69  
 Honors Studies, 12, see colleges  
 Horticulture, 92, 365  
 Hospitality, see Food, Human Nutrition and Hospitality  
 Hours allowed per semester, 27  
 Housing and dining, 65  
 Human Development and Family Sciences, 103  
     Child Development, 103  
     Birth through Kindergarten, 103  
     Lifespan, 103  
 Human Environmental Sciences, 102, 359  
 Human Environmental Sciences, School of, 97

Human Performance Laboratory, 58  
 Human Resource Development, 259, 366  
 Human Resource Management, see Management  
 Humanities, 167, 367

## I

Identification cards, 25  
 Industrial Engineering, 276, 368  
 Information Systems, 223, 370  
 Information Technology Research Center, 58  
 Information Technology Services, 48  
 Institute for Nanoscience and Engineering, 58  
 Institute of Food Science and Engineering, 58  
 Interdisciplinary minors, 70  
 Interior Design, 119, 367  
 International Baccalaureate Program (IB), 46  
 International Center for the Study of Early Asian  
     and Middle Eastern Musics, 59  
 International Economics and Business, 217  
 International Relations, 166, 370  
 International Relations, Fulbright Institute of, 55  
 International students, 18  
 Italian, courses, 371

## J

J. William Fulbright College of Arts and Sciences, 123  
 Japanese, 202, 371  
 Jean Tyson Child Development Study Center, 74  
 Joint J.D./M.B.A. and M.P.A. programs, 280  
 Journalism, 170, 371  
 Junior college credit transfer, 43  
 Juris Doctor degree, see School of Law Catalog

## K

Kinesiology, 254, 373  
 King Fahd Center for Middle East Studies, 59

## L

Landscape Architecture, 120, 373  
     admission, 107  
 Landscape Horticulture minor, 94  
 Language requirement for admission, 19  
 Latin American and Latino Studies, 174, 375  
 Latin, courses, 375  
 Law, School of, 279  
     3/3 Programs, 281  
     accreditations, 281  
     admission, 19, 280  
     courses, 375  
     degree requirements, 281

facilities, 279  
 graduate studies, 281  
 Joint J.D./M.B.A. programs, 280  
 Joint J.D./M.P.A. programs, 280  
 Joint J.D./M.A. program, 280  
 Library, 280  
 LSAT, 281  
 pre-law studies, 281  
 scholarships, 281  
 transfer students, 281  
 Libraries, 49  
 LSAT, law exam, 281

## M

Mack-Blackwell National, Rural, Transportation Study Center, 59  
 Majors, list of, 10  
 Management, 225, 383  
 Mann, Eleanor, School of Nursing, 249, 390  
 Marketing, 229, 384  
 Master of Business Administration, courses, 380  
 Mathematical Sciences, 175, 378  
 Mathematics core requirement, 40  
 Maximum course load, 27  
 Mechanical Engineering, 277, 380  
 Medical Sciences and Dentistry, 131  
 Medical, Pre-, 11, 128  
 Medieval and Renaissance Studies, 179  
 Message from the Chancellor, 8  
 Microbiology, see Biological Sciences  
 Microelectronics-Photonics minor, 70, 382  
 Middle East Studies, 179, 382  
 Military benefits, 24  
 Military personnel and dependents, tuition, 29  
 Military Science, 282, 383  
 Military Transfer Credit, 44  
 Minimum credit hours, 40  
 Minimum grade-point average, 40  
 Minors, 11, see colleges  
 Mission of University, 9  
 Moore, Bessie Boehm, Center for Economic Education, 53  
 Multicultural Center, 49  
 Music, 180, 384-390

## N

National Agricultural Law Center, 59  
 National Center for Reliable Electric Power Transmission, 60  
 National Office of Research on Measurement and Evaluation Systems, 60  
 National testing programs, 49  
 Native Americans, Resident Status of, 33  
 New student orientation, 25  
 Non-degree seeking students, 17  
 Non-resident,  
   definition of, 32  
   tuition award, 22  
   tuition fee, 28

Non-traditional students, 61  
 Nursing, Eleanor Mann School of, 249, 390  
   admission, 250  
   degree requirements, 251  
   exit policies, 251  
   progression policy, 251  
   readmission, 251

## O

Oak Ridge Associated Universities, 60  
 Off-campus housing, 65  
 Off-Campus Connections, 63  
 Office for Education Policy, 60  
 Office for Studies on Aging, 61  
 Office of Academic Integrity and Student Conduct, 64  
 Ombuds Office, 64  
 On-campus housing, 65  
 Operations Management, courses, 392  
 Orientation and Registration, 25  
   academic advising, 25  
   adding and dropping courses, 26  
   audit registration, 26  
   course loads, 27  
   courses that DO NOT count toward a degree, 26  
   developmental course placement, 25  
   identification cards, 25  
   number of hours allowed per semester, 27  
   pass-fail registration, 26  
   proper address of students, 25  
   registration periods, 25  
   student standing, 27  
   undeclared major, 26  
   withdrawal from registration, 26  
 Out-of-state student fees, 22, 28, 32

## P

Parking Permit, fees, other, 32  
 Pass-fail grades, 26  
 Pat Walker Health Center, 65  
 Pest Management, 95  
 Philosophy, 185, 394  
 Photographic and video images of students, 45  
 Physical Education/Activity, courses, 393  
 Physics, 186, 394  
 Placement test, 18  
 Plant Pathology, 94, 396  
 Plant Science, courses, 400  
 Political Science, 191, 396  
 Poultry Science, 95, 398  
 Preparatory curriculum, 16  
 Pre-professional medical programs, 124, see colleges  
 President, System, 7  
 Pre-veterinary program, 76  
 Privacy, right of, 44  
 Profile, University, 9  
 Programs abroad, 14, see colleges



Psychology, 192, 399  
 Public Administration, courses, 392  
 Public Policy, courses, 400

## Q

Qualitative requirements, academic progress, 20  
 Quality Writing Center, 49  
 Quantitative requirements, academic progress, 20

## R

Radio-Frequency Identification Research Center, 61  
 Readmission, 17  
 Recreation and Sports Management, 257, 400  
 Refund adjustments, 31  
 Registration, 25
 

- academic advising, 25
- adding and dropping courses, 26
- audit registration, 26
- course loads, 27
- courses that DO NOT count toward a degree, 26
- developmental course placement, 25
- identification cards, 25
- number of hours allowed per semester, 27
- pass-fail registration, 26
- proper address of students, 25
- registration periods, 25
- student standing, 27
- undeclared major, 26
- withdrawal from, 26

 Rehabilitation, Human Resources & Communication Disorders, 258
 

- Communication Disorders, 258, 326
- Human Resource Development, 259, 366

 Religious observances, 37  
 Religious Studies, 194  
 Remedial course placement requirements, 26  
 Remote Sensing, 138, 163  
 Requirements for graduation, 39  
 Research Units, 51  
 Reserve Officer Training Corps (ROTC), 13, 282  
 Residence status, 32  
 Restaurant Management, see Food, Human Nutrition and Hospitality  
 Retail major, 231  
 Returning students, 17  
 Room and board, costs, 30  
 ROTC, 13, 282  
 Rural Sociology, courses, 402  
 Russian, courses, 402  
 Regulations, academic, 34

## S

Sam M. Walton College of Business, 203  
 Scholarships and Financial Aid, 20, also see colleges

School of (also see College of),
 

- Architecture, 106
- Human Environmental Sciences, 97
- Law, 279
- Nursing, 249
- Social Work, 194

 Second majors, 10  
 Senior citizens, tuition exemption, 30  
 Senior scholar, 37  
 Services for students with disabilities, 64  
 Small Business and Technology Development Center, 61  
 Social Science requirement, 40  
 Social Work, 194, 402  
 Sociology and Criminal Justice, 197, 335, 403  
 Southwest Radiation Calibration Center, 61  
 Spanish, 201, 404  
 Special fees, 30  
 Special Programs and Opportunities, 13  
 Speech (see Communication)  
 Speech and Hearing Clinic, 61  
 Speech Pathology/Audiology, see Communication Disorders  
 Sport Management, Recreation and, 257, 400  
 State Minimum Core, 39-41  
 Statistics, 178, 405  
 Student Affairs, 63
 

- Arkansas Union, 65
- Associated Student Government, 67
- Career Development Center, 64
- Center for Community Engagement, 66
- disabilities, students with, 64
- Greek Life, 66
- Health Center, 65
- housing, 65
- medical services, 65
- non-traditional students, 63
- Off Campus Connection, 63
- Office of Academic Integrity and Student Conduct, 64
- Ombuds Office, 64
- student media, 67
- student organizations, 67
- Union, 65
- University Housing, 65
- University Programs, 67
- Veterans Resource and Information Center, 66
- Volunteer Action Center, 66

 Student,
 

- affairs, 63
- course load, 27
- disabilities, with, 64
- Handbook, see Code of Student Life, available from the Dean of Students
- insurance, see Health Center, 65
- international, 18
- media, 67
- non-traditional, 63
- organizations, 67, also see colleges
- records policy (FERPA), 44
- residence status, 32
- rights, 44
- special non-degree seeking, 17

standing, 27  
 status, 39  
 support services, 49  
 transfer, 16, 43, also see colleges  
 union, 65

Student Support Services, 48  
 Study abroad, 14, see colleges  
 Supply Chain Management, 232  
 Supply Chain Management Research Center, 61  
 Sustainability minor, 71, 406  
 Swahili, courses, 406  
 System Administration, 7

## T

Talent Search Programs, 49  
 Teacher certification, 236  
 Technology Education, 243, 406  
 Telephone numbers, see inside front cover  
 Term paper assistance, 37  
 Terrorism Research Center, 62  
 Testing programs,  
     AP, Advanced Placement, 46-47  
     CLEP, 45  
     IB, International Baccalaureate, 46  
     LSAT, law, 281  
     placement and proficiency tests, 18  
 Testing Services, 49  
 Three/Three (3/3) programs, 281  
 Transcript fee, 30  
 Transfer of college credits, 43, see colleges  
 Transfer of military credit, 44  
 Transfer students, 16, see colleges  
 Trustees, 6  
 Tuition and fee exemptions  
     Armed Forces personnel, 29  
     Native Americans, 33  
     senior citizens, 30  
     veterans and dependents, 33  
 Tuition and fees, 28  
     adjustments, 29  
     residence status for, 32  
 Turf Management, minor, 94  
 Tyson Center for Faith and Spirituality in the Workplace, 62

## U

U.S. Air Force, ROTC, 282  
 U.S. Army, ROTC, 282  
 Undeclared major, 11, 26, also see colleges  
 Undergraduate Fields of Studies, 10  
 Union, Arkansas, 65  
 University of Arkansas Community Design Center, 62, 107  
 University,  
     Career Development Center, 64  
     Centers, 51  
     contract, student/university, 2  
     core requirements, 39-41

faculty, 284  
 Health Center, 65  
 history, 9  
 housing, 65  
 Information Technology Services, 48  
 libraries, 49  
 location, 9  
 major fields of study, 10  
 profile, 9  
 research units, 51  
 Vision statement, 9  
 Upward Bound Academy for Mathematics and Sciences, 50  
 Upward Bound for Veterans, 50

## V

Veterans benefits, 24  
 Veterans Resource and Information Center, 64  
 Veterans Upward Bound, 50  
 Veterinary, Pre-Medicine, 76  
 Vice Chancellors, 7  
 Video images, 44  
 Vision Statement, 9  
 Vocational and Adult Education courses, 406

## W-Z

Waiver of academic policies, 45  
 Waiver of non-resident tuition,  
     members of Armed Forces, 29  
     Native Americans, 33  
     Senior citizens, 30  
 Walton College of Business, courses, 234, 406  
 Walton, Sam M., College of Business, 203  
 Welcome, 1  
 Wildlife Habitat minor, 88  
 Withdrawal  
     from registration, 26  
     refund adjustments, 31  
 Workforce Development, courses, 407  
 World Languages, Literatures, and Cultures, 200, 408, see also individual  
     names of languages  
 World Literature, courses, 408  
 Writing Center, 49  
 Zoology courses; see Biology

# Errata

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The following additions and corrections were made to the PDF version and online version of the Catalog of Studies after a print version was created.

Page 32 — The cost of parking permits and registration fees was updated in the fourth paragraph of Page 32 after the print edition was published. The new text is “There is a parking permit and registration fee ranging from \$54.78 to \$719.76 for each vehicle, depending upon the parking option selected.”

Page 41 — The course titled COMM 1023 Communication in a Diverse World was added to the list of social science courses that may be taken to fulfill requirements of the university core.

Page 43 — The numbers on the six-year graduation rates of athletes were updated to reflect the 2005 cohort.

Page 64 — The office of Student Ombuds Services was eliminated from the Division of Student Affairs after the catalog went to press. Its description was removed from the PDF version of the catalog.

Page 262 — The Bachelor of Arts in Computer Science (B.A.) was added to the list of degree programs offered by the College of Engineering. The program had been offered by the J. William Fulbright College of Arts and Sciences in previous years but was moved to the College of Engineering in 2012.