



UNIVERSITY OF COLORADO  
AT COLORADO SPRINGS

2005-2006

# Journal



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**GEN**

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## Undergraduate Programs of Study

In addition to the degree programs listed below, course work in a number of other undergraduate areas of study is offered. College freshmen and undergraduate transfers may enter

<p><b>Business and Administration</b> B.S. – four years</p> <p>Emphasis which may be completed at UCCS</p> <ul style="list-style-type: none"> <li>Accounting</li> <li>Business Administration</li> <li>Finance</li> <li>General Business</li> <li>Human Resources Management</li> <li>Information Systems</li> <li>International Business</li> <li>Marketing</li> <li>Marketing/Professional Golf Management</li> <li>Organizational Management</li> <li>Service Management</li> </ul>	<p><b>Education</b> Professional Licensure: Elementary Education</p> <p>Alternative Licensing Program</p> <p>Secondary Education: English, Mathematics, Science, Social Studies, Spanish</p> <p>Special Education Licensing Program</p> <p>Professional Licensure through the Teacher Education Program requires two semesters of study plus one summer session and may be included as a part of a four-year degree program in the College of Letters, Arts and Sciences, or may be pursued after a Bachelor of Arts has been earned in a liberal arts program. Professional Licensure through the Alternative Licensure Program requires three semesters of study plus one summer session and may be pursued after a Bachelor of Arts degree has been earned.</p>	<p><b>Engineering and Applied Science</b> B.S. – four years</p> <p>Majors which may be completed at UCCS</p> <ul style="list-style-type: none"> <li>Computer Engineering</li> <li>Computer Science</li> <li>Electrical Engineering</li> <li>Mathematics BA or BS</li> <li>Mechanical Engineering</li> </ul> <p>Generally, two years of work toward the following degrees from the College of Engineering and Applied Science may be taken on this campus:</p> <ul style="list-style-type: none"> <li>Architectural Engineering</li> <li>Chemical Engineering</li> <li>Civil Engineering</li> <li>Engineering Physics</li> </ul>	<p><b>Letters, Arts and Sciences</b> B.A. – four years</p> <p>B.S. – four years</p> <p>B.A. with teaching certificate – four years <sup>1</sup></p> <p>Majors</p> <ul style="list-style-type: none"> <li>Anthropology</li> <li>Biology</li> <li>Chemistry (B.A. or B.S.)</li> <li>Communication</li> <li>Distributed Studies <sup>2</sup></li> <li>Economics</li> <li>English</li> <li>Geography and Environmental Studies</li> <li>History</li> <li>Philosophy</li> <li>Physics (B.S.)</li> <li>Political Science</li> <li>Psychology</li> <li>Sociology</li> <li>Spanish</li> <li>Visual and Performing Arts</li> </ul>	<p>Preprofessional Programs of two to four years which may be completed at UCCS <sup>3</sup></p> <ul style="list-style-type: none"> <li>Pre-Dental Hygiene</li> <li>Pre-Dentistry</li> <li>Pre-Education</li> <li>Pre-Law</li> <li>Pre-Medicine</li> <li>Pre-Nursing</li> <li>Pre-Pharmacy</li> <li>Pre-Physical Therapy</li> <li>Pre-Physician Assistant</li> <li>Pre-Veterinary</li> </ul> <p><sup>1</sup> See College of Education section of this catalog for details.</p> <p><sup>2</sup> Distributed Studies majors include: Business Economics and Public Administration.</p> <p><sup>3</sup> Not a major. A group of courses which meet specified professional school requirements but by themselves do not meet degree requirements.</p> <p><b>Beth-El College of Nursing and Health Sciences</b> Majors</p> <ul style="list-style-type: none"> <li>Health Care Sciences</li> <li>Nursing</li> </ul>
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## Graduate School

Graduate programs which require a bachelor's degree

<p><b>Business and Administration</b> Business Administration– M.B.A.</p> <p>Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Health Care Administration</li> <li>International Business Management</li> <li>Services Management</li> <li>Technology Management</li> </ul> <p>Functional Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Accounting</li> <li>Finance</li> <li>General</li> <li>Information Systems</li> <li>Basic Technology Track</li> <li>Infrastructure</li> <li>Integration Track</li> <li>Leadership and Human Resource Management</li> <li>Marketing</li> <li>Operations and Technology Management</li> <li>Project Management</li> </ul>	<p><b>Education</b> Counseling and Human Services – M.A.</p> <p>Options</p> <ul style="list-style-type: none"> <li>Community Counseling</li> <li>Leadership</li> <li>School Counseling</li> <li>Student Affairs in Higher Education</li> </ul> <p>Curriculum and Instruction – M.A.</p> <p>Options</p> <ul style="list-style-type: none"> <li>Educational Leadership</li> <li>Principal and Administrator Licensure</li> <li>Reading</li> <li>Science Education</li> </ul> <p>Special Education – M.A.</p> <p><b>Engineering and Applied Science</b> Applied Mathematics – M.S. Computer Science – M.S. Electrical Engineering – M.S.</p> <p>Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Communications and Signal Processing</li> </ul>	<ul style="list-style-type: none"> <li>Computer Aided Design</li> <li>Computer Engineering</li> <li>Control Systems</li> <li>Electromagnetics</li> <li>Microelectronics</li> <li>Signal Processing</li> </ul> <p>Engineering – Master of Engineering (M.E.)</p> <p>Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Engineering Management</li> <li>Information Assurance</li> <li>Manufacturing</li> <li>Software Engineering</li> </ul> <p>Engineering – Ph.D.</p> <p>Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Computer Science</li> <li>Electrical Engineering</li> <li>Mathematics</li> <li>Mechanical and Aerospace Engineering</li> </ul>	<p>Mechanical Engineering– M.S.</p> <p>Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Aerospace Engineering</li> <li>Dynamic Systems and Control</li> <li>Fluid Mechanics</li> <li>Manufacturing</li> <li>Thermodynamics/Heat Transfer</li> </ul> <p><b>Graduate School of Public Affairs</b> Public Administration– M.P.A. Criminal Justice – M.C.J.*</p> <p>Areas of Emphasis</p> <ul style="list-style-type: none"> <li>Certificate in Nonprofit Management</li> <li>Certificate in Criminal Justice</li> <li>Certificate in Public Management</li> </ul> <p><i>* M.C.J. classes are offered at UCCS and the degree is awarded through CU-Denver.</i></p>	<p><b>Letters, Arts and Sciences</b> Applied Geography – M.A. Basic Science – M.B.S.</p> <p>Options</p> <ul style="list-style-type: none"> <li>Biology</li> <li>Biotechnology/Biochemistry</li> <li>Chemistry</li> <li>Exercise Science</li> <li>Geography and Environmental Studies</li> <li>Forensics</li> <li>Mathematics</li> <li>Mathematics, Teaching</li> <li>Physics</li> <li>Science, Teaching</li> </ul> <p>Communication – M.A. Geropsychology – Ph.D. History – M.A. Psychology – M.A. Sociology – M.A.</p> <p><b>Beth-El Graduate School of Nursing</b> Nursing – M.S.</p>
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### **University of Colorado at Colorado Springs**

**1420 Austin Bluffs Parkway  
P. O. Box 7150  
Colorado Springs, CO  
80933-7150  
(719) 262-3000 or  
1(800)990-UCCS (8227)  
www.uccs.edu**

### **Mission**

The Colorado Springs campus of the University of Colorado shall be a comprehensive baccalaureate university with selective admission standards. The Colorado Springs campus shall offer liberal arts and sciences, business, engineering, health sciences, and teacher preparation undergraduate degree programs, and a selected number of masters and doctoral degree programs.

### **About the campus**

The University of Colorado at Colorado Springs is one of three campuses in the University of Colorado system. UCCS emphasizes a broad range of degree programs in the liberal arts and sciences and professional programs in business, engineering, nursing, education and public affairs.

In 1964, local businessman George T. Dwire offered the university the Cragmor Sanatorium and its surrounding 80 acres for the sum of \$1. UCCS was created by an act of the Colorado Legislature in 1965, providing UCCS with a permanent home for its growing following of scholars.

UCCS aims to become the #1 comprehensive regional research university in the nation with 10,000-12,000 students. This goal is fueled by UCCS status as one of the fastest-growing universities in Colorado and in the nation. The university is known for its high-quality academics and engagement with its community. In recent years, *U.S. News and World Report* named UCCS a top Western public university and the American Association of State Colleges and Universities named the university one of two national leaders in community engagement efforts.

**The campus** – UCCS is located on approximately 521 acres in northeast Colorado Springs, at the foot of Austin Bluffs, a rugged natural cliff formation. The campus provides a spectacular view of the Front Range of the Rockies including Pikes Peak, a 14,100-foot mountain. Inspired by the view from its pinnacle, Katharine Lee Bates wrote “America the Beautiful” in 1893. The campus boasts easy access to Interstate 25, downtown and recreational areas.

UCCS offers 25 bachelor’s degrees, 17 master’s degrees, and two doctoral degrees. There are six colleges on campus: business; education; engineering and applied science; public affairs; letters, arts and sciences; and nursing. More than 600 faculty and 392 staff members support the campus.

During fall 2003 semester, more than 7,700 students enrolled in state supported instruction and more than 1,500 students participated in extended studies. Sixty percent of the students are female. UCCS boasts a diverse student body made up of 17 percent ethnic minority students. Students include 92 percent Colorado residents, 7 percent are from out of state and 1 percent are international students. Students from all 50 states and 66 countries are represented. More than 300 active military personnel and more than 30 U.S. Olympic athletes pursue higher learning at UCCS.

About 79 percent of students are enrolled in undergraduate programs and 21 percent are pursuing graduate study.

The campus’ current funds annual budget is approximately \$88 million. Campus expenditures yield approximately \$203 million to the local economy each year through construction, employee and student spending, travel and operating expenses.

For more information about the campus, the city, and the climate, visit [www.uccs.edu/campusinfo/campusinfo.htm](http://www.uccs.edu/campusinfo/campusinfo.htm).

### **Accreditation**

Accredited by The Higher Learning Commission; Member of the North Central Association.

### **Admissions and Records**

Main Hall, room 108  
[www.uccs.edu/admissions.html](http://www.uccs.edu/admissions.html)  
E-mail: [admrec@uccs.edu](mailto:admrec@uccs.edu)

**Admissions** (719) 262-3383  
or 1-800-990-UCCS (8227) ext 3383

**Certifications** (719) 262-3387  
Fax (719) 262-3116

**Records and Registration Information**  
(719) 262-3361

**Transcripts** (719) 262-3376

**Tuition Classification** (719) 262-3381 or  
262-3385

**The Admissions Office** provides services in admissions advising, foreign student admission, application processing, transfer credit evaluation, and residency tuition classification.

For admission requirements to the Graduate School, see the Graduate School section and individual college and school sections of this Bulletin or visit [web.uccs.edu/gradschl](http://web.uccs.edu/gradschl).

**The Records Office** handles matters pertaining to the demographic and academic student record. It provides information on these processes: address changes, grades, grade changes, drops, adds, withdrawals, changes to pass/fail grading, credit changes, stops, releases, registrations, Privacy Act requests, requests for transcripts, course description requests, and concurrent registrations with other university campuses.

### **Admission**

#### **Admission of Undergraduate Students**

The University of Colorado seeks to identify applicants having a high probability of successful completion of their academic program. Admission is based on evaluation of many criteria; among the most important are the following:

1. General level of academic performance before admission to the university, as indicated by the evaluation of work taken at other educational institutions
2. Evidence of scholarly ability and accomplishment as indicated by

scores on accepted tests of scholastic aptitude and achievement

- Motivation and potential for academic growth and ability to work in an academic community, as indicated by trends in the student’s record, by letters of recommendation from teachers and others qualified to comment on the student, by accomplishments outside academic work, and by other relevant evidence.

All credentials presented for admission to the University of Colorado become the property of the university.

A student who is granted admission or readmission must reflect, in a moral and ethical sense, a personal background acceptable to the university. The University of Colorado reserves the right to deny admission to applicants whose total credentials reflect an inability to assume the obligations of performance and behavior deemed essential and relevant to any of its lawful missions, processes, and functions as an educational institution.

Admission to UCCS does not guarantee eligibility for future intrauniversity transfer.

**Application**

**How to Apply**

- Obtain an application form from the Office of Admissions and Records in person, by phone, by mail, or by internet. The mailing address is at the front of this bulletin. The telephone number is (719) 262-3383 or 1-800-990-UCCS (8227). Apply on the web at “www.uccs.edu”.

- Follow the instructions for completing the form and ensure that all required documents are delivered by the deadline dates published in the Schedule of Courses, or on the web.

**Credentials**

To be considered for admission, applicants must submit complete and official credentials as required by the desired program of study. An “official credential” is one received directly from the issuing institution via a third party common carrier. Students may not disregard any part of their previous educational background. Failure to submit transcripts from all institutions previously attended will be cause for canceling the admission process or dismissal. All credentials presented for admission to UCCS become the property of the

university and may not be returned to the applicant.

**Notification**

As soon as possible after the Office of Admissions and Records receives all required credentials, students will be notified of their admission status. If qualified, the student will receive notification of eligibility for admission. Admission eligibility to the University of Colorado does not constitute a guarantee of enrollment in any specific course.

**Admission of Freshmen**

1-800-990-UCCS(8227) ext. 3383  
(719) 262-3383

Freshmen may enroll in the Beth-El College of Nursing and Health Sciences, the College of Letters, Arts and Sciences, College of Education, the College of Business and Administration, and the College of Engineering and Applied Science in the fall, spring, or summer terms. The schools of the university – Dentistry, Education, Graduate, Graduate School of Public Affairs, Journalism, Law, Medicine, Nursing, and Pharmacy – require one or more years of college-level work before a student may be considered for admission. The programs at UCCS provide all the course work required for entrance into the Schools of Dentistry, Education, Graduate, Graduate School of Public Affairs, Journalism, Law, Medicine, and Pharmacy. Students may complete teacher certification requirements on this campus.

- Priority for admission to the College of Letters, Arts and Sciences is given to

applicants who (a) rank in the upper 40% of their high school graduating class at the end of the 6th, 7th, or final semester; (b) achieve a combined Scholastic Aptitude Test (SAT) score of 1,080 or above, or a composite American College Test (ACT) score of 24 or above; (c) have a G.P.A. of 2.8 or above; and (d) complete all high school course units as required by the college to which they have applied. Increased requirements for admission to the colleges of Business and Administration, Engineering and Applied Science, and Nursing and Health Sciences are described in their respective sections of this bulletin. Applicants who do not meet all of these requirements should refer to category number 2 below.

- Applicants for freshman admission whose records vary in any way from the above priority admissions category will be considered on an individual basis by evaluation of their overall academic records including (a) the quality of their high school program of study; (b) the level of their college entrance test scores (SAT or ACT); and (c) any information unique to an individual situation. In addition, all applicants whose records reflect innovative grading systems, unusual curricula, no rank in class, or a high school equivalency through the General Education Development (GED) test, will be considered in this category. Students in this category admitted to the university may not exceed 20% of the total admitted pool.

**Freshman Admissions Criteria**

		Overall high school grade point average (4.0 scale)																					
ACT	SAT	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	
18	840-870																						
19	880-920																						
20	930-960																						
21	970-1000																						
22	1010-1040																						
23	1050-1070																						
24	1080-1110																						
25	1120-1150																						
26	1160-1190																						
27	1200-1230																						
28	1240-1270																						
29	1280-1300																						
30	1310-1340																						
31	1350-1390																						
32	1400-1430																						
33	1440-1480																						
34	1490-1540																						
35	1550-1590																						
36	1600																						

Weak Candidate      Possible Candidate      Strong Candidate

Codes for the University of Colorado at Colorado Springs ACT CODE: 0535 SAT CODE: 4874

\* Students in the strong candidate category are only assured admission provided they meet the Regents’ Minimum Academic Preparation Standards (MAPS). These standards include 4 years of English (2 of which must be in composition), 3 years of college preparatory mathematics, 3 years of natural science (2 of which must be laboratory sciences), 2 years social sciences, 2 years of the same foreign language, and at least one year of additional academic elective credit. Applicants who meet these high school requirements and the admission criteria in the chart will be admitted provided all other factors are consistent and enrollment limitations have not been reached. For the fall 2002 semester, the mid 50% of all new freshmen presented a high school class rank between the 50th and 85th percentile, a high school GPA from 2.9-3.7, ACT composite scores from 20-26, SAT combined scores from 950-1180.

**Minimum Academic Preparation Standards (MAPS)**

Freshmen and transfers entering the University of Colorado who have graduated from high school in 1988 or later will be required to meet Minimum Academic Preparation Standards (MAPS). The individual college's requirements are listed in the chart. Students should be careful to note the different requirements in particular colleges and plan their academic preparation accordingly.

**Options For Those Not Meeting MAPS Requirements as Entering Freshmen**

*What if my high school doesn't offer all the courses I need to meet the MAPS?*

An admission decision involves many factors. There will also be consideration of the extent to which this curriculum has been available. Students with deficiencies may be admitted to the university provided they meet the other admission standards (e.g. test scores, rank in high school class, and grade point average) and provided they make up the deficiencies in the MAPS prior to graduation from the university.

*How will my deficiencies be dealt with while enrolled in the university?*

Freshmen or transfer students who are admitted but who are deficient in MAPS will be required to make up the deficiency in accordance with the following policy.

1. Students who are deficient one unit in one or more areas may:
  - a. Make up that deficiency by taking a course that would normally be counted as degree credit and have that course count as part of their undergraduate total hours, assuming that all prerequisites are fulfilled. (For example, students could enroll in I.D. 105, successfully complete the course, eliminate their one-unit deficiency in mathematics, and earn three credits toward the 120.)
  - b. Take a proficiency test (if one is available): A score of 280-286 on the foreign language proficiency test eliminates one unit of deficiency and permits students to enroll in the second semester of that language. A score of 336-341 (or above) on the test eliminates all units of MAPS deficiencies for foreign language. (Note: According to MAPS, students must be proficient in foreign language up

<b>Assured Admission Criteria</b> (Includes Minimum Academic Preparation Standards – MAPS)				
College	Business & Administration	Engineering & Applied Science**	Letters, Arts & Sciences	Beth-El College of Nursing & Health Sciences***
Class Rank	Top 30%	Top 25%	Top 40%	Top 40%
ACT OR SAT	24 Composite	25 Composite	24 Composite	24 Composite
School Code:	22 Math;	1120 Verbal + Math	1080 Verbal + Math	1080 Verbal + Math
ACT: 0535,	24 English			
SAT: 4874	1080 Verbal + Math			
<b>Course Units</b> (One unit is study in the same subject area for one year)				
English	4 Including at least 2 yrs. of composition	4 Including at least 2 yrs. of composition	4 Including at least 2 yrs. of composition	4 Including at least 2 yrs. of composition
Math	3 College Prep	4 At least 2 yrs. of Algebra: 1 yr. Geometry & 1 yr. Adv. Math	3 College Prep	3 College Prep
Natural Science	3 2 yrs. Lab Science	3 1 yr. Physics & 1 yr. Chemistry	3 2 yrs. Lab Science	3 1 yr. Chemistry 1 yr. Biology 1 yr. other Science
Social Science	2	2 Government, History, Economics, Psychology, Sociology, etc.	2 Government, History, Economics, Psychology, Sociology, etc.	2
Foreign Language	2 All units in single foreign language	2 All units in single foreign language	2 All units in single foreign language	2 All units in single foreign language
Academic Electives	1	1	1	1
<b>Total</b>	<b>16</b>	<b>16</b>	<b>15</b>	<b>15</b>
** Students not meeting criteria for assured admission will be considered for admission based on a combination of class rank, test scores, and high school units. An Engineering Preparatory Program is available for students having deficiencies in their math/science backgrounds. Higher standards apply for EAS majors.				
*** Acceptance to Nursing is highly competitive. Preference is given to those who meet these criteria; however, not all qualified applicants can be accepted.				

- c. Utilize appropriate Advanced Placement and CLEP scores to eliminate the deficiency.
- d. Eliminate a single-unit deficiency in English by successfully completing English 099 (formerly English 121); and in mathematics by successfully completing MATH 090, Fundamentals of Algebra. These courses are offered through Extended Studies; and while they do eliminate one unit of deficiency, they DO NOT count toward the total number of hours needed to graduate.
- e. Take appropriate courses at community colleges or other colleges to eliminate a unit of deficiency. Students should be aware of courses which will and will not transfer to the University of Colorado.

2. Students who are deficient two or more units, may:
  - a. Remove any single unit of deficiency by any of the methods in 1, above.
  - b. Remove two units by various combinations of the methods in 1, above.

**Advanced Placement Program**

The university participates in the high school advanced placement program of the College Board. Students receiving scores of 3, 4, or 5 on advanced placement examinations are generally granted college credit. Official scores must be sent to the university directly from the College Board. Please see chart on page 8.

**Applicants Who Did Not Graduate From an Approved High School**

An applicant who has not graduated from high school must submit satisfactory scores on the General Educational Development Test (GED), a Certificate of Equivalency from any state department of education, a complete transcript of any high school work completed, and SAT or ACT entrance examination scores. Each applicant will be considered on an individual basis.

### **Undergraduate and Unclassified Student Admission Information**

Applications and required credentials should be filed no later than July 1 for fall, December 1 for spring, and May 1 for summer.

Call 1-800-990-UCCS (8227) or (719) 262-3383

TYPE OF APPLICANT	CRITERIA FOR ADMISSION <sup>1</sup>	REQUIRED CREDENTIALS <sup>2,3,4</sup>	NOTES
<b>Freshman</b> (Students seeking a Bachelor's Degree who have never attended a collegiate institution)	See Freshman Admission Criteria Chart page 4 and Assured Admission Criteria page 5.	<ul style="list-style-type: none"> <li>• Complete application</li> <li>• \$50 application fee (non-refundable)</li> <li>• Official high school transcript showing rank in class and date of graduation. If still enrolled in high school, 7th semester grades and 8th semester courses in progress.</li> <li>• Official ACT or SAT score report.</li> </ul>	<ul style="list-style-type: none"> <li>• For specific unit requirements refer to the college sections of this catalog.</li> <li>• Non-high school graduates must submit copies of GED scores and a state equivalency certificate in addition to a high school transcript showing work completed through highest grade.</li> </ul>
<b>Transfer</b> (Students seeking a Bachelor's Degree who have attended a collegiate institution other than UCCS)	See Transfer Admission Requirements, page .	<ul style="list-style-type: none"> <li>• Complete application</li> <li>• \$50 application fee (non-refundable)</li> <li>• One official transcript from each college attended.</li> <li>• Freshman credentials may be required.</li> <li>• Non-high school graduates must submit copies of GED scores and state equivalency certificates.</li> </ul>	<ul style="list-style-type: none"> <li>• While credits from an institution may appear on the transcript of a second institution, transcripts must be submitted from all institutions where credit has been earned.</li> </ul>
<b>Unclassified (Non-degree)</b> (Students who are not seeking a degree at this institution or who have not yet been admitted to degree status.)	<ul style="list-style-type: none"> <li>• Must be 20 years of age by Sept. 15 for fall semester or summer term, or Feb. 15 for spring semester.</li> <li>• Must be a high school graduate or possess equivalency certificate.</li> <li>• Must have at least a 2.0 G.P.A. and be in good standing and eligible to return to all institutions previously attended.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete application</li> <li>• \$25 application fee (non-refundable)</li> <li>• Non-high school graduates must submit copies of GED scores and state equivalency certificates.</li> </ul>	<ul style="list-style-type: none"> <li>• Unclassified students without a degree must maintain a 2.0 G.P.A. to remain eligible to continue.</li> <li>• After completing 12 semester hours, degree seeking students must change to degree status.</li> <li>• Not eligible for most forms of financial aid.</li> </ul>
<b>Former CU Set-up</b> (Returning unclassified student; returning degree student with fewer than 12 semester hours at another institution since CU)	<ul style="list-style-type: none"> <li>• Must be in good standing</li> </ul> <p>(*see Note A)</p>	<ul style="list-style-type: none"> <li>• Former student application. Degree students must have official transcripts sent for any work attempted since last CU semester.</li> </ul>	<b>Note A</b> - students under academic suspension in certain schools and colleges at CU may enroll during the summer term as a means of improving their G.P.A.
<b>Former CU Re-entering</b> (Degree student who has attempted 12 or more hours at another institution since attending CU)	<ul style="list-style-type: none"> <li>• Same as for transfer student.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as for transfer student. Application fee required.</li> </ul>	Will be considered for previous major unless a different major is requested on the application. Must meet same criteria as transfer student
<b>Change of Status: Unclassified to Degree</b> (Current or former CU unclassified students who wish to enter a degree program)	<ul style="list-style-type: none"> <li>• Same as for transfer student.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as for transfer student. Application fee required.</li> </ul>	
<b>Change of Status: Degree to Unclassified</b> (*See Note B – Current or former CU degree students who have graduated and wish to take additional work)	<ul style="list-style-type: none"> <li>• Must have completed degree.</li> <li>• Must be in good standing and eligible to return to all institutions attended.</li> </ul>	<ul style="list-style-type: none"> <li>• Unclassified student application.</li> <li>• NO application fee required.</li> </ul>	<b>Note B</b> - only students who have completed and received a degree are eligible for change from degree status to unclassified.
<b>INTER-CAMPUS TRANSFER</b> (Students who have been enrolled on one CU campus and wish to take courses on another.)	<ul style="list-style-type: none"> <li>• Must be in good standing</li> </ul>	<ul style="list-style-type: none"> <li>• Former student application.</li> <li>• Credentials as required by Campus Admissions Office.</li> </ul>	<ul style="list-style-type: none"> <li>• Transfers from UCCS to another CU campus should refer to appropriate catalog for any additional requirements.</li> </ul>

1 Applicants not meeting these criteria are considered on an individual basis. Requirements for individual schools and colleges may vary or exceed the stated minimum.

2 Transcripts must be sent directly to the University of Colorado from each issuing institution. All documents submitted become the property of the University.

3 Any applicant who did not graduate from a high school must submit GED scores and a State Equivalency Certificate in addition to other required credentials.

4 Additional credentials may be required in individual cases.

**Students Not Granted Admission**

An applicant who is not granted admission as an entering freshman may wish to consider a transfer to the university after one or two years of study elsewhere (see transfer requirements section). In the best interest of students pursuing educational goals for which they lack some academic preparation, the university Committee on Admissions often recommends that such applicants complete at least one full year of college level course work at a regionally accredited college where much personal attention and the appropriate courses will prepare the student for an eventual successful experience at the University of Colorado.

**High School Concurrent Enrollment**

High school juniors and seniors with proven academic abilities may be admitted for one term at a time with special approval from the admissions committee. Credit for courses taken may subsequently be applied toward a university degree program. For more information and application instructions, contact the Office of Admissions and Records.

Academic Preparation Standards” section of this bulletin.

Transfer students must meet a minimum G.P.A. requirement which varies according to the hours of collegiate work completed and the type of institution in which the course work was taken. If the transfer student has 30 semester hours or more, the required G.P.A. is 2.0 for several fields of study. If the student has earned from 12 to 29 semester hours, and the institution has comparable admission standards then a 2.0 G.P.A. is the minimum requirement. In the 12-29 hour range, if the work was earned at an institution with lower admission standards, then a 2.5 G.P.A. minimum is required. If the student who has earned 12-29 semester hours had high school criteria which meet our freshmen minimum requirements, then he or she is admissible with a 2.0 G.P.A. Work in progress at the time of application cannot be considered in computing the cumulative average. As there are some schools and colleges at the university which require a higher grade-point average for transfer, students are urged to investigate specific requirements.

will transfer with junior standing into any Letters, Arts and Sciences (LAS) degree program offered by UCCS. The credits earned in the associate degree program will apply at minimum to 35 credits. Because all LAS degrees are designed to be completed in 120 credit hours, a transfer student can complete a four-year degree in the same time as a native student, 120 hours. UCCS will evaluate credit for Advanced Placement, International Baccalaureate, and alternate sources of credit following its standard policy.

**Transfer Guides**

Guides to assist students in their transfer from Colorado community colleges are available for student use at [web.uccs.edu/transfer](http://web.uccs.edu/transfer).

**Transfer of College Level Credit**

No evaluation of transfer credit is made until after a student is admitted as a degree student. An admitted student will be notified when the evaluation has been completed. New transfer students will be advised about requirements remaining and completed when they attend one of the mandatory New Student Orientations.

College credit is transferable to UCCS according to the following stipulations:

1. Credit must have been earned at a college or university of recognized standing.
2. Only courses in which a grade of C or better has been attained will be accepted for transfer at this institution. Grades of pass, satisfactory, honors, etc., are also accepted for transfer. However, a limitation is placed on the number of pass hours accepted toward a degree by each school and college.
3. Credit is not transferable from vocational or technical curricula.
4. Credit will be granted only for course work appropriate to the curricula at UCCS.
5. Remedial or subcollege level courses are not transferable.
6. A maximum of 72 hours may be transferred from a two-year or junior college.
7. A maximum of 102 semester hours of transfer credit may be counted toward graduation. Individual schools and colleges determine which courses and hours will apply toward the degree.

<b>Transfer Admission Requirements</b>				
If you have completed fewer than 12 semester hours of college work, you must meet freshman admission standards				
	<b>Business &amp; Administration</b>	<b>Engineering &amp; Applied Science**</b>	<b>Letters, Arts &amp; Sciences Sciences***</b>	<b>Beth-El College of Nursing &amp; Health</b>
12-29 hours of college work completed	2.5 or above GPA with strong math & english	2.5 or above GPA with strong math & english	2.5 GPA or higher	3.0 GPA or higher
30 or more semester hours completed	2.5 or above GPA with strong math & english	2.5 or above GPA with strong math & science	2.0 GPA or higher	3.0 GPA or higher

**Admission of Transfer Students**

1-800-990-UCCS(8227)  
(719) 262-3383

To be considered for admission, transfer students must be eligible to return to all collegiate institutions attended; they may not disregard any part of a previous collegiate record. Failure to advise the university of all institutions previously attended may be sufficient cause for rejection or dismissal.

Transcripts must be sent directly to the University of Colorado from each issuing institution. All documents submitted become the property of the University of Colorado.

**General Academic Requirements**

Transfer students who graduated from high school in 1988 or later are subject to the same minimum academic preparation standards as those required by freshmen. Please see “Minimum

**Community College Transfer Students**

Students who successfully complete a state guaranteed general education course will receive transfer credits applied to graduation requirements in all majors unless a specific statewide Articulation Agreement exists. Currently Colorado has several approved statewide articulation agreements in business, nursing, engineering, elementary teacher education and nursing. Information about the state guaranteed transfer program and articulation agreements is available on the Colorado Commission on Higher Education website at [www.state.co.us/cche](http://www.state.co.us/cche).

UCCS will honor the transfer of an associate of arts (A.A.) degree and the associate of science (A.S.) degree earned at a Colorado public institution that offers A.A. or A.S. degrees. A student who earns an A.A. or A.S. with a grade of “C” or better in all courses



**Advanced Placement (AP)**

All colleges accept AP credits but apply them differently depending on the student's degree program. Please contact an advisor in the Student Success Center for test score interpretation.

AP EXAM TITLE	AP SCORE	UCCS EQUIVALENT	SEM HRS
Art History	5,4,3	A H 280, 282	6
Studio Art	5,4,3	V A 104, 206	6
Biology	5,4	BIOL110, 115, 111, 116	6
Calculus AB	5	MATH135, 136	8
Calculus AB	4	MATH135	4
Calculus BC	5,4	MATH 135, 136	8
Calculus BC	3	MATH135	4
Chemistry	5,4	CHEM103, 106	10
Chemistry	3	CHEM103	5
Computer Science A	5	C S 115	3
Computer Science AB	5,4	C S 1 - -	4
Macroeconomics	5,4	ECON202	3
Microeconomics	5,4	ECON101	3
English Lang/Comp	5	ENGL131,141	6
English Lang/Comp	4	ENGL131	3
English Lit/Comp	5	ENGL 141, 150 (exempt from 131)	6
English Lit/Comp	4	ENGL131, 150	6
Environmental Science	5,4	GES 1- -	4
French Language	5,4	FR 211, 1 - - (exempt from 301)	6
French Language	3	FR 211	4
French Literature	5,4	FR 211, 1 - - (exempt from 311)	6
French Literature	3	FR 211	3
German Language	5,4	GER 211, 1 - - (exempt from 301)	6
German Language	3	GER 211	4
Comparative Govt/Pol	5,4	P SC 101	3
Amer Govt & Politics	5,4	P SC 110	3
European History	5,4	HIST101, 103	6
United States History	5,4	HIST151, 154	6
World History	5,4	HIST1-	6
Human Geography	5,4	GES 199	4
Latin Literature	5,4	LAT 1 - -	3
Latin Literature	3	LAT 1 - -	3
Latin: Virgil	5,4	HUM 1 - -	6
Latin: Virgil	3	HUM 1 - -	3
Music Theory	5,4	MUS 2 - -	6
Music Theory	3	MUS 2 - -	3
Physics B	5,4,3	PES 101, 102	8
Physics C-Elec/ Mag	5,4	PES 112, 215	5
Physics C- Mechanics	5,4	PES 111, 115	5
Psychology	5,4	PSY 100	4
Spanish Language	5,4	SPAN211, 1- - (exempt from 301)	6
Spanish Language	3	SPAN211	4
Spanish Literature	5,4	SPAN211, 1- - (exempt from 301)	6
Spanish Literature	3	SPAN211	3
Statistics	5,4	QUAN201	3

**College Level Examination Program (CLEP)**

All colleges accept CLEP credits but apply them differently depending on the student's degree program. Please contact an advisor in the Student Success Center for test score interpretation.

CLEP EXAM TITLE	CLEP SCORE	UCCS EQUIVALENT	SEM HRS
American History I	55	HIST151	3
American History II	55	HIST153	3
General Biology	54	BIOL 110, 115	6
Calculus	54	MATH 135, MATH 1- -	6
Chemistry	54	CHEM 103	5
Freshman College Composition with Essay	67% on multiple choice portion w/ a "pass" on essay portion	ENGL131	3
French	55	FR 101, 102	8
German	55	GER 101, 102	8
Macroeconomics	55	ECON 202 (Formerly 102)	3
Microeconomics	55	ECON 101	3
Psychology	54	PSY 100	3
Sociology	55	SOC 111	3
Spanish	56	SPAN101, 102	8
Western Civilization I	55	HIST101	3
Western Civilization II	55	HIST103	3

GEN

**International Baccalaureate (IB) Credit**

Any student admitted to UCCS after June 30, 2003, who has graduated from high school having successfully completed an International Baccalaureate (IB) Diploma Program, shall be granted at least 24 semester hours of college credit. No tuition shall be charged for these credits. These credits shall be granted, however, only if the student receives a score of 4 or better on an examination administered as part of the IB diploma program. Students who complete four Higher Level (HL) exams will receive 6-8 hours of credit for each exam. Students who complete three HL exams and three Standard Level (SL) exams will receive 6-8 hours of credit for each individual HL exam and a total of 6 hours of elective credit for all three of the SL exams in aggregate, as long as at least one of the SL exams has a score of 4 or better.

Students who do not complete the entire IB Diploma Program will receive credit for up to four Higher Level (HL) exams completed with scores of 4 or better. No credit will be awarded for Standard Level (SL) exams. Credit is not granted for an International Baccalaureate score if the student completes an equivalent college course or Advanced Placement (AP) course.

All colleges accept IB credits but apply them differently depending on the student's degree program. Please contact an advisor in the Student Success Center for test score interpretation.

IB EXAM TITLE	IB SCORE	UCCS EQUIVALENT	SEM HRS
Anthropology (Social)	4-7	ANTH 240 & ANTH 2-	6
Biology	4-7	BIOL 110/111, 115/116	6
Business & Organization	4-7	BUAD 1-	6
Chemistry	4-7	CHEM 103 & CHEM 1-	6
Computer Science	4-7	C S 115 & C S 1-	6
Design Technology	4-7	--1-	6
Economics	4-7	ECON 1-	6
English A-1	4	--1-	6
	5	ENGL 131 & ENGL 150	6
	6-7	ENGL 141 & ENGL 150	6
Geography	4-7	GES 198 & GES 199	6
History w/ Regional Opt-Africa	4-7	HIST 104 & HIST 1-	6
History w/ Regional Opt-Americas	4-7	HIST 104 & HIST 153	6
History w/ Regional Opt-East and SE Asia & Oceania	4-7	HIST 104 & HIST 111	6
History w/ Regional Opt-Europe	4-7	HIST 104 & HIST 103	6
History w/Regional Opt-S Asia and the Middle East	4-7	HIST 104 & HIST 121	6
Islamic History	4-7	HIST 1-	6
Languages-Group A-1	4	XXXX 4-	
Languages-Group A-2	4-7	XXXX 102 & XXXX 211	8
Languages-Group B	4-7	XXXX 101 & XXXX 102	8
Mathematics (Calculus)	4-7	MATH 135 & MATH 1-	6
Music	4-7	MUS 100 & MUS 1-	6
Philosophy	4-7	PHIL 1-	6
Physics	4-7	PES 101/115, 102/215	6
Psychology	4	PSY 2-	6
	5-7	PSY 100 & PSY 2-	6
Theatre Arts	4-7	THTR 100 & THTR 202	6
Visual Arts	4-7	A H 100 & V A 101	6

*\*Note on Standard-Level languages: scores of 4 or better meet the UCCS admissions requirement of 2 units of MAPS-Foreign Language*

- 8. Individual schools and colleges reserve the right to accept or deny credit earned while under scholastic suspension.
- 9. A maximum of 60 semester hours of extension credit (including no more than 30 semester hours of correspondence) may be counted toward an undergraduate degree at the University of Colorado.
- 10. Advanced placement credit is evaluated upon receipt of an official score report from the College Entrance Examination Board. Usually only scores of 3, 4, and 5 are considered for credit. Credit is not granted for an advanced placement score if the student has completed a college course which is equivalent to the course for which he/she would receive advanced placement credit.
- 11. College Level Examination Program (CLEP) credit for approved subject examinations may only be granted if a score of 67 percentile or above is received and if the courses are

- acceptable to the student's school or college. A maximum of 30 semester hours may be counted toward a degree. Credit is not granted for a CLEP score if the student has completed equivalent work.
- Colorado residents may secure CLEP materials from the state regional office by contacting:  
College Level Examination Program  
c/o College Entrance Examination Board  
4155 East Jewell Street, Suite 705  
Denver, Colorado 80222
- Students outside of Colorado may obtain CLEP information and application forms by writing:  
College Level Examination Program  
Box 1822  
Princeton, New Jersey 08540
- 12. Credit for military schooling is evaluated upon receipt of forms DD 295 and DD 214. Evaluation of credit is in accordance with the American Council on Education's credit

- recommendation and is generally considered as elective credit.
- 13. Admission to the University of Colorado does not guarantee eligibility for future transfer into other programs, colleges, or schools within the university.
- All course work is evaluated on the semester hour basis, i.e., 1 quarter hour equals 2/3 semester hour.
- Transfer Credit Appeal Procedure**
- The procedure for appealing a decision involving the acceptance of course work from a Colorado community college for credit toward a degree is as follows:
  - 1. State guaranteed courses under the State Guarantee General Education (GT pathways) policy will transfer to any four-year institution in Colorado to satisfy general education requirements. Other, non-guarantee courses are evaluated individually and within 30 days of date of admission. Students must file an appeal within 15 days of receiving their transcript

evaluation by writing the office assigned responsibility for transfer evaluations at UCCS. The decisions made in the transcript evaluation will be binding if the student fails to file an appeal within this time frame. UCCS will have 30 days to respond in writing to the student appeal. A transfer student should abide by the following procedure when appealing a credit transfer decision:

- a. Complete and return a petition form to the Student Success Center, Main Hall, 2<sup>nd</sup> floor. The form will be forwarded to the appropriate authority within the college.
  - b. The appropriate authority will respond in writing to the petitioner.
2. If the dispute cannot be resolved between the student and UCCS personnel within 30 days, the student may appeal in writing to the Colorado Commission on Higher Education. The student has 15 days from receipt of the written notification to file an appeal. Information concerning the appeal process is available at the Student Success Center, Main Hall, 2<sup>nd</sup> floor.

#### **Student Bill of Rights**

The Colorado General Assembly implemented the Student Bill of Rights (C.R.S. 23-1-125) to assure that students enrolled in public institutions of higher education have the following rights:

- a. A quality general education experience that develops competencies in reading, writing, mathematics, technology and critical thinking through an integrated arts and science experience.
- b. Students should be able to complete their associate of arts and associate of science degree programs in no more than 60 credit hours or their baccalaureate programs in no more than 120 credit hours unless there are additional degree requirements recognized by the Commission;
- c. A student can sign a two-year or four-year graduation agreement that formalizes a plan for that student to obtain a degree in two or four years, unless there are additional degree requirements recognized by the Commission;
- d. Students have a right to clear and concise information concerning

which courses must be completed successfully to complete their degrees;

- e. Students have a right to know which courses are transferable among the state public two-year and four-year institutions of higher education;
- f. Students, upon completion of core general education courses, regardless of the delivery method, should have those courses satisfy the core course requirements of all Colorado public institutions of higher education;
- g. Students have a right to know if courses from one or more public higher education institutions satisfy the students' degree requirements;
- h. A student's credit for the completion of the core requirements and core courses shall not expire for ten years from the date of initial enrollment and shall be transferable.

#### ***International Student Admission***

The university is authorized under federal law to enroll non-immigrant foreign students. International applicants are required to contact the director of admissions for international students in the office of admissions and records before submitting an application. All foreign applicants from non-English speaking countries are required to demonstrate proficiency in English by submitting scores on the test of English as a foreign language (TOEFL). International students must follow special procedures and observe special deadlines. The application fee is \$100 and is nonrefundable. English as a second language (ESL) is not available at UCCS.

#### ***Admission of Unclassified Students***

1-800-990-UCCS(8227) ext. 3383  
(719) 262-3383

The unclassified student designation has been established to meet the needs of those students who wish to take university courses but who do not presently intend to work toward a degree at the University of Colorado. Permission to register for specific courses is contingent upon the availability of space. Unclassified students may have difficulty obtaining course space due to class enrollment limits and because degree students may have a higher priority in certain departments.

Unclassified students enrolled during the academic year (fall, spring and summer terms) must be 20 years of age or older by September 15 for the fall and summer terms and February 15 for the spring term, and must have a 2.0 G.P.A. in all college work attempted, and must be in good standing at all collegiate institutions attended.

An unclassified student who is not a high school graduate must submit GED scores and a high school equivalency certificate issued by a state department of education at the time of application.

Unclassified students may take courses on a pass/fail basis; however, such credit will be counted as part of the total pass/fail credit allowed by the various schools and colleges should the student change to degree status.

Continuation as an unclassified student (Major Code NOLD, NOUD, NOHS or NODW) is contingent upon maintaining an overall grade point average of 2.0 upon completion of 12 or more semester hours.

Certified teachers with baccalaureates who seek only a renewal of the certificate currently held and who do not require institutional endorsement or recommendation may qualify for the university-wide unclassified student classification as outlined above.

Persons with baccalaureates who seek initial teacher certification must apply for and be admitted to the Teacher Education Program separately and meet the requirements of the College of Education. For information on the deadlines for admission to the program, unclassified students should consult the College of Education.

Unclassified students may not register concurrently on more than one campus of the university.

The Graduate School of Business and Administration does not allow students to register for graduate level business classes until they are officially admitted to the M.B.A. program.

#### **Applying Unclassified Student Credits Toward Degree**

Unclassified students may apply for admission to an undergraduate degree program by submitting an undergraduate admissions application, complete academic credentials, and the application fee. Accepted degree applicants may transfer a maximum

of 12 semester hours taken as an unclassified student at this university to an undergraduate degree program with the approval of the appropriate dean's office.

Unclassified students desiring to pursue a graduate degree at the university are encouraged to submit the complete graduate application and supporting credentials as soon as possible. Students may be allowed to transfer up to 9 semester hours of credit taken as an unclassified student at this university to apply toward a master's degree provided the transfer is recommended by the department concerned and approved by the dean of the Graduate School. Students are advised to contact the Office of the Dean of the specific graduate school in which they wish to enroll for further details on the transfer of unclassified student credentials. See also Transfer of Unclassified Student Credit Hours in this bulletin. For continuation as an unclassified student see "eligibility to return" section of this bulletin.

### **Admission of Graduate Students**

#### **Graduate School**

Main Hall, room 304  
(719) 262-3417  
Fax: (719) 262-3045  
web.uccs.edu/gradschl

Complete information is contained in the Graduate School section of this bulletin.

### **Classification of In-state and Out-of-state Students**

(719) 262-3381 or (719) 262-3385  
1-800-990-UCCS (8227)

A student is initially classified as an in-state or out-of-state registrant for tuition purposes at the time an application and all supporting credentials have been received in the Office of Admissions and Records. The classification is based upon information furnished by the student and from other relevant sources. After the student's status is determined, it remains unchanged in the absence of satisfactory evidence to the contrary. The student who, due to subsequent events, becomes eligible for a change in classification, whether from out-of-state to in-state or the reverse, has the responsibility of informing the tuition classification officer, Office of Admissions and Records, in writing within 15 days after such a change occurs.

If adult students, or emancipated minors, establish domicile outside Colorado, they are to send written notification within 15 days to the tuition classification officer.

#### **Petitioning for Classification Change**

Instructions as to the procedure to follow, the necessary petition forms, and detailed information regarding the statute are available from the tuition classification officer in the Office of Admissions and Records.

#### **Classification Notes**

1. Petitions will not be acted upon until an application for admission to the university and complete supporting credentials have been received.
2. Changes in classification are made effective at the time of the student's next registration.
3. A student who willfully gives wrong information to evade payment of the out-of-state tuition is subject to legal and disciplinary action.
4. Petitions and all required documents must be submitted no later than the census date (see below, Tuition and Fee Regulations) for the term a change in status is sought. Late or incomplete petitions will not be considered until the next semester.

#### **U.S. and Canadian Military Waivers/ Olympic Waivers**

Special rules apply to active duty members of the U.S. and Canadian Armed Forces permanently stationed in Colorado and their dependents and Olympic athletes in training. Strict deadlines of certification each term one enrolls are enforced for these individuals. Please contact the tuition classification officer in Admissions and Records for details.

### **Registration**

(719) 262-3361

See the Academic Calendar for dates of registration. Times and details of registration, course offerings, and instructions on how to register over the internet via the Student Online Center are published in the **Schedule of Courses** each academic term. Changes to the published schedule are posted on the web.

## **Expenses**

### **Tuition and Fee Regulations**

(719) 262-3391

The Board of Regents reserves the right to change tuition and fees at any time.

Students are required to pay a down payment prior to registration. Down payment requirements and due dates for payment of balances are contained in the Schedule of Courses.

All students enrolled for courses are assessed mandatory student fees. These consist of a base student fee and per credit hour fees as noted below. The income is used to fund student activities and to finance the University Center and Family Development Center.

1. All persons attending regularly scheduled classes must be registered and must have paid the proper tuition and fees. The tuition for those auditing a course on this campus is the same as for those registered for credit. Auditors register for courses for No Credit (NC).
2. Students enrolled as "Candidate for Degree" only to take a comprehensive examination for a master's degree will pay graduate, resident tuition for 1 credit hour, plus appropriate fees.

#### **Payment of Tuition and Fees**

Students must pay a substantial tuition down payment. The down payment requirements and payment due date is contained in the Schedule of Courses. Students receiving financial aid or a guaranteed student loan should contact the Financial Aid Office to determine if they are eligible for a down payment waiver. Students covered by a third-party contract should contact the Third Party Billing Office. Students receiving veterans assistance will be expected to pay the specified down payment.

Due date for payment of balances is contained in the Schedule of Courses. Bills will be mailed approximately two weeks after the end of the drop/add period for the balance of tuition and fees less the down payment. Payments must be received at the Bursar's Office by the due date. Mail postmarked on the due date will not be honored.

Bills not paid by the due date will be assessed a prorated late fine up to \$50 and will accrue a 1 percent per month service charge on the unpaid balance (12% A.P.R.).

Students receiving financial aid will have tuition and fees deducted from their awards. Any balance remaining may be deposited to student's bank account after completion and submittal of authorization form to Loan Disbursement, Main Hall Room 210.

### **Personal Checks**

A student's personal check is accepted for any university obligation, unless the student is deemed to be a poor credit risk. A \$25 service charge plus bank collection charges will be assessed for all returned checks. If the returned check was for a down payment, a reinstatement fee of \$25 plus \$10 per month will be assessed until cleared. If the check was for a tuition bill, a prorated late payment fine up to \$50 plus interest will be assessed if applicable.

### **Drops or Withdrawals**

A course drop or withdrawal is effective on the date that the completed form is returned to and stamped received by the Records Office. Any adjustment in tuition is made as of the receipted date by the Records Office.

### **Refunds/Rebates**

Refunds/rebates will not be processed until approximately two weeks after the end of the drop/add period. The amount of refund/rebate is determined by the time of withdrawal in accordance with the policy contained in the Schedule of Courses.

### **Payment Policy**

It is the student's responsibility to ensure payment is completed by the established due date. Students who enroll after the last day of late registration must pay a \$50 late penalty fee plus a regular downpayment and meet the established final payment due date.

### **Census date**

The census date is the final controlling date for assessment of tuition, receiving a refund for a change in registration (dropped course), requesting the pass/fail option or changing back to a letter grade, and a number of other academic, financial, and registration functions. Census date is the 12th class day of a fall or spring semester or the 6th class day of the summer term. The exact day and date is printed in the Schedule of Courses each semester.

## **General Fees**

### ***Learning Technology Fee***

All students pay a \$5 per credit hour fee. The learning technology fee provides for the purchase of new computer equipment and software accessible to all students, the maintenance and upgrade of telecommunication equipment used in all current and future learning centers, and the development of a broad set of informational communication offerings accessible to all students.

### ***Matriculation Fee***

This nonrefundable charge is assessed to all students new to the University of Colorado system. It is a one-time charge of \$25 and covers the normal cost of transcripts and establishing your university record. The fee is assessed during registration at the time of initial enrollment and is nonrefundable, even though the student may withdraw.

### ***Room and Board Down Payment***

Housing Village students must make a \$1,200 room and board down payment. Pay at the Bursar/Cashier's window, on the web or by mail.

### ***Safety and Transportation Fee***

It is the policy of the Colorado Commission on Higher Education that parking for vehicles owned by students, faculty and staff must be funded on a self supporting basis from special charges made of those owning automobiles and parking them on campus. In accordance with this policy, the UCCS Parking and Transportation Services Operation is established as a self-supporting auxiliary enterprise, RECEIVING NO STATE APPROPRIATIONS from tax revenues. This means that the construction, improvement and maintenance of all parking facilities at UCCS are financed solely through permit sales, parking fines and visitor parking revenue. Annual revenue must be sufficient to satisfy operating expenses and to repay revenue bonds sold to construct parking facilities.

The Safety and Transportation fee is charged per student, per semester regardless of a student's credit hour course load. Some of the things the Student Safety and Transportation fee pays for:

1. The campus shuttle and the Four Diamonds bus service

2. Increased hours and service from the campus police
3. Emergency phones on campus
4. Lighting along roadways and in parking lots

Residential students parking a car on campus must purchase a Housing Permit. The Housing Permit allows students to park in parking lots 8, 9 and N.

Commuter students have the option of purchasing a parking permit to park in HUB parking lots or Lot N. A HUB permit allows parking in Lots 1-7, A-D, Lot N, and some floors of the parking garage. Permits are also available for Lot N access and evening parking only. Commuter students not wishing to purchase a parking permit may park at the Four Diamonds parking lot located at 5025 North Nevada. Bus service to the main campus is provided free of charge to students who possess a valid I.D. card.

Permits are limited and prices are subject to change. For current information please call 262-3528 or reference the website at [www.uccs.edu/~pusafety](http://www.uccs.edu/~pusafety).

Cars violating parking regulations are subject to ticketing and/or towing. Parking is on a first come, first served basis. Faculty, staff and students should direct all parking or traffic inquiries to Transportation and Traffic Services, in the Department of Public Safety, Public Safety Building, room 104, or call 262-3528.

### ***Student Health Center Fee***

The Health Center is available to all full-time and part-time students who have paid the following fees, per semester: Fall semester, \$25; Spring semester, \$25; Summer session: \$12.50.

### ***Student Identification Fee***

The fee for a student photo I.D. is \$15.

### ***Student Information System (SIS) Fees***

This is a nonrefundable fee approved by the Board of Regents to be effective fall 1984. The fee is payable each semester of registration.

The Student Information System (SIS) enables the university to provide better service to its students through student records, course scheduling, data management, transcripts, financial aid,

**Tuition Rates for Fall 2005  
were not finalized by the time of  
publication.**

**When available, tuition rates for Fall 2005  
will be published on our web site.  
Go to [www.uccs.edu](http://www.uccs.edu) and  
click on "Approved Tuition Rates."**

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## **College Opportunity Fund ('Vouchers')**

*College Opportunity Fund (COF) vouchers  
will be in place by Fall 2005 which will  
impact the listed tuition costs.*

An act of the Colorado State Legislature in May 2004 established a new way for the State of Colorado to provide state tax dollar support for higher education at the undergraduate level. The state is no longer appropriating monies to institutions for undergraduate education, but providing funding to undergraduate students through the "College Opportunity Fund" or "COF". This program is also known as "vouchers" or "stipends."

**Starting in the fall 2005, in-state undergraduates may  
request that COF stipends be applied to their University  
bills.**

This is not expected to decrease your out of pocket expenses. Although all specific information is not yet available, UCCS has a question and answer web site with the most current information.

**For more information, visit our web site at  
<http://www.uccs.edu/cof.htm>**

student accounts and registration using the student on line center. All students pay \$5.50 each semester or term.

### **Student Events/Performance Fee**

The Student Events/Performance fee of \$4 per semester for students enrolled in more than six credit hours and \$2.50 per semester for students enrolled in six or fewer credit hours provides free access for all UCCS students to all Theatreworks performances and events in the Bon Vivant Theater in University Hall.

### **Student Life Fees**

\$58 Plus \$13.85 Per Credit Hour

Every student enrolled for courses will be assessed mandatory student life fees for the spring term. These fees finance the student facilities, programs and services that are not supported by the university's general fund budget. The six Student Life Fees are:

- **Athletics Fee** (\$3.35 per credit hour) Support for six women's and six men's intercollegiate sports programs.
- **Family Development Center Bond Fee** (\$10 base) Repayment of bonded indebtedness on building as well as support for childcare operations.
- **Family Development Center Operating Fee** (\$3 base) Support for programs and services.
- **Student Activities Fee** (\$12 base) Support for student organizations, student newspaper, student government operations and other student activities.
- **Student Recreation Fee** (\$1 per credit hour) Support for recreation programs and activities and campus fitness center.
- **University Center Bond Fee** (\$33 base plus \$9.50 per credit hour) Repayment of bonded indebtedness on building as well as support for entertainment, cultural and educational programs, and the Center's operation.

### **Instructional Fees**

Refunds for course or instructional fees and deposits for students who withdraw from school are made according to the refund schedules found in the Schedule of Courses for each semester or term of the academic year. A full refund of course or instructional fees and deposits for

courses dropped on or before the census date is made to students who remain enrolled for at least one course. Colleges and Schools may change the fee schedule at anytime without prior notice. The following course and instructional fees and deposits is representative of, but not inclusive of, all fees.

### **Biology**

All students enrolling in biology courses with laboratory components (or equivalents) will be assessed a materials fee for specimens, slides, glassware, etc.: Biology 100 level laboratory courses-\$30; Biology 200-\$40; Biology 300 and above laboratory courses - \$50.

### **Business**

All students taking Information Systems or Quantitative Methods courses will be charged a \$15 per credit hour fee. Students taking any other course in the College of Business will be charged a \$5 per credit hour fee. The maximum fee charged to a single student in a single semester for these fees is \$120. In addition, students enrolled in on-line courses are assessed a \$52 fee per class.

### **Chemistry**

There is a total charge of \$40 for each laboratory course. Independent study courses are considered to be lab courses.

### **Communication**

A \$30 laboratory fee will be assessed for each course in TV production and/or filmmaking. Communication 350 (American Cinema) carries a fee of \$20.

### **Education**

Students enrolled in certain College of Education courses will be assessed fees ranging from \$10 to \$100 per course.

### **Engineering and Applied Sciences**

All students taking courses in the College of Engineering and Applied Sciences will be charged a \$10 per credit hour fee. The maximum fee charged to a single student in a single semester for these fees is \$120. This fee applies to all courses in the college except graduate thesis courses. These fees are nonrefundable and will be used by the departments for inventory renewal. Students are responsible and liable for damage to equipment caused by neglect, improper use, or failure to follow

operating instructions.

### **English**

All students enrolled in English composition and certain other courses will be assessed a \$10 fee per course.

### **Geology and Geography**

Students enrolled in certain Geology or Geography courses will be assessed materials fees.

### **Graduate School of Public Affairs**

Students enrolled in on-line courses are assessed a \$100 fee per class.

### **Languages and Culture**

Students enrolled in lab courses, and certain other language instruction courses, will be assessed a \$10 fee per course. In addition, \$25 will be charged for courses with travel.

### **Letters, Arts and Sciences**

Students enrolled in on-line courses are assessed a \$52 fee per class. Students taking courses with field trips may be assessed a \$20 trip fee.

### **Nursing**

Beth-El College of Nursing students taking nursing courses will be assessed fees ranging from \$25 to \$150 per course.

### **Physics and Energy Sciences**

Students enrolled in lab courses will be assessed various fees.

### **Psychology**

Graduate students in Psychology will be charged clinical experience fees.

### **Visual Arts Fees**

All students enrolling in any art history or visual arts course will be charged a program fee of \$40 per semester enrolled, regardless of how many courses a student is registered for. In addition, studio art courses will be assessed a fee of \$30 per class to help defray the cost of supplies. Students enrolled in Film 100 or 200 will be assessed \$10 per course. Fees for Theatre 100, 250, 310, 336, and 337 will be \$10 per course. There will be a fee of \$20 for AH 100, and a fee of \$10 for MUS 100. There is a full refund of the deposit for courses dropped the first two weeks of the term.

## Credit by Examination Fee

Special examinations, given for the purpose of obtaining credit for a course solely through the passing of an examination without otherwise registering for and taking the course, are available to degree students in the university. The fee for each examination is the lower division, resident rate for 3 semester hours regardless of the number of hours of credit that are awarded. Credit is Pass/Fail ONLY.

Arrangements for special examinations are made through the Office of Admissions and Records. The fees for the examinations are payable in advance and are nonrefundable.

In cases where the examination is administered for other institutions and the results reported to that institution, the same nonrefundable fee will be assessed in advance; the individual student is responsible for payment.

## Financial Aid/Student Employment

Cragmor Hall, room 201 (top floor)  
(719) 262-3460  
1-800-990-8227  
fax (719) 262-3650  
www.uccs.edu/~finaidse/

FAFSA code: 004509

Office hours: 8 a.m. to 7 p.m. on Monday.  
8 a.m. to 5 p.m. Tuesday through Friday.

The financial aid program is designed to assist students who would be unable to attend the university without aid. The university receives funding from the state of Colorado, the federal government, and private donors to meet the needs of students who can document their financial eligibility. The campus also uses its own resources to meet students' needs.

### Financial Aid

There are two basic types of financial aid available to help students meet their educational costs: need-based aid and non need-based aid.

#### Need-based Aid

Need-based aid requires sufficient documentation of need. See the directions in the section below entitled "How do I Apply for Financial Aid?".

Need-based aid consists of:

- **Grants**  
Grants are funds that do not have to be repaid. Examples include the federal government's Federal Pell Grant and the Federal Supplemental Educational Opportunity Grant. Grants funded by the General Assembly of the State of Colorado include the Colorado Student Grant, the Colorado Leveraging Educational Assistance Program (federal funds are matched by the state), the Supplemental Leveraging Educational Assistance Program (federal funds are matched by the state), the Governor's Opportunity Scholarship Program and the Colorado Graduate Grant.
- **Loans**  
Loans are funds that have to be repaid at a future date. Examples include the Federal Perkins Loan and the Federal Stafford Loan (subsidized).
- **Work-study**  
This offers part-time, subsidized employment (approximately 10 -20 hours per week) with both on and selected off-campus employers. Both Federal Work-Study and Colorado Work-Study are available. Students must apply for financial aid and receive a work-study award to be eligible. Students must also be enrolled at least half-time and comply with the financial aid policy on Reasonable Academic Progress to maintain eligibility for work-study.

**NOTE:** State of Colorado funds are available only to students who qualify for resident tuition (not based upon military status or olympic status). Both resident and non-resident students may be eligible for federal funds. See the Student Employment homepage at [www.uccs.edu/~stuemp/](http://www.uccs.edu/~stuemp/) for more information about work-study and all student employment options.

#### Non Need-based Aid

Information and applications are available on the web at [www.uccs.edu/~finaidse/](http://www.uccs.edu/~finaidse/)

- **Loans**  
These funds have to be repaid at a future date.  
An example is the Federal Stafford Loan (unsubsidized). Interest accrues immediately and can be paid quarterly or can be added on to the principal, and repayment begins six months after the student is no longer enrolled half time.

For application information see the section below entitled "How Do I Apply for Financial Aid?". While eligibility for these loans is not based on need, an applicant must first establish that he or she is not eligible for need-based aid. Therefore, the financial aid application procedure described in the section entitled "How Do I Apply for Financial Aid?" must be followed.

- **Colorado No-Need Work-Study**  
These funds are not based on financial need and offer part-time, subsidized employment (approximately 10-20 hours per week), on campus or at selected off-campus employers. Applications are available on line and are due by the end of the first week of fall classes. This program is available during the fall and spring semesters only and awards are made only once early in the fall semester. Undergraduate degree students who are eligible for resident tuition (not military or olympic status), take at least six credit hours and who comply with the financial aid policy on Reasonable Academic Progress may apply for Colorado No-Need Work-Study. Students are selected for this award by a computerized random selection program.
- **Parent Loans**  
These are low interest loans that parents of dependent students may obtain to help pay the costs of attendance. The parent must qualify for credit (not have adverse credit). The parent may apply for the full cost of attendance (as set by the Office of Financial Aid/Student Employment) for the year, minus financial aid awarded. Eligibility must be established each year. At this time, filing the Free Application for Federal Student Aid (FAFSA) is not a requirement. To establish eligibility and apply for the Parent Loan to Undergraduate Students, go to [www.studentloanonline.com](http://www.studentloanonline.com).

### How Do I Apply for Financial Aid?

Follow these instructions to apply for financial aid, including Federal Stafford Loans (subsidized and unsubsidized):

1. Complete the Free Application for Federal Student Aid (FAFSA) on the web at [www.fafsa.ed.gov](http://www.fafsa.ed.gov) or you may obtain the paper FAFSA from a high school or any college financial aid office. The process can be completed after January 1 each year.



**We recommend that you file the FAFSA no later than March 1 each year and that you do it on the web.**

The correct information must be on the Student Information System (SIS) by April 1 to meet our financial aid awarding priority date. Students must also be admitted to a degree program by that date. Meeting this priority date does not guarantee you will receive financial aid, but you will be considered for all types of assistance, including need-based grants.

2. The FAFSA analyzes your family's income, assets, family size, and other factors, and allows the Financial Aid Office to estimate your contribution and/or the amount your family could reasonably be expected to contribute to your education. The philosophy of the student assistance programs is that the student and family have the first responsibility to pay for the educational costs. The financial aid programs are available to promote access for students/families with the least ability to pay.
3. After the processor receives the information, the results will be sent electronically to UCCS (assuming you listed the correct code of 004509 on the web application or the paper form). You will receive a Student Aid Report (SAR). If corrections are needed, call or come in to the Financial Aid Office and we will make them electronically. If no corrections are needed, keep the SAR. You are not required to submit the electronic or paper SAR to the Financial Aid Office.
4. If you wish to apply for a Federal Stafford Loan (subsidized or unsubsidized), you will need to follow all of the steps listed above and, in addition:
  - a. Federal Stafford Loan applicants should obtain a loan questionnaire from the Financial Aid Office or on the web at [www.uccs.edu/~finaidse/formfinaid/htm](http://www.uccs.edu/~finaidse/formfinaid/htm) complete it and send it or fax it.
  - b. If this is your first federal student loan at UCCS, complete pre-loan counseling on the web at [www.uccs.edu/~finaidse/](http://www.uccs.edu/~finaidse/) then click on the "Pre-Loan & Exit Counseling Online" icon. Confirmation will be sent to the Financial Aid Office electronically.

Select a lender from our recommended lender list, and if it is the first time you have borrowed a Federal Stafford Loan at UCCS, certification will be done electronically and the Colorado Student Loan Program (CSLP) will send you a Master Promissory Note (MPN). This note is valid for 10 years if you remain with the same lender. The timely return of the MPN to the CSLP is imperative. Funds will then be applied to your student bill electronically.

If you select a lender that is not on our list of recommended lenders, and you are a first time borrower, you must obtain the Master Promissory Note (MPN) and School Certification Form (that you get from the lender) and submit it with the lender and guarantor's name and address to the Financial Aid Office to complete. This must be done each time you apply for a loan. Loan eligibility is certified, and funds are sent, by mail. This is a much longer process.

All correspondence will be sent to your permanent address (not your mailing address). Be sure to keep it updated in the Records Office or the Financial Aid Office. You may also make changes on line once you have your student PIN.

### Student Employment

Cragmor Hall, room 201 (top floor)  
(719) 262-3460  
fax (719) 262-3650  
[www.uccs.edu/~stuemp/](http://www.uccs.edu/~stuemp/)

The Financial Aid/Student Employment Office offers a self-referral employment service to currently enrolled students, and to students who have been accepted for the following term. Students need not document financial need to apply for these jobs. There is no charge for any of these services.

**On-campus** (hourly/non work-study) employment is available to full-time or part-time degree status students or unclassified students who are at least half-time. Additionally, during the summer, degree-seeking students may work on campus without being enrolled if they were enrolled as at least a half-time student during the previous spring semester and will return in the fall semester. Jobs are generally part-time and are listed throughout the year depending upon employer needs. The majority of openings, however, are at the beginning of each semester.

**Off-campus employment**, both part-time and full-time, is available throughout the year depending upon employer needs. Openings range from highly skilled technicians and computer assistants to clerical work, food service and general labor. Temporary and on-call positions in such areas as day care, tutoring, house cleaning and furniture moving are also listed. Many residential nationwide camps list openings for the summer.

**Current job openings**, both on and off campus, work-study and non work-study, are listed on SEAN's PLACE, a computerized student employment assistance network for students. This service is strictly self-referral, and to apply for any job the student must contact the employer directly. Students may access SEAN's PLACE on the web at [www.uccs.edu/~stuemp](http://www.uccs.edu/~stuemp)

### Scholarships

All of the scholarships available to students are listed on the web at [www.uccs.edu/~finaidse/scholarship](http://www.uccs.edu/~finaidse/scholarship). The deadline for most of the institutional scholarships is March 1. If March 1 falls on a weekend, the deadline will be the next business day. Postmarks will not be honored. Many of the scholarships require that students have completed the FAFSA (see above). The Universal Scholarship Application is available on the website above. Outside scholarship search databases (all free) are also listed on the scholarship web page.

### Temporary Assistance

The university has available a short-term loan program for students in need of temporary financial assistance (e.g., books). These loans are temporary in nature and have a maximum repayment period of one semester. The fee to borrow is \$5 per \$100 borrowed. Students may borrow only one loan per semester with a maximum of \$500. Applications are available in the Office of Financial Aid/Student Employment.

Tuition Down Payment Loans are also available for up to the amount of the resident down payment. The fee to borrow is \$5 per \$100 borrowed. The fees are added to the student's bill.

### Student Loan Deferment

(Includes Summer Term)

All special or unclassified students seeking an enrollment deferment for student loans will be considered

undergraduates for verification purposes. In order to receive a deferment as a half-time student, the student must be enrolled for six credit hours. In order to receive a deferment as a full-time student, the student must be enrolled for 12 or more credit hours. Deferment forms are available in the Office of Financial Aid/Student Employment or your student loan lender. The Office of Admissions and Records certifies the student's enrollment status.

The Office of Financial Aid recommends that students wanting a deferment as a graduate student obtain degree status in their school or college.

## Public Safety

Public Safety and Student Health Building  
(719) 262-3528 (parking)  
(719) 262-3111 (police)  
[www.uccs.edu/~pusafety/](http://www.uccs.edu/~pusafety/)

The Department of Public Safety is a service agency. The officers of the department are certified, commissioned police officers for the state of Colorado.

## 911 Emergencies

on campus: 9-911

An "emergency" refers to any situation where there is an immediate danger to life or health of an individual, or individuals, on campus. Emergencies may be related to fires, chemical releases, medical problems or a wide variety of other events. For life threatening emergencies on campus, call 9-911. All other calls for police services, including crime reporting, should be made by calling 262-3111.

## Campus Closure

(719) 262-3346

In the event that the campus is closed due to weather or other reasons, the information will be available by calling the above number. Information is also available on Colorado Springs television and radio stations and the Internet by accessing [www.uccs.edu](http://www.uccs.edu) or [www.rockyinfo.net](http://www.rockyinfo.net)

## Photo Identification

(719) 262-3528

All fee-paying students, faculty and staff are required to have a UCCS photo I.D. card. This card is required to check out material from the Kraemer Family Library,

cash checks on campus, take advantage of special student prices for software or events, or gain admittance into sensitive areas of the campus.

The charge for an I.D. card is nonrefundable. All new students and most transfer students will be automatically billed for an I.D. card whether or not a card is made. Transfer students from other CU campuses are not automatically billed for an I.D. and must pay for the I.D. at the time it is made. Photo I.D. cards must be made and claimed in the semester during which the automatic charge is made. I.D. cards made after the first semester of attendance for any reason, including lost or stolen cards, will result in a recharge. I.D. photos are taken Monday through Friday 8 a.m.- 5 p.m. during the semester.

## Police Operations and Environmental Safety

(719) 262-3111

The Department of Public Safety maintains a full-service police operation to respond to reports of criminal acts and emergencies on campus. These officers are state certified and hold police commissions with the State of Colorado. The Department of Public Safety Office is also responsible for responding to all incidents that occur on campus involving police, parking, traffic, fire prevention and protection, environmental health and safety, emergency disaster coordination and chemical materials management.

In compliance with the Clery Act, the University Police publishes the UCCS Safety and Security Report in September of every year. Crime statistics listed in this pamphlet reflect reported crime only and are for calendar years January through December. The document is available on line at [www.uccs.edu/~pusafety/campus\\_safety.htm](http://www.uccs.edu/~pusafety/campus_safety.htm).

In addition, Public Safety provides several community services upon request:

1. Motorist assists: dead battery jump-starts, retrieval of keys from locked vehicles, etc.
2. Escorts to and/or from vehicles or buildings.
3. Lost and Found Service

## Student Services

### Alumni and Community Relations

Main Hall, room 401  
(719) 262-3018  
[www.uccs.edu/~alumni](http://www.uccs.edu/~alumni)

The Office of Alumni and Community Relations works to provide programs and services which build a mutually beneficial and enduring relationship among alumni, students, the university and the community.

### Army ROTC

Eagle Rock Building 201  
(719) 262-3520

### Department of Military Science

The Army Reserve Officers Training Corps program is available to UCCS students. Enrollment in the basic courses (100/200 level) is available to all full-time students. Enrollment in advanced courses (300/400 level) is open to juniors and seniors who have successfully completed all basic courses or LTC (Leader's Training Course) or to veterans at any level. All students should be academically aligned between their ROTC level and academic level (i.e., a freshman should enroll in freshman ROTC classes). Scholarships are available to qualified students. Completion of the ROTC program leads to a commission as an officer in the United States Army, Army National Guard or Army Reserve upon graduation. A minor in Military Science is available. Interested students are encouraged to consult with the Department of Military Science.

### Bookstore

University Center, lower level  
(719) 262-3247  
[www.uccs.edu/~storeboo/](http://www.uccs.edu/~storeboo/)

The Bookstore caters to the special needs of the academic community. The educational pursuits and the professionalism of the student, faculty, and staff dictates a full service store offering required course materials, optional course materials, self-help guides, software, computer accessories, as well as best sellers, general reading books, cards, posters, clothing and gift items, including Mountain Lions insignia items, school supplies and much more. For convenience, personal checks with proper identification, MasterCard and Visa cards are accepted.

The Bookstore is open year-round, six days a week with special hours at the beginning of fall, spring, and summer terms. In special situations, the hours may vary.

### **Textbooks**

Required and optional course materials are available in the Bookstore. Each course taught is identified by its shelf tag listing course information and arranged according to department, course number, and section. Some used books are available for most classes. Used books sell for 25 percent less than a new book's list price.

### **Convenience Store**

University Center, next to the Bookstore

The Convenience Store provides additional products to meet the needs of students, providing items such as snacks, grocery items, personal products and more. The Convenience Store is open seven days a week during the Fall and Spring semesters and six days a week during the Summer semester.

### **Chancellor's Leadership Class**

Main Hall, room 318  
(719) 262-3065

The Chancellor's Leadership Class is a leadership development program for the undergraduate student which focuses on: leadership studies, applied leadership experience, community involvement, personal and professional development, and mentoring.

### **Counseling and Testing Center**

Main Hall, room 324  
(719) 262-3265

The University Counseling Center (UCC) helps students maximize their learning experiences. When students have difficulties with personal issues, career indecision, or relationship problems, academic achievement may suffer. The UCC exists to help students with these issues using short-term therapy approaches. There is no charge for initial or emergency sessions. There is a nominal fee for on-going group or individual sessions.

The UCC provides 1) individual, couples, family and group counseling to help students address personal problems experienced while enrolled at the

university; 2) workshops that address mental health needs and academic skill needs of students; 3) consultation services for faculty, staff and students; and 4) mental health information and referral services.

Testing includes:

- American College Test (ACT) Residual: an entrance exam for undergraduates. The results are valid for admission to the CU system only. Cost is \$40.
- Correspondence Exams- There may be a charge
- Graduate Record Exams (GRE)- subject based. An entrance exam for graduate programs. Visit [www.gre.org](http://www.gre.org) to register and pay.
- Miller Analogies Test (MAT)- an entrance exam for graduate programs. Cost is \$70.
- Reasoning Skills Test: an exam used to satisfy the LAS Quantitative and Qualitative Reasoning Skills Requirements. Cost is \$20.

For information, costs, and scheduling, please call.

### **Dean of Students**

Main Hall, room 202  
(719) 262-3258  
E-mail: [dos@uccs.edu](mailto:dos@uccs.edu)

The Office of the Dean of Students serves as a link between individual students, student government, and the various academic and administrative offices of the university. The Dean of Students and the Dean's staff serve as advocates for students' interests and needs to the rest of the university. Students who have a suggestion or concern should contact the office.

### **Disability Services**

Disability Services  
Main Hall, room 105  
(719) 262-3354

In accordance with UCCS intent to make every effort to ensure the accessibility of its campus, academic and support programs, the Disability Services staff assists the student with disabilities in utilizing the variety of university and community resources available to help the student become integrated into the campus environment. If you are a student with a disability, you are encouraged to call for an appointment to discuss your needs and available

services. Since some services may require advance budgeting and special arrangements with other agencies, let us know your special needs as soon as you are considering coming to UCCS.

### **EXCEL Centers**

[web.uccs.edu/projexcel/](http://web.uccs.edu/projexcel/)

Project EXCEL is a program designed to help students achieve academic success during their collegiate careers. The activities and support services of Project EXCEL are provided to students via five learning centers located across the campus. The Centers provide programs that are linked to and support the academic curriculum across the campus. Refer to the Internet for hours of operation or contact each Center directly.

- **Language Technology Center**  
(719) 262-3690  
Fax (719) 262-3146  
Dwire Hall, room 347
- **Mathematics Learning Center**  
(719) 262-3687  
Fax (719) 262-3605  
Engineering Building, room 129
- **Oral Communication Center**  
(719) 262-4770  
Columbine Hall, room 312
- **Science/Health Science Learning Center**  
(719) 262-3689  
Science Building, room 145  
University Hall, room 202
- **Writing Center**  
(719) 262-4336  
Columbine Hall, room 316

### **Family Development Center**

(719) 262-3483

The Family Development Center provides quality, affordable preschool, kindergarten and child care for university families and the community at large. We offer educational programs for children ranging in age from 1 year (and walking) to 12 years.

The Center maintains a staff of highly qualified and caring teachers. The activities in the classrooms are planned by professional lead teachers trained in early childhood/child development. Lead teachers are assisted by additional teachers and aides. The Center strives to meet the standards for low child/staff ratios adopted by the National Association for the Education of Young Children (NAEYC).

The Center is open from 7am to 6 pm, Monday through Friday. Rates are competitive with discounts for students.

Enrollment is limited and is on a first come, first served basis, with priority given to UCCS students. Phone or visit the Center for further enrollment information.

## Residence Life and Housing

Monarch House  
(719) 262-4322

<http://web.uccs.edu/housing>

UCCS housing is home to 900 students, and is just a short distance from all campus classroom buildings, El Pomar Center, the Kraemer Family Library, and the University Center. On campus we have the Summit Village Residence Halls, and the new Alpine Village Apartments, which together provide housing options for many of our students.

All rooms include full bath, satellite television, telephone service, and high-speed internet. All pricing for the Summit Village Residence Halls also include your choice of three meal plans. Freshman are not guaranteed housing, and all applicants are encouraged to apply early for the best selection of rooms. Contracts are available for the full academic year, and also for summer school.

Please see <http://web.uccs.edu/housing>, or visit our offices in Monarch or Crestone Houses for further details of all of our offerings.

## Intercollegiate Athletics

University Center, third floor  
(719) 262-3601  
[www.uccs.edu/athletic/](http://www.uccs.edu/athletic/)

The Intercollegiate Athletic program at UCCS seeks to carry out its primary mission of developing exemplary student athletes who participate in the total spectrum of university life. Exemplary student athletes play intercollegiate sports and also focus on education, good character, no substance abuse, leadership and goals.

To that end, UCCS sponsors 14 varsity sports that compete at the NCAA Division II level in the Rocky Mountain Athletic Conference (RMAC). Varsity sports include: men's and women's basketball, men's and women's cross-country, men's and women's indoor/outdoor track, men's and women's tennis,

women's volleyball, women's fast-pitch softball, men's soccer, and men's golf.

The UCCS Mountain Lion volleyball and basketball teams compete in the "Lion's Den", a 300 seat gymnasium located on the second floor of the University Center in the heart of the campus. The softball team plays at the Mountain Lion Field located at the 4-Diamond Complex on Nevada Avenue, just north of Austin Bluffs. The soccer team plays at Sand Creek Stadium located off Barnes, East of Powers Blvd (right next to the Sky Sox Stadium).

The UCCS tennis teams play at the Broadmoor Hotel and at the Memorial Park Tennis Center while the men's golf team plays at local golf clubs.

UCCS offers athletic scholarships that are awarded on an individual basis by the head coaches of each of the varsity sports according to the NCAA guidelines.

## International Student Services

Main Hall, room 104  
(719) 262-3238 or -3819

International Student Services serves as an advocate for foreign students attending or planning to attend UCCS by identifying services and programs that can assist in meeting their needs. This unit promotes, supports, and develops any activity that brings about a cross-cultural understanding and sensitivity on campus. The unit is responsible for providing current and future international students with information and services available to them on campus and the surrounding community.

## Kraemer Family Library

El Pomar Center  
(719) 262-3296  
[web.uccs.edu/library](http://web.uccs.edu/library)

The Kraemer Family Library supports, learning, teaching and research activities of the students and faculty by providing a diverse collection of more than one million items and offering a wide array of interpretive services. These services include a comprehensive library instruction program, electronic data bases, interlibrary loan and reference services. Access to a wide variety of electronic resources and the library's online catalog is available through the library web page.

The library is housed in El Pomar Center. Library services are available 90 hours

per week during the regular semesters. Individual study carrels, computer labs, multimedia development labs, group study rooms, and copy machines are available. Special equipment and software are available to assist the hearing and visually impaired gain access to library materials.

Library users have access to the library's collection of 420,000 book volumes, 670,000 microform volumes, 11,800 maps, and 6,000 media items. These items include 1,500 paper and 20,000 electronic journal titles as well as U.S. and Colorado government documents. In addition, students and faculty have access to the collections of many of the state's other academic libraries through personal visits, shared electronic catalogs or interlibrary loan. The library's interlibrary loan agreements also provide students and faculty with access to the collections of most of the libraries in the U.S. and other countries.

## Off Campus Housing

ROAR office  
University Center, first level  
(719) 262-3470  
[web.uccs.edu/commuter/](http://web.uccs.edu/commuter/)  
E-mail: [ROAR@uccs.edu](mailto:ROAR@uccs.edu)

The off campus housing referral service, including listings of rooms, apartments, and houses, as well as students seeking roommates to share their accommodations, is maintained by the Refuge for Organizations, Activities and Recreation (ROAR) office located across from the Information Desk in the University Center.

## Pre-Collegiate Development Program

Main Hall, room 303  
(719) 262-3239

UCCS has entered into a partnership with public schools in the Pikes Peak region including six Pueblo schools to help prepare under-represented and first generation college students to be competitive for college entrance upon graduation from high school.

The program consists of an academic year component which includes workshops on self-concept, career planning, time management, and cultural activities. The program also includes an on-campus summer component which is designed to build the students' academic skills. Students remain in the program

until they graduate from high school. The program is for students in grades 9 through 12, with a limited middle school program that serves students in grades 7 through 8.

### Print Shop

Campus Services Building, room 230  
(719) 262-3213 or  
[www.uccs.edu/~printshop/](http://www.uccs.edu/~printshop/)

The Print Shop offers full service printing and copying, including color copies, binding laminating and faxing services to students, faculty, and staff. The Print Shop hours are 8 a.m. to 5 p.m. M-F.

### Refuge for Organizations, Activities and Recreation (ROAR)

University Center, first level  
(719) 262-3450  
E-mail: [ROAR@uccs.edu](mailto:ROAR@uccs.edu)

The Refuge for Organizations, Activities and Recreation (ROAR), located across from the University Center Information Desk, is your doorway to campus life! Through involvement in one or more of the areas within the ROAR, you are guaranteed to grow personally, make lifelong friendships, develop valuable skills you will use the rest of your life, have input into programs and services offered to students at UCCS, contribute to the present and future of the university, and have great fun in the process.

### Office of Campus Activities (OCA)

(719) 262-3540

[cab@uccs.edu](mailto:cab@uccs.edu)  
[www.uccscab.com](http://www.uccscab.com)

The OCA is the programming office for student events on campus, led by two co-presidents who are student employees; eight other students are employed as the council chairs. OCA's mission statement is: Leading & Learning Together...Creating community through entertainment, enrichment, and inclusion. The UCCS community is encouraged to be involved in the selection and production of events. OCA is a great way to meet people, learn and build upon skills, and explore career opportunities. A few traditional events sponsored by OCA include: DisOrientation Week, Adopt-a-Mountain Lion Campaign, Get Vocal with the Locals, ROAR Daze and Talent Night. Most events are free to students and open to the entire UCCS

community. For more information, call 262-3128 or 262-3532 or come by the office (UC room 104) or check out our website [www.uccscab.com](http://www.uccscab.com).

### Student Government and Student Organizations

(719) 262-3470

All students at UCCS are automatically members of the Student Government Association, the official voice of the student body. Student Government provides a wide variety of activities and services. For more information call or visit the office in the ROAR.

In addition, there are more than 100 student clubs and organizations at UCCS. They include academic, social, religious, sports, political, honorary, and special interest. Enjoy the satisfaction of being part of a group and getting things done, meeting people with similar interests, and developing leadership skills. For information about how to join an organization or to form a new organization, call or come by the ROAR Office.

### Campus Recreation Office

University Center, second floor  
(719) 262-3463  
[web.uccs.edu/recsports/](http://web.uccs.edu/recsports/)

The Campus Recreation Office provides indoor and outdoor facilities, equipment, programs and services that support the leisure and wellness needs of UCCS students, faculty and staff. This is accomplished in a variety of ways including:

- **Club Sports** — university approved clubs sponsor instructional, recreational and competitive programs for their members. Club teams include, but are not limited to, cycling, karate, fencing, rodeo, baseball, women's soccer, martial arts, mountain biking, and ice hockey.
- **Intramurals** — provides broad recreational and competitive opportunities through team and individual leagues and special event activities. A few of the intramural leagues include softball, volleyball, basketball, soccer, floor hockey, tennis, table tennis, bowling, and miniature golf.
- **Open Recreation** — free student access to the gym and fitness center during posted hours.

- **Outdoor Equipment Rental** — an ever-increasing inventory of outdoor equipment is available for a nominal fee and on a first come-first served basis.

- **Outdoor Facilities and Programs** — access to sports facilities by reservation and various outdoor trips.

### Student Health Center

Public Safety and Student Health Building  
(719) 262-4444  
Fax: (719) 262-4446  
E-mail: [hlthcntr@uccs.edu](mailto:hlthcntr@uccs.edu)

The Student Health Center provides convenient and affordable access to quality medical care for eligible students. Medical insurance is not required to be seen for an appointment.

The Center provides health care services 40 hours per week during fall/spring semesters including Monday evening hours, and abbreviated hours for all breaks and summer semester. Services include, but are not limited to diagnosis and treatment of minor injuries and illnesses, administration of MMR, allergy, and other shots, routine gynecological exams, health education, and referral to community health resources as needed. Limited lab and medication are also available on-site.

### Immunization Requirement

The Colorado Department of Health and Environment requires any student who: 1) is enrolled for one or more classes at a college or university, 2) who is physically present at the institution, including auditing classes but excluding correspondence/distance learning classes, and 3) born January 1, 1957 or later, to be immunized against Rubella measles, Rubella measles and mumps (MMR), or provide documented proof of immunity to all three. Individuals born before January 1, 1957 are presumed immune and are exempt from the immunization requirement.

In order to comply with this State law, you must do one of four things:

1. Provide a copy of documentation from a health care professional that you have met the requirements of two MMR immunizations. Records must include month, day and year of each shot, an official signature or stamp or official letterhead. Note: obtain CERTIFIED records from your former college, high school, doctor's office,

military records or family (certified) records.

2. Provide a copy of proof of immunity by blood lab tests for the Rubeola measles, mumps and Rubella measles.
3. Request an exemption from the law on personal, religious or medical grounds.
4. Get two MMR immunizations (30 days apart) immediately.

Please bring (or fax to 719-262-4403) a copy of your immunization records to the Health Center. The Health Center will assist you in complying with this state law. MMR immunizations are available at a reduced cost at the Health Center; call for an appointment. You may also receive the immunizations from your personal health care provider or your county health department.

### **Student Health Insurance**

Main Hall, room 202  
(719) 262-3258

UCCS offers a group health insurance program to students enrolled in nine (9) or more credit hours as an undergraduate or six (6) or more credit hours as a degree seeking graduate student. Brochures and enrollment cards are available in the Office of the Dean of Students.

### **Student Multicultural Affairs**

Main Hall, room 322  
(719) 262-3040

The Office of Student Multicultural Affairs promotes a campus environment that is inclusive and supportive of students from diverse backgrounds. Works with student organizations and campus departments to provide activities and programs.

### **Student Success Center**

Main Hall, second floor  
(719) 262-3260  
Fax: (719) 262-3645  
web.uccs.edu/studentsuccess

The Student Success Center is a "one stop" location on campus for meeting students' needs. Services include academic advising for all undergraduate students, new student orientation, career services, CU Opportunity, and degree audit.

### **Career Services**

Career Center  
Main Hall 201  
(719) 262-3340

Career advising and resources are available for all aspects of a student's career path and choice of major. Office hours are 9:00 am to 4:00 pm Mon.-Fri. If you are undecided about a major we can help you discover the topics that truly excite you. If you are considering a career change, we can help you find out the career area that is right for you and the jobs that will bring you satisfaction. If you are ready to find a job, we can show you how to create a powerful resume and cover letter. We also can assist you with polishing your interviewing skills. We host many events and recruiters each year, including two Career Fairs. For more information, go to <http://web.uccs.edu/studentsuccess>. If you are seeking an internship or employment, register with our online job board: [www.ecampusrecruiter.com/uccs](http://www.ecampusrecruiter.com/uccs).

### **CU Opportunity Program (CUOP)**

(719) 262-3040

CUOP is a special program that seeks to provide equal educational opportunity for students who have not traditionally been a part of the university environment. The program strives to recruit, admit, retain, and graduate a representative number of minority students – or any otherwise economically or academically disadvantaged person.

The primary focus of CUOP is to increase the minority student population, but it is also CUOP policy not to exclude anyone showing a need for the services offered by the program. The program has a cooperative relationship with the office of admissions, financial aid and academic departments. This relationship allows the staff to be available to assist CUOP students who experience difficulties in any of these areas. Interested students should contact the Student Success Center, preferably before admission to the university.

### **Orientation for New Students**

(719) 262-3260

Orientation programs are held preceding each term to acquaint new students with the academic programs, out-of-class activities, and services. Academic advising, registration for classes, and introduction to campus life constitute

the main orientation activities. New students will be informed of planned events by mail and are required to attend an orientation session before being permitted to enroll.

### **Testing Services for Math Placement**

Main Hall, second floor  
(719) 262-3260

Contact the Testing Office for scheduling and information.

MPT – Math Placement Test. The Algebra Diagnostic Test and the Calculus Readiness Test are administered by appointment, and at each freshman orientation.

### **University Connection**

(719) 262-3260

UCCS has entered into agreements to assist students in two-year academic programs who complete their A.A. or A.S. degrees and plan to transfer to UCCS. The program provides transfer advising and close coordination with the academic colleges at UCCS. University Connection scholarships are also available.

University Connection offers these transfer services to the following community colleges: Pikes Peak Community College, Arapahoe Community College, Red Rocks Community College, Otero Junior College, Lamar Community College, Pueblo Community College, and Trinidad State Junior College. Students attending other two year institutions not listed can contact the program staff to make special arrangements for assistance with transfer to UCCS.

### **University Center**

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The University Center is the community center for the university; serving students, staff, faculty, administration, and guests. The University Center complements the academic programs by providing support to the out-of-classroom experience through an extensive array of cultural, recreational, social and educational programs. The University Center is a student-centered organization that values participatory decision-making and volunteerism. The University Center provides programs through the services and facilities that are within the Center: Refuge for Organizations, Activities and Recreation (ROAR), including the Campus Activities

military records or family (certified) records.

2. Provide a copy of proof of immunity by blood lab tests for the Rubeola measles, mumps and Rubella measles.
3. Request an exemption from the law on personal, religious or medical grounds.
4. Get two MMR immunizations (30 days apart) immediately.

Please bring (or fax to 719-262-4403) a copy of your immunization records to the Health Center. The Health Center will assist you in complying with this state law. MMR immunizations are available at a reduced cost at the Health Center; call for an appointment. You may also receive the immunizations from your personal health care provider or your county health department.

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Board, Student Government Association and Student Organizations, Recreational Sports, The Scribe, Information Desk, Intercollegiate Athletics, Meeting Rooms, Lounges, Game Room, Overlook Snack Bar, Bookstore, Convenience Store, and Copy Center.

The University Center is supported by mandatory student fees. These fees finance repayment of the bond debt, and support entertainment, cultural and educational programs and services not supported by the university's general fund. The University Center fees are \$33 base per head and \$9.50 per credit hour.

### **Veteran Affairs Office**

Main Hall, room 101  
(719) 262-3253

The Office of Veteran Affairs (OVA) assists veterans and others eligible for Department of Veterans Affairs education benefits. The office is supervised by the university and bound to complete documentation and maintain records according to the guidelines Department of Veterans Affairs (DVA) and the Colorado State Approving Agency for Veterans Education and Training.

### **Veterans Education Benefits**

Chapters 30, 31, 32, 35, 106, 901 and 903: The veteran must establish eligibility for educational benefits from the DVA by filing the appropriate paperwork at this office. Applicants wishing to receive advance payment must complete the appropriate form no later than 45 days prior to the first day of classes. The student must be registered in classes before this office can release the check. A request for an advance does not guarantee the check will arrive before tuition deposits are due. Finances should be planned accordingly.

### **Procedures**

After registration each semester, the veteran must submit a course load work sheet to the OVA for review and for the certification of the student's course load to the DVA. Any changes in course load (i.e., adds, drops, withdrawals) must be reported to the Department of Veterans Affairs through the office at UCCS.

### **Dependents, Education Assistance Act, Chapter 35**

Students between the ages of 18 and 26 who are eligible for educational benefits because of the death of a parent during active military duty or because of service-

connected disability rated by the DVA as 100% permanent and total should file appropriate forms with the OVA according to the preceding paragraphs. The registration procedure is also the same as described above.

Chapters 30, 32, and 35 are eligible for tutorial assistance. The tutoring must be essential to correct a deficiency as certified by the instructor.

### **Technology Services**

El Pomar Center, first floor  
(719) 262-3536  
[www.uccs.edu/~it/](http://www.uccs.edu/~it/)

#### **Computing labs**

All university students, staff, and faculty may use computing laboratories and obtain an e-mail / UNIX account. Windows NT and Cyber-class accounts are created automatically. Information on labs can be obtained from the following:

IT Help Desk (719) 262-3536  
El Pomar Center, first floor

Columbine Hall Lab (719) 262-4229  
Columbine Hall, room 231

El Pomar Lab (719) 262-3422  
El Pomar Center, second floor

#### **CU-NET**

(719) 262-3597

UCCS offers live, interactive, credit-bearing classes over the CU-NET instructional television system. CU-NET broadcast classes are regular courses and off campus students will have access to the instructor through a standard telephone link, and will be able to ask any questions as they arise. Off-campus students will be expected to follow the same syllabus and meet the same course requirements as in-class students.

Course offerings vary semester-to-semester. CU-NET classes are available to adult learners over Adelphia Communications (channel 11). Anyone subscribing to Adelphia will receive the classes as part of their basic service, however, to receive credit for classes students must enroll through the Extended Studies division of the College offering the course.

A four-campus fiber system provides video, voice and data transmission among the four campuses and supports,

in addition to academic courses, administrative teleconferencing and professional development training.

#### **Teleconferencing**

CU-NET provides professional teleconferencing services to the campus community and public and private enterprises in the Pikes Peak Region. Downlinking services are available on campus and uplinking services can be arranged.

#### **Information Technology**

UCCS makes the power of technology accessible. The Information Technology department provides a 150-station computer commons area and nine computer equipped labs with an average of 25 computing stations per lab. Of those nine labs, 7 are dedicated classrooms; 1 is an open lab and the remaining lab is open except when occasional classes are scheduled there. (Open labs are computing labs that are available to students on a walk-in basis seven days a week, per the prevailing lab schedule.)

Each of the computing labs and computing classrooms provide a Windows or Macintosh computer per student station, a high speed network connection, printers in each room and access to a wide range of software. Our extensive list of software includes Microsoft Windows, Microsoft Office, Macromedia web design studio, Photoshop, First Class, Internet applications such as internet explorer and FTP and specialized software (i.e. Accounting, Statistical and Group Systems.)

In addition to the seven computerized classrooms, Columbine Hall provides a 50 station open lab. This lab includes 42 Pentiums and 8 Macs, 4 black and white lasers, 1 color laser and 1 color scanner. Columbine Hall also provides easy access to technology in 22 general classrooms. This technology is in the form of a PC and DVD/VCR combination deck for the instructor and a built-in video projecting unit. The PC is connected by a state of the art switched network. The video projecting unit also remotely accesses audio and/or video media. This equipment allows easy integration of Internet or video examples or a PowerPoint presentation to create a more robust lecture.



## University Policies

### Academic Policies

#### Academic Records

##### How Academic Work Is Recorded On Transcripts.

Courses are grouped by the term or semester in which they were taken. When a college or school is unique to a particular campus of the university (the College of Letters, Arts and Sciences on the UCCS campus) and the student has completed the degree requirements, the degree and field of study will be designated on the transcript as follows:

Example: Degree — B.A. Conferred (date) at Colorado Springs Sociology

For students graduating from colleges and schools represented on two or more campuses, there may be no campus designation.

Example: Degree — B.S. Conferred (date) Business

Students completing a double major will be listed as follows:

Example: Degree — B.A Conferred (date) at Colorado Springs Psychology and Sociology

College of Letters, Arts and Sciences students graduating in Distributed Studies will show all the disciplines used to meet the unique degree requirements:

Example: Degree B.A. Conferred (date) at Colorado Springs Distributed Studies— Fine Arts History, Communication, and English

Academic minors (completed at time a degree is awarded) are recorded on the transcript.

General and departmental honors are recorded on the transcript.

#### Auditing Courses

All persons who wish to attend regularly scheduled classes and who are not registered students must obtain auditor's status. Auditors, whether in-state or out-of-state, pay in-state tuition for 3 semester hours at the lower division undergraduate rate for fall, spring, or summer term and receive class instruction and library privileges only. Auditors may attend as many courses as they wish. An auditor's card must be presented to the instructor when requesting permission to attend a class. Cards may be obtained from the Bursar's

Office in Main Hall after classes begin. To qualify as an auditor, an individual must be 21 years of age or older. Persons are not eligible to audit courses if they are under suspension from the university. Auditors may attend as many courses as they wish (except those courses with laboratories or where equipment is used), provided they have permission from the instructor.

If a regular degree student wishes to participate in a class without receiving credit, the student must register for the course for No Credit. Tuition for courses taken for No Credit is the same as for courses taken for credit. Auditors should note that the Office of Admissions and Records does not keep any record of courses audited; therefore, credit for these courses cannot be established. See Grading System, Drop/Add, and Auditing.

#### Commencement — Policy

The bulletin that governs a student's graduation requirements is the one in effect at the time of a student's most recent admission into the college of the student's degree program.

Students seeking to participate in commencement and other academic ceremonies will need to complete all academic requirements in advance. Participation in academic ceremonies that recognize or honor students for the completion of an academic program or specific academic accomplishment is based on the understanding that all requirements have been completed. Every effort will be made to determine eligibility in advance and only students who have met requirements will be permitted to participate.

#### Course Load Definitions

The definitions for full-time/part-time enrollment are:

1. A full-time undergraduate degree student is one who is enrolled for at least 12 credit hours. Undergraduate degree students are considered part time when they are enrolled for fewer than the hours described above. These criteria also apply for unclassified students without a degree.
2. A full-time graduate student is one who is enrolled for 5 semester hours of graduate level course work, or at least 8 semester hours in a combination of undergraduate/graduate course work acceptable for graduate credit,

or any number of thesis hours. Graduate degree students need only enroll for half this amount to be considered full time during summer terms. The definition of "full-time" may be different for graduate students seeking financial aid.

3. Unclassified students with a degree-seeking student loan deferment must be enrolled for 12 semester hours to be considered full-time.

#### Course Numbering System

The word preceding the course number identifies the department offering the course. The first digit in the number indicates in a general way the class level of the course: 100/1000-level courses are primarily for freshmen, 200/2000-level courses for sophomores, 300/3000-level for juniors, 400/4000-level for seniors and 500/5000- and 600/6000-level for graduates. The digit after the dash denotes the credit-hour value of the course. Thus, "CHEM 101-4" signifies that the course is in chemistry, that it is freshman level, and that it carries 4 hours of credit.

Level of Courses Numbered 900-998

- 900-929..... Lower division, undergraduate
- 930-949..... Upper division, undergraduate
- 950-959..... Graduate, Level 1
- 960-979..... Graduate, Level 2
- 980-998..... Other

#### Courses Taken for "No Credit"

Students wishing to enroll for no credit are required to pay regular tuition and fees. In order to register for no credit, the student should complete a Credit Change Form indicating the course for which no credit is desired. Deadlines and rules for changing are the same as for Drop/Add.

#### Diplomas

Diplomas will carry the designation of the campus where the majority of the academic work was done at the upper division level.

General and departmental honors are shown on the diploma. The discipline is indicated in award of departmental honors.

The Bachelor of Science or Arts (B.S. or B.A.) will indicate the field of study, such as business, chemistry, electrical engineering, or physics.

In the Graduate School, the designation is Master of Arts, Master of Basic

Science, or Master of Science. The Graduate School of Public Affairs designates its degree Master of Public Administration.

The Graduate School of Business Administration designates its degree Master of Business Administration.

Commencement exercises for graduates of the summer term, fall and spring semesters are held at the end of the spring semester. Graduates will receive diplomas approximately eight weeks after the end of the term in which the degree is conferred.

### ***Dropping and Adding Courses***

1. Students will be allowed to drop and add through census date (the 12th day of classes of the regular semester or the 6th day of classes of the summer term). Courses that meet less than the full 16 week term in fall and spring and 8 weeks in the summer have special prorated drop and add deadlines. Drop and add deadlines are published in the *Schedule of Courses*.
2. After this time the instructor's and dean's signatures (of the college offering the course) are required for adds. For drops, if the instructor chooses to sign the Course Change Form, he/she is indicating that the student is in good standing and the drop will be processed. If the instructor judges the student to be failing the course, he/she will not sign the form and the student will not be dropped from the course. (Course Change Forms will not be accepted without required signatures.)
3. After the 10th week of the regular semester or the 5th week of the summer term, courses may not be dropped unless there are circumstances clearly beyond the student's control (accident, illness, etc.). In addition to the instructor's certification (as in 2 above), the dean of the college offering the course must approve the drop.
4. Students receiving financial aid or veterans benefits must also obtain the signature of the appropriate certifying official.
5. Courses may be added without instructors' signatures during the first 12 class days of the regular semester or the first six class days of the summer term. After this time courses

may be added only with the approval of both the instructor of the course and the dean of the college offering the course.

6. Tuition assessment for courses added after initial registration, which would result in additional tuition charges, will be added to the student's bill.

### ***Eligibility to Return Each Session***

#### **Eligibility to Return – Degree Students**

Degree students should refer to the appropriate school or college section of this bulletin for information regarding eligibility to return.

#### **Eligibility to Return – Unclassified Students**

Continuation as an unclassified student (Major Code NOLD, NOUD, NOHS or NODW) is contingent upon maintaining an overall grade point average of 2.0 upon completion of 12 or more semester hours. Failure to maintain the required average will result in an unclassified student being suspended. The suspension is for an indefinite period of time and becomes part of the student's permanent record at the university. While under suspension, enrollment at the university is restricted to summer terms or courses offered through Extended Studies.

Unclassified students are not placed on academic probation prior to being suspended.

### ***Final Examination Policy***

It is the policy of UCCS to adhere to the final examination schedule as published in the *Schedule of Courses* each semester. While it may be appropriate not to give a final in some cases, such as laboratory courses, seminars, and colloquia, final examinations should be given in all other undergraduate courses.

Exceptions to this policy should be agreed upon by the faculty member and the chair of the department no later than the beginning of the semester in which an exception is requested. The resulting decision should be announced in writing to students in the class during the first week of classes.

In addition to the principles stated above, the following guidelines should be followed by all faculty members and administrators in order to assure fairness and the best possible educational experience for students:

1. The scheduled final examination period should be considered an important part of the course and used as a final examination period or for additional instruction.
2. The final examination in a course should be given as scheduled and not at other times even if the faculty member and all students in a course agree to such a change.
3. The week of classes preceding the scheduled final examination period should be used primarily for continued instruction and may include the introduction of new material. No hourly examinations are to be given during the week preceding final examinations.
4. Individual students may be granted a variance from these policies provided the instructor is satisfied that:
  - a. the exception is based on good and sufficient reasons (such as religious observances), and
  - b. such an exception for an early or late examination will not prejudice the interests of other students in the course.
5. When students have three or more examinations on the same day, they will be entitled to arrange an alternative examination time for the first exam or exams scheduled on that day. Such arrangements must be made no later than the end of the 10th week of the semester (i.e., at the end of the drop period). Students will be expected to provide evidence that they have three or more examinations in order to qualify for exceptions.
6. This policy applies to all undergraduate students, including seniors. Graduating seniors should not be exempted from final examinations. Such exemptions are inappropriate on both procedural and academic grounds.

The actual schedule for final exams appears in the *Schedule of Courses* for the appropriate semester or term.

### ***Grading***

#### **Grades**

Grades, when posted, are available on the Student Online Center at [www.uccs.edu](http://www.uccs.edu).

#### **Grade Symbols**

The instructor is responsible for whatever grade symbol (A, B, C, D, F, P, IF, IW, or IP) is to be assigned. Special symbols

(NC and W) are indications of registration or grade status and are not assigned by the instructor but are automatically converted by the grade application system, explained under Pass/Fail Procedure.

Each College or School individually determines the use of +/- grading.

Standard Grades	Quality Points for Each Hour of Credit
A = superior/excellent . . . . .	4.0
A (-) = . . . . .	3.7
B (+) = . . . . .	3.3
B = good/better than average . . . . .	3.0
B (-) = . . . . .	2.7
C (+) = . . . . .	2.3
C = competent/average . . . . .	2.0
C (-) = . . . . .	1.7
D (+) = . . . . .	1.3
D = . . . . .	1.0
D (-) = minimum passing . . . . .	0.7
F = failing . . . . .	0.0

**Special Symbols**

**NC** indicates registration on a no-credit or audit basis

**W** indicates withdrawal or drop without discredit

**IF** incomplete – regarded as F if not completed within one year. Students should be aware that IF grades are automatically changed to F grades, without formal notification, when the one-year time allowance has passed.

**IW** incomplete – regarded as W if not completed within one year (the College of Business does not give IW grades; for incomplete work it uses the IF grade only).

**IP** in progress – thesis or dissertation at the graduate level only.

**P/F** pass/fail – P grade is not included in the grade point average; the F grade is included; up to 16 hours of pass/fail course work may be credited toward a bachelor’s degree; a letter grade of D- or above is considered passing.

**Explanation of IW and IF**

An IF or IW is an incomplete grade. Policies with respect to IF/IW grades are available in the individual college and school dean’s offices. Use of the IF or IW is at the option of the academic dean’s office.

The student must ask for the incomplete grade. An incomplete grade is given only when students, for reasons beyond their

control, have been unable to complete the course requirements. It is understood that a substantial amount of work must have been satisfactorily completed before approval for such a grade is given.

If an instructor decides to grant a request for IF or IW, the instructor sets the conditions whereby the course work will be completed. The instructor may set less time than one year for completion. The student is expected to complete the requirements within the established deadline.

The instructor, with approval of the department, determines if the course should be retaken. If a course is retaken, the student **must** register for the course and pay the appropriate tuition.

The final grade (earned by completing the course requirements or by retaking the course) does not result in deletion of the IF or IW grade symbol from the transcript. A second entry is posted on the transcript to show the final grade for the course.

At the end of one year, IF and IW grades for courses that are not completed or repeated will be regarded as F or W, respectively. Requests for an extension of time to complete the course beyond the one-year deadline can not be approved.

**Pass/Fail Enrollment**

1. Students who wish to register for a course on a pass/fail basis do so during regular registration.
2. Changes to or from a pass/fail basis may be effected during the first 12 class-days of the fall or spring semesters or the first six class-days of the summer term. After this period it will not be possible to change registration unless it is approved by the dean as a specific exception.
3. Only 6 hours of course work may be P/F in any given semester.
4. Students should refer to the rules of their particular school, college, and/or department for additional information regarding the guidelines and limitations of pass/fail registration.
5. The record of pass/fail registration is maintained by the Office of Admissions and Records. Academic deans and faculty will not be aware of specific pass/fail registrations. All students who are registered on a pass/fail basis appear on the

regular class roster and a normal letter grade is assigned on the final grade roster by the professor. When grades are received in the Admissions and Records Office, registrations which require a P/F designation are converted by the grade application system. Grades of D- and above convert to a grade of P. Grades of F remain.

**Computing a Grade Point Average**

The grade point average is computed by multiplying the credit points per hour, (A=4, A-3.7, B+=3.3, B=3, B-2.7, C+=2.3, C=2.0, C-1.7, D+=1.3, D=1.0, D-0.7, F=0) by the number of hours for each course, totaling the hours and the credit points, and dividing the latter by the former. For example:

ENGL 131	3	B.....	9 credit points
PSY 210	4	C+ .....	9.2 credit points
HIST 101	3	B.....	9 credit points
CHEM 103	5	A.....	20 credit points
		15 hours .....	47.2 credit points

The grade point average is therefore 47.2 divided by 15 = 3.147. The grade point received at another institution will not be used in computing the student’s grade point average at the University of Colorado.

Grades of P, H, NC, Y, W, IP, IW, and IF are not included in the grade point average. IFs that are not completed within one year are calculated as F in the G.P.A. at the end of the one year grace period.

It is University of Colorado policy that the undergraduate G.P.A., the graduate nondegree (unclassified) G.P.A. and graduate degree G.P.A. are calculated separately.

If a course is repeated, all grades earned are used in determining the university G.P.A.

Students should refer to their academic dean’s office for individual grade point average calculations as they relate to academic progress and graduation from their college or school.

**Individual Academic Records**

All credentials (high school and/or college transcripts, test reports, etc) used for admission become the property of the University of Colorado. When a student has been out of school for four years, the file is destroyed.

The Permanent Record Card showing all academic work done at any of the

University of Colorado campuses, including credit courses through the Division of Extended Studies, will be maintained in perpetuity.

### **Major Declaration**

Policy of the Board of Regents requires that students declare a major by the time they have 60 hours towards their degree — by the start of their junior year.

### **No Credit**

Students wishing to enroll for no credit are required to pay regular tuition and fees. In order to register for no credit, the student should complete a Credit Change Form indicating the course for which no credit is desired. Deadlines and rules for changing are the same as for Drop/Add. See also, Auditing Courses.

### **Schedule Changes**

The university reserves the right to cancel, postpone, or combine scheduled classes and to change instructors.

### **Transcripts**

(719) 262-3376

#### **How to Order**

Transcripts of records should be ordered from the Office of Admissions and Records by written request or over the web via the Online Student Center ([www.uccs.edu](http://www.uccs.edu)). Written requests should include the following:

1. Student's full name (include maiden or other name if applicable).
2. Student number.
3. Birthdate.
4. The last term student was in attendance.
5. Whether the current semester grades are to be included when a transcript is ordered near the end of a term.
6. Agency, college, or individuals to whom transcripts are to be sent with complete mailing addresses.
7. Student's signature. (This is the student's authorization to release the records to the designee.)

There is no additional charge for transcripts beyond the matriculation fee paid by all new students. Special fees are charged for special handling (rush, fax, etc.). Transcripts are prepared only at the student's request. A student having financial obligations to the university that are due and unpaid will not be granted a transcript. Copies of

transcripts from other institutions cannot be furnished.

### **Withdrawal**

1. Withdrawal means that the student is dropping all courses for which he or she is registered for a specific term/semester.
2. A student will be allowed to withdraw during the first ten weeks of the fall or spring semester or the first five weeks of the summer term. After this time, a student may not withdraw unless the circumstances are clearly beyond the student's control and requires the signature of the dean of the student's academic unit.
3. A student receiving financial aid or veterans benefits must obtain the signature of the appropriate certifying official.
4. The student must obtain approval from the Bursar/Cashier office.
5. A withdrawal becomes effective on the date the withdrawal form, completed by the student and signed by the student's dean and required certifying officials, is received by the Admissions and Records Office. Eligibility for refund is determined by the date the form is received in the Admissions and Records Office, not the date the student stops attending class.
6. Unless the student follows these procedures, the withdrawal is not effective and grades of F will be recorded for all courses not completed.

### **Writing Competency Requirement for Graduation**

No student will be awarded a bachelor's degree (B.A. or B.S.) unless he or she can demonstrate competency in writing. Students may demonstrate such competency in either of the following ways:

1. By passing English 131, fulfilling the other composition course requirements stipulated by their college, and then passing the writing competency portfolio assessment administered after the completion of their final 3 credit hours of composition coursework.
2. By completing their UCCS writing requirements through the transfer of equivalent written communication courses taken at a major two-year or four-year institution (C- or better), and

upon transferring these courses to UCCS, passing the writing portfolio assignment administered by the Writing Program. Students have one year from their initial enrollment to demonstrate competency by earning a pass on the portfolio. Students who do not pass the competency within one year must alternately complete an advanced writing course at the 300-level. This course will be in addition to other 300-level composition courses stipulated by their college as part of their degree requirements. The "final" composition course for each undergraduate program is listed below:

- for LAS and Nursing students: ENGL 141
- for BUS students: ENGL 307 or COMM 324
- for EAS students: ENGL 307 or 309

For further information about the writing portfolio assessment, see the Schedule of Courses, or contact the Writing Program, (719) 262-4038 or (719) 262-4040. Transfer students who have completed all composition requirements before enrolling at UCCS should contact the Writing Program concerning the portfolio assessment during their first semester in order to progress toward graduation in a timely manner.

### **Educational Outcomes**

Office of Institutional Research  
Main Hall, room 301  
(719) 262-3167

### **Campus**

UCCS has adopted the following campus goals for undergraduate general education:

The purpose of general education is to cultivate students' intellectual, personal and ethical development and thus equip them to be life-long learners, able to adapt to an ever-changing environment. Specifically, students will:

1. Be able to read, write, listen and speak in a manner that demonstrates critical, analytical and creative thought.
2. Achieve a depth of understanding in their majors and a breadth of experience in other fields.
3. Understand and apply the tools and methodologies used to obtain knowledge.
4. Be prepared to participate as responsible members of a pluralistic

society — locally, nationally and globally.

In addition, each academic department has adopted assessable goals for its graduates. Listed below are the educational outcome goals for each major or department.

### **College of Business and Administration**

#### **Business- B.S.**

- Have a foundation in accounting, behavioral science, economics, mathematics, and statistics
- Understand perspectives on ethical and global issues, and political, social, technological, and diversity issues as they relate to the business environment
- Develop competency in oral and written communication, quantitative, analytical, and reasoning skills
- Gain basic business knowledge and experience required to function in a business-related career

### **College of Education**

#### **Principal and Administrator Licensure**

The program is built upon Colorado Standards for Principals. They are:

- Model and set high standards to ensure quality learning experiences that lead to success for all students
- Lead and support a school community that is committed to and focused on learning
- Behave ethically and create an environment that encourages and develops responsibility, ethics, and citizenship in self and others
- Recognize, appreciate, and support ethnic, cultural, gender, economic, and human diversity throughout the school community while striving to provide fair and equitable treatment and consideration for all
- Be a continuous learner who encourages and supports personal and professional development of self and others
- Organize and manage human and financial resources to create a safe and effective working and learning environment

### **College of Engineering and Applied Science**

#### **Computer Engineering - B.S.**

- Read, interpret, and critically assess literature in computer engineering and evaluate its impact on current issues in engineering and society
- Write and orally present reports of a technical nature
- Use basic knowledge in science and mathematics as well as knowledge and tools in engineering disciplines to analyze and synthesize real-world engineering problems
- Design processes, devices, circuits or systems using computer engineering knowledge and tools while considering economics, safety, ethics, ergonomics, and aesthetics
- Function effectively, alone or as part of a team, in an engineering capacity
- Appreciate the importance of staying current with the engineering field

#### **Computer Science - B.S.**

- Design and implement software solutions using state-of-the-art hardware, software design methodologies, and programming languages
- Use new design methodologies, operating systems, languages, and other software development tools

#### **Electrical Engineering - B.S.**

- Read, interpret, and critically assess literature in electrical engineering and evaluate its impact on current issues in engineering and society
- Write reports and present oral reports of a technical nature
- Use basic knowledge in science and mathematics as well as knowledge and tools in engineering disciplines to analyze and synthesize real-world engineering problems
- Design processes, devices, circuits or systems using engineering knowledge and tools while considering economics, safety, ethics, ergonomics, and aesthetics
- Function effectively, alone or as part of a team, in an engineering capacity
- Appreciate the importance of staying current with the engineering field

#### **Mathematics - B.A. and B.S.**

- Analyze problems and formulate appropriate mathematical models
- Understand mathematical techniques and their application
- Recognize phenomena and abstract, generalize and specialize these patterns in order to analyze them mathematically
- Write and orally express oneself in an articulate, sound and well-organized manner

#### **Mechanical Engineering - B.S.**

- Have a strong foundation in engineering science along with the ability to apply this knowledge to solve engineering problems in a variety of situations
- Gain proficiency in modern computational methods and in the use and development of current computational tools for engineering applications
- Understand the methods, standards, and conventions that are followed in the practice of engineering
- Formulate and solve large scale design problems; understand the design process and develop creativity, general knowledge, engineering intuition, and skills in problem formulation, project management, leadership, communication/presentation, and teamwork
- Develop knowledge of the theory and practice of experimental methods in engineering
- Understand the social and cultural environment, particularly in the context of professional responsibilities and ethics along with an understanding of the global and societal implications

### **Graduate School**

#### **Applied Geography - M.A.**

- Understand and appreciate the interactions between the human and natural world
- Synthesize, analyze, and evaluate diverse social and physical information
- Conceptualize spatial relationships for problem solving
- Clearly communicate policy solutions or recommendations

**Applied Mathematics - M.S.**

- Understand core graduate mathematics material, and demonstrate substantial comprehension of linear algebra and real analysis
- Deliver written and oral presentations demonstrating comprehension of complex mathematical content
- Prepare for employment requiring mathematical skill within four identified tracks: computational and applied mathematics, education, business and management, and Ph.D. preparation
- Develop a more sophisticated view of mathematics than is achieved in the undergraduate program
- Gain exposure to mathematical research and advanced applications

**Basic Science - M.B.S.**

- Increase knowledge of the major theories and concepts in two major areas of study in the basic sciences
- Apply the fundamentals of research methodology and statistical analysis to the interpretation and evaluation of scientific data and research reports
- Communicate orally and in writing knowledge of two major areas of study in the basic sciences
- Prepare for jobs or advanced education in a field of science

**Business Administration - M.B.A.**

- Integrate state-of-the-art theory and practice in business disciplines and gain an integrated perspective of what makes an organization successful
- Gain process skills in leadership, management, people and team building, and technical and analytical skills in a chosen area of emphasis
- Become an ethically principled professional who is committed to enhancing the value of organizations and communities

**Communication - M.A.**

- Gain proficiency in designing and conducting original research
- Gain knowledge and understanding of communication processes and theories
- Develop communication skills that prepare for success in the workplace and in further graduate studies

**Computer Science - M.S.**

- Possess knowledge of fundamental

areas of computer science

- Read, understand, and evaluate professional literature in computer science
- Write technical reports and make oral presentations of technical information
- Gain in-depth knowledge of at least one area of computer science

**Computer Science - Ph.D.**

- Gain a broad knowledge of computer science in three fundamental required areas (operating systems, design and analysis of algorithms, and automated theory) and two additional areas chosen by the student
- Gain in-depth knowledge of the specific area of computer science in which thesis research is conducted
- Read, understand, and evaluate professional literature in computer science
- Write reports and make oral presentations of technical information
- Demonstrate capability to make fundamental and significant contributions in the area of computer science using contemporary approaches to research and development

**Counseling and Human Services - M.A.**

- Develop mastery of the body of knowledge of professional counseling and the skills necessary to perform as a successful professional counselor
- Develop insight into their own personalities, identifying the strengths and limitations they will bring to the counseling profession

**Curriculum and Instruction - M.A.**

- Reflect upon and evaluate development toward becoming an instructional leader within a school setting
- Develop professional expertise through examining educational issues and use research and its applications in instructional settings
- Enhance instructional leadership skills through increasing professional knowledge in a cognate area

**Electrical Engineering - M.S.**

- Read, interpret and critically assess literature in specialized areas of electrical engineering and evaluate its impact on current issues in engineering and society

- Write reports and give oral presentations of a technical nature
- Apply basic and advanced knowledge in science, mathematics, and engineering disciplines to perform analysis and synthesis of engineering problems

**Electrical Engineering- Ph.D.**

- Read, interpret, and critically assess literature on advanced topics in electrical engineering
- Make fundamental contributions to the advancement of electrical engineering, using basic and advanced knowledge of science, mathematics, and engineering disciplines, along with research tools to perform analysis and synthesis and to visualize potential areas of application
- Write technical reports and other documentation reporting the results of fundamental investigations
- Give oral presentations of the procedures used and conclusions reached in investigations

**Engineering - M.E.**

- Perform independent research in a field of specialization
- Prepare to become a national and international expert in the chosen field of specialization
- Set a professional example of engineering knowledge and be a credit to the profession

**History - M.A.**

- Understand the basic historiography of chosen fields of study
- Know how to ask historical questions, research those questions using primary source material, and answer those questions in the form of academic writing

**Mechanical Engineering - M.S.**

- Perform independent research in a field of specialization
- Prepare to become a national and international expert in the chosen field of specialization
- Set a professional example of engineering knowledge and be a credit to the profession

**Nursing - M.S.N.**

- Demonstrate competence in the role of an advanced practice nurse

- Integrate theory and research into practice
- Manage client health problems in a variety of settings
- Use creativity and critical thinking to facilitate transpersonal healing
- Promote holistic healthcare through collaborative relationships
- Integrate the moral caring imperative in advanced nursing practice

**Psychology - M.A.**

- Demonstrate competency in conducting scientific research
- Prepare for doctoral degrees in psychology or related fields
- Develop clinical competency (clinical track)

**Sociology - M.A.**

- Integrate theory and research methods (critical thinking), and demonstrate command of the literature of a specific area within sociology
- Integrate and synthesize materials learned in course work to provide a comprehensive understanding of the discipline and in-depth knowledge in an area of specialization

**Special Education - M.A.**

- Instill an ability to work collaboratively with general educators and communicate in an effective, professional manner with parents, staff, administrators, students and related service personnel.
- Develop new special education knowledge and translate special education and related research into practice
- Promote and model excellence in special education practice

***Graduate School of Public Affairs***

**Public Administration - M.P.A.**

- Demonstrate knowledge of the concepts and principles conveyed in the School's core curriculum and apply that knowledge to the analysis of contemporary issues in public administration or criminal justice
- Effectively communicate in writing and oral presentations

***College of Letters, Arts and Sciences***

**Anthropology - B.A.**

- Read and assess arguments in the field that is notorious for its contentiousness
- Be familiar with the basic concepts of the field and the major theoretical positions that have influenced anthropological thinking
- Be familiar with the nature of data in at least one sub field and be able to construct arguments using that data

**Art History - B.A.**

- Have a general knowledge of all periods in the history of art and architecture and a specialized knowledge of selected historical and geographical areas
- Have a general knowledge of studio practices
- Demonstrate progressively advanced undergraduate level research, communication, and critical thinking skills
- Analyze and discuss forms of visual art using the specialized vocabulary and analytical methods of art history.
- Have increased value for the cultural role of artistic expression
- Articulate an advanced thesis using art historical methodologies in a public presentation and a written paper

**Biology - B.A.**

- Critically read, assess, and discuss biological literature
- Assess and synthesize information from a variety of scientific disciplines
- Independently formulate hypotheses, design and carry out rational tests of such hypotheses, and interpret and defend the results of such tests

- Recognize and analyze alternative explanations and models

- Use technology and mathematics to improve investigations and communications

- Effectively compete in the job market and in professional and graduate schools

**Chemistry - B.A. and B.S.**

- Have knowledge of general organic, analytical, physical and inorganic areas

of chemistry and biochemistry, and an integrated overview of chemistry

- Have knowledge of additional areas of biology, mathematics, physics, and technology and be able to manipulate experimental data and facilitate the understanding and derivation of fundamental relationships

- Compete for a position in the workplace as a professional chemist, for admission to graduate or professional schools, or for careers in other fields

- Communicate effectively about chemistry

**Communication - B.A.**

- Demonstrate growth and competence in writing and analytical skills

- Demonstrate significant improvement in communication competency, willingness to communicate, significant reduction in communication apprehension, and a significant increase in self-esteem. Experience improvement in self-selected communication skills through goal-setting activities

- Have a thorough background in the discipline of communication

- Gain the knowledge and abilities to prepare for employment and future graduate studies and research

- Develop and refine professional skills through working at an organization and apply classroom learning to real life situations

**Economics - B.A.**

- Be able to gain access and display command of existing economic knowledge

- Be able to draw from and utilize existing economic knowledge to explore economic issues

**English - B.A.**

- Have knowledge of the world in which we live, the cultures which have shaped that world, and the behavior of the people who inhabit it

- Develop capacities for rational and logical thought and analysis

- Have written and oral skills to express rational and logical thought clearly and effectively

**Ethnic Studies (Minor)**

- Examine knowledge from specific U.S. racial/ethnic minority perspectives
- Examine relationships among racial/ethnic groups and the nature or basis of racial/ethnic formation, and its intersections with class, gender and sexuality
- Develop competencies from working with people in different ethnic backgrounds and foster an appreciation of ethnic diversity
- Evaluate Euro-centric knowledge constructions

**Geography and Environmental Studies - B.A.**

- Understand the general configuration and processes associated with the earth's landforms
- Have a general knowledge of the variety and processes of human geography that are reflected in various cultures
- Understand the methods of analysis used to solve geographic problems

**Gerontology (Minor)**

- Understand the age structures of diverse populations and the impact of demography on the individual life course, family and social structures
- Identify and analyze changes in psychological, social, and biological domains that occur with increased frequency in later life and discriminate between those that are caused by aging and those that are merely correlated with aging
- Apply the research methodologies used to study aging phenomena and analyze the life stories of older adults in the context of historical, developmental, and contextual influences.
- Gain a realistic appreciation for older adults, appreciating their contributions but not idealizing them in a stereotypic way
- Synthesize the impact of biological, psychological, and social factors in aging
- Analyze the life context of older adults and identify relevant resources for specific needs

**Geropsychology - Ph.D.**

- Gain knowledge of how aging affects basic psychological processes such as

memory, emotions, problem-solving, self-esteem, relationship development, and mental health.

- Conduct and evaluate the efficacy of assessments and interventions used in clinical work with older adults and their families.
- Obtain advanced knowledge about the paradigms for studying aging and human behavior within core subdisciplines of psychology in order to develop expertise in a focused area.
- Gain skill in research paradigms, methodologies, and techniques that are needed to examine age-related changes in psychological functioning and the effects of interventions.
- Apply basic research and theory to current problems faced by older adults.
- Be socialized into the professional values and standards of conduct in the field, including ethical standards of professional behavior for service providers, professors, and researchers.

**History - B.A.**

- Develop knowledge and understanding of historical processes
- Develop research skills to locate information, collect data and continue productive inquiry on historical problems
- Develop cognitive skills to make sense of information collected in research on historical questions
- Develop skills in writing clearly, succinctly, logically, and persuasively
- Develop reasoning skills to follow the flow of logic in historical argumentation

**Philosophy - B.A.**

- Read and discuss critically and in detail at least one classic philosophic text in its entirety from two of the major periods in the history of philosophy
- Articulate and assess some of the major issues raised in the classic texts of philosophy and their connections to their historical and cultural context
- Write and defend a senior thesis on some philosophical issue approved by the department
- Undertake graduate work in philosophy or enter a professional school in law, medicine or business

**Physics - B.S.**

- Be prepared in fundamental physics necessary for admission into a graduate program in physics or related technical fields, such as in education, industry, research, and the military
- Understand the fundamental ideas and methods of physics and apply them to problems
- Prepare and present several research topics and defend them before peers and faculty

**Political Science - B.A.**

- Understand domestic and foreign governments and the relations between them
- Think critically about and find rigorously defensible answers to political questions
- Use analytical and empirical methods in the pursuit of answers to political questions

**Psychology - B.A.**

- Gain knowledge of psychological terms, assumptions, concepts, principles, theories, and research methods and findings associated with the major psychological perspectives
- Acquire knowledge of several areas of specialization in psychology
- Understand and apply the fundamentals of research methodology and statistical analysis to the interpretation and evaluation of psychological data and research
- Communicate knowledge orally and in writing of the field of psychology
- Prepare for jobs or advanced education in the field of psychology

**Sociology - B.A.**

- Read critically, write in a clear logical manner, and verbally communicate effectively
- Have a broad knowledge about society and social behavior and provide credible explanations that satisfy an individual's curiosity about how and why social development has taken a particular direction
- Be aware, understand and appreciate the complexity of the human experience as related to social institutions
- Analyze society's development,



including the social phenomena of racism, sexism, and other forms of structured inequality

- Be able to identify and question ethnocentrism
- Have analytic, evaluative, and critical skills, and apply appropriate methods of data collection and analysis to the learning process
- Prepare for graduate work or professional study
- Apply sociological thinking, social scientific methods, and substantive knowledge in professional and community settings

#### **Spanish - B.A.**

- Speak the language to satisfy routine social demands and limited nonspecific work-related tasks
- Comprehend face-to-face speech in standard language spoken at a normal rate with some repetition and rewording by a native speaker not accustomed to dealing with foreigners
- Have sufficient comprehension to read authentic printed material or edited texts and material within a familiar context
- Write routine social correspondence, simple discourse, and cohesive summaries, resumes, short narratives and descriptions on factual topics in the past, present, and future times
- Have a broad understanding of the history and civilization of the target culture
- Have a critical and theoretically-based awareness of the literary traditions, periods, genres and theories of the target language

#### **Studio Art - B.A.**

- Gain knowledge of two-and-three dimensional media at all levels of instruction
- Gain general knowledge of all periods of the history of art and architecture
- Articulate orally and in writing personal aesthetics in two-and-three dimensional media
- Analyze and discuss forms of visual art
- Gain specific knowledge of modern and contemporary art and techniques
- Use the vocabulary, scholarly rhetorical methods, and critiques of

contemporary art theory and criticism in writing and in spoken communication

#### **Visual & Performing Art – B.A.**

- Gain knowledge of two-and-three dimensional media at all levels of instruction.
- Gain general knowledge of all periods of the history of art and architecture.
- Be able to demonstrate proficiency in the techniques and compositional skills of both two-and-three dimensional media.
- Be able to articulate personal aesthetics in two-and-three dimensional media, both orally and in writing.
- Be able to analyze and discuss the forms of visual art.

#### **Women's Studies (Minor)**

- Understand U.S. culture and society from multiple gender perspectives and intersections of race, class and gender
  - Demonstrate a broad understanding of women's historical material and cultural conditions in a variety of cultures
  - Acquire a measurable degree of positive self-knowledge and self-validation in a society that often does not value women's participation and a diversity of gender roles
  - Develop ability to actively participate in changing attitudes toward women
  - Demonstrate a measurable increase in knowledge of the basic theories, concepts and debates in Women's Studies.
  - Possess knowledge of the phases in the development of individual and collective consciousness and formation of identities on the basis of gender.
  - Demonstrate knowledge of the ever increasing scholarship on women in various disciplines
  - Be able to synthesize personal reality with the larger gender realities through the theoretical knowledge.
- #### **Professional Writing Program Minor**
- Gather and communicate information clearly, ethically, and effectively
  - Understand the basic nature of language, its structure, its uses, and its rhetorical power.
  - Write competently and efficiently in a

range of rhetorical genres to multiple audiences for various purposes.

- Communicate technical information effectively and purposefully, both in print and online documents.
- Command effective research skills, both in print and non-print sources.
- Communicate and work effectively in a team.
- Demonstrate use of computer technologies in written, oral, and visual communication.
- Demonstrate an understanding of the influence of technology in contemporary culture.

#### ***Beth-El College of Nursing***

##### **Nursing - B.S.**

- Master the required core knowledge for professional basic nursing practice
- Function in the beginning role of a professional baccalaureate nurse in a variety of settings
- Communicate with individuals and the community to maintain collegial professional relationships
- Be proficient in the core nursing competencies of critical thinking, communication, assessment and technological skills
- Demonstrate values of a professional baccalaureate nurse
- Synthesize relevant knowledge and skills to provide safe, professional nursing care.
- Be able to effectively compete in the professional marketplace
- Apply critical thinking in the provision of nursing care.

##### **Health Care Science - B.S.**

- Have the knowledge and skills necessary to function in the specialty health care area
- Demonstrate professional oral and written communication skills and ethical decision-making skills
- Incorporate research and theory in health care services
- Demonstrate professional responsibility and accountability
- Apply leadership and management skills with the context of interdisciplinary teams

## Core Values

**EXCELLENCE:** We will attract, develop and retain outstanding faculty, staff, and students, and focus on those programs and services that we can offer at an exemplary level.

**STUDENT SUCCESS:** We will help traditional and non-traditional students succeed in their academic endeavors by assuring a stimulating, supportive, and safe environment in a naturally beautiful setting. We will encourage students to recognize their responsibility to participate fully in their own educational success and to contribute to the quality of all aspects of campus life.

**COMMUNITY INTERACTIONS:** We will make known our vision, values, and goals and provide a demonstrated return on investment to the citizens of Colorado. We will link the university more closely to the communities we serve. We will communicate the value of the university to the citizens and elected leaders of our state, alumni, and potential students everywhere.

**ENRICHING ENVIRONMENT:** We will aggressively seek the development of a multicultural campus environment in which each person contributes unique talents to make the university a better place. In turn, each person will be fully valued and supported. We will reaffirm the tradition of shared governance and encourage all members of our campus community to join together in creating a positive working environment where all enjoy respect, fair treatment, and a voice in campus decisions.

**QUALITY TEACHING:** We will promote and reward teaching excellence. We will strive to maintain predominantly small classes taught by dedicated and accessible faculty.

**RESEARCH AND CREATIVE WORK:** We will promote and reward research and creative work that advances knowledge, that makes a valuable contribution, that enhances our teaching and service missions, and that encourages collaboration between students, both graduate and undergraduate, and faculty.

**SERVICE:** We will attract and reward members of the campus community who place a high value on service and who are committed to contributing their expertise to the university and the public good.

**STAFF CONTRIBUTION:** We will value the

vital role that staff play in supporting and enhancing the mission of the university.

**INNOVATION AND CHANGE:** We believe that universities both preserve the past and help create the future. We will encourage innovation in teaching, research, and service and prepare our students to succeed in a rapidly changing global and technologically advancing environment.

**LIFE-LONG LEARNING:** We will commit to serving the educational needs of members of our community at many points along life's path—as K-12 students, as university students, as they enter the work force, as they retrain for new careers, and as they continue to learn and grow throughout their lives.

## Diversity

The University of Colorado recognizes its responsibility to prepare students to live and prosper in a pluralistic global society. All members of the university community are encouraged and empowered to aggressively develop a campus culture in which each individual is fully valued.

The university's goal is to provide opportunities for all to learn and interact. Central to this goal is the respect and acknowledgement of diverse cultural and ethnic heritages. This respect will be reflected in all areas of campus life, including the composition of all constituencies of the campus community. To achieve this end, the university will actively recruit and retain students, faculty, administrators and staff who reflect the population of Colorado and the nation. Such an inclusive university best prepares students to succeed in a world in which an understanding of human diversity is essential.

This commitment to diversity will be embraced throughout the university's programs, colleges and schools, and by our administration, faculty, staff and students.

## Student Learning Outcomes

Office of Institutional Research  
Columbine Hall, Room 203D  
(719) 262-4186

UCCS students are a valuable source of information for helping to determine whether the educational programs are meeting the stated goals. Through the use of surveys, tests, and other instruments, information is gathered that assists in making improvements to

curriculum and teaching that, in turn, can lead to increases in learning by students. Since these efforts are critical to achieving the university's goals, students may be required to participate in the assessment program.

UCCS reports results from various surveys and assessments to the Colorado Commission on Higher Education, The Higher Learning Commission of North Central Association, as well as other state and public constituents.

UCCS faculty and staff also use assessment results to evaluate and improve the quality of general education, major, and distance education programs.

Information collected in assessment processes is kept strictly confidential. Information shared with governmental and accreditation agencies is aggregated and individual student identities are not revealed.

At several points as an undergraduate, a student may be asked to complete a survey or a test. The following is a summary of what might be expected:

### Freshman Year:

- Entering Freshmen Survey
- National Survey of Student Engagement (NSSE) - a random sample is selected for this survey

### Sophomore/Junior Years:

- ETS Academic Profile (general education test)

### Senior Year:

- Graduating Seniors Survey
- ETS Academic Profile
- National Survey of Student Engagement

*Please note that in addition to these institution-wide assessments, some departments have special assessment requirements, such as a senior test or exit survey, for example.*

## Student Rights and Responsibilities

### Academic Honor Code

Academic honesty and integrity are vital elements of a dynamic academic institution. The responsibility for ethical conduct rests with each individual member of the academic community — students, faculty, and staff.

UCCS has an ongoing commitment to maintain and encourage academic integrity. Therefore, the university has created a set of standards of academic honesty and procedures governing violations of these principles. Copies of the Academic Honor Code document may be obtained at the Kraemer Family Library, from the offices of the deans of the various schools/colleges, from the office of the Dean of Students, or from the Office of the Vice Chancellor for Academic Affairs.

### **Forms of Academic Dishonesty**

1. Plagiarism – use of distinctive ideas or words belonging to another person, without adequately acknowledging that person's contribution.
2. Cheating – intentionally possessing, communicating, using, or attempting to use unauthorized (by the instructor) materials, information, notes, study aids, or other devices, in any academic exercise.
3. Fabrication and Falsification – intentional and unauthorized alteration or invention of any information or citation in an academic exercise.
4. Multiple Submission – submission of substantial portions of either written or oral academic work which has previously earned credit, when such submission is made without instructor authorization.
5. Misuse of Academic Materials – intentionally or knowingly destroying, stealing, or making inaccessible, library or other academic resource material.
6. Complicity in Academic Dishonesty – intentionally or knowingly contributing to the academic dishonesty of another.

These examples of academic dishonesty shall not be construed to be comprehensive, and infractions will be dealt with on an individual basis. It is the obligation of each student to assist in the enforcement of academic standards; infractions – whether by students or faculty – should be first brought to the attention of the instructor.

Detailed instructions about reporting a suspected infraction; appealing an alleged infraction; and sanctions for an infraction are outlined in the UCCS Academic Honor Code document. Questions about the academic honor code should be addressed to the Dean

of Students, Main Hall, room 202, (719) 262-3258.

### **Affirmative Action**

Cragmor Hall, room 101  
(719) 262-3372

UCCS follows a policy of equal opportunity in education and employment. In pursuance of this policy, no campus department, unit, discipline, or employee shall discriminate against an individual or group on the basis of race, color, religion, sex, age, sexual orientation, national origin, individual handicap or veteran status. This policy applies to all areas of the university affecting present and prospective students or employees.

The institution's educational programs, activities, and services offered to students and/or employees are non-discriminatory and consistent with State affirmative action guidelines, as well as with Federal laws and orders.

For information about these provisions on equity, discrimination, or fairness, as well as internal and external complaint procedures, contact (719) 262-3436.

### **Attendance Guidelines**

Students are expected to attend all meetings of classes for which they are registered, including the first and last scheduled meetings and the final examination period. Instructors hold the right and responsibility to establish attendance policies for their courses. Each instructor must inform all classes in writing at the beginning of each semester concerning his/her attendance policies.

If attendance affects course grades, students must be provided with explicit written information concerning that fact no later than the end of the first week of classes. Such information shall be specific with regard to the penalty incurred for each absence and the means, if any, to compensate for the absence. It is recognized that there may be certain situations where the student may not be permitted to make up the absence(s).

Students participating in University-sanctioned activities should consult with instructors prior to registration, but no later than the end of the first week of classes, to determine the class attendance policy. At this time, the student should provide the instructor

with a schedule of planned absences, preferably signed by the University official directing the activity, in order to allow the instructor to evaluate and advise the student on the possible impact of the planned absences. In this case the instructor will consider absences due to participation in approved University activities, as outlined above, to be excused absences, on par with those due to other unavoidable circumstances such as illness. Faculty judge the validity of student absences from class and may require documentation for excused absences. For classes requiring mandatory attendance incompatible with the number of planned absences, students will be advised to register, if possible, during a semester in which they will not be participating in the University-sanctioned activity. As with any academic issue, students may exercise their right to appeal adverse attendance decisions. Should the instructor and student be unable to agree on appropriate accommodation under this policy, either party shall have the right to request mediation from (in order) the department chair, the academic dean, and the vice chancellor for academic affairs.

### **Colorado Rioting Act**

No person who is convicted of a riot offense shall be enrolled in a state-supported institution of higher education for a period of twelve months following the date of conviction.

A student who is enrolled in a state-supported institution of higher education and who is convicted of a riot offense shall be immediately suspended from the institution upon the institution's notification of such conviction for a period of twelve months following the date of conviction; except that if a student has been suspended prior to the date of conviction by the state-supported institution of higher education for the same riot activity, the twelve month suspension shall run from the start of the suspension imposed by the institution. Nothing in this section shall be construed to prohibit a state-supported institution of higher education from implementing its own policies and procedures for disciplinary actions, in addition to the suspension regarding students involved in riots stipulated above. (Colorado Revised Statutes, 23-5-124).

## **E-Mail Policy**

There is an expanding reliance on electronic communication among students, faculty, staff, and administration at UCCS. This is motivated by the convenience, speed, cost-effectiveness, and environmental advantages of using e-mail rather than printed communication. Because of this increasing reliance and acceptance of electronic communication, e-mail is considered an official means for communication within the university.

To ensure students have access to this critical form of communication students will be assigned a campus e-mail account at the time registration is confirmed (after downpayment deadline) by the campus IT Department. For the majority of students, this will not represent any change from what is currently done; it will, however, ensure that all students can access, and be accessed by, e-mail as the need arises.

### **Guidelines**

- 1. UCCS use of e-mail.** E-mail is an official means for communication within the university. Therefore, the university has the right to send communications to students via e-mail and the right to expect that those communications will be received and read in a timely fashion.
- 2. Assignment of student e-mail addresses** Information Technology (IT) will assign all students an official UCCS e-mail address. It is to this official address that the university will send e-mail communications.
- 3. Redirecting of e-mail** A student may have e-mail electronically redirected to another e-mail address. If a student wishes to have e-mail redirected from his or her official address to another e-mail address (e.g., @aol.com, @hotmail.com, or an address on a departmental server), they may do so, but at his or her own risk. UCCS will not be responsible for the handling of e-mail by outside vendors or by departmental servers. Having e-mail redirected does not absolve a student from the responsibilities associated with communication sent to his or her official e-mail address.
- 4. Expectations regarding student use of e-mail** Students are expected to check their official e-mail address on a frequent and consistent basis in order to stay current with university

communications. UCCS recommends checking e-mail once a week at a minimum; in recognition that certain communications may be time-critical.

- 5. Educational uses of e-mail** Faculty may determine how e-mail will be used in their classes. It is highly recommended that if faculty have e-mail requirements and expectations they specify these requirements in their course syllabus. Faculty may expect that students' official e-mail addresses are being accessed and faculty may use e-mail for their courses accordingly.
- 6. Appropriate use of student e-mail** In general, e-mail is not appropriate for transmitting sensitive or confidential information unless its use for such purposes is matched by an appropriate level of security.
  - a. All use of e-mail, including use for sensitive or confidential information, will be consistent with the Administrative Policy Statement on use of Electronic e-mail posted on the IT web page — [www.uccs.edu/helpdesk](http://www.uccs.edu/helpdesk).
  - b. Confidentiality regarding student records is protected under the Family Educational Rights and Privacy Act of 1974 (FERPA). All use of e-mail, including use for sensitive or confidential information, will be consistent with FERPA.
  - c. E-mail shall not be the sole method for notification of any legal action.

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

Annual Notice to Students: The University of Colorado complies fully with the provisions of the Family Educational Rights and Privacy Act (FERPA) of 1974. The act was designed to protect the privacy of education records, to establish the right of students to inspect and review their education records in all offices, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the FERPA office concerning alleged failures by the institution to comply with the act.

Local guidelines explain in detail the procedures to be used by the institution for compliance with the provisions of the act. Copies of the guidelines can be found in the Admissions and Records Office.

The Admissions and Records Office has been designated by the institution to coordinate the inspection and review of student education records located in various university offices. Students wishing to review their education records must come to the Admissions and Records Office and present proper identification. All other records inquiries must be directed to the proper office, i.e., financial aid, bursar, etc.

Students may not inspect the following, as outlined by the act: financial information submitted by their parents, confidential letters that they have waived their rights to review, or education records containing information about more than one student, in which case the institution will permit access only to that part of the record that pertains to the inquiring student. Records that may be inspected include admissions, academic, and financial aid files, and cooperative education and placement records.

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

1. The right to inspect and review education records within 45 days of the day the university receives their request for access. Students should submit to the registrar, dean, head of the academic department, or other appropriate official, written requests that identify the educational record(s) they wish to inspect. The university official will make arrangements for access and notify them 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 them of the correct official to whom the request should be addressed.
2. The right to request the amendment of students' education records that they believe are inaccurate or misleading. They may ask the university to amend a record that they believe is inaccurate or misleading. They 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. If the university decides not to amend the record as requested by the student, the university will notify the student of their right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be

provided to them when notified of the right to a hearing.

3. The right to consent for disclosures of personally identifiable information contained in their education records, except to the extent that FERPA authorizes disclosure without consent.

One exception that 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, 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 Regents; a student employee; or a student serving on an official committee, or one assisting another school official in performing his or her task.

A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

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

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

The Family Compliance Office  
U.S. Department of Education  
600 Independence Avenue, SW  
Washington, DC 20202-4605  
202-260-3887

The following items of student information have been designated by the University of Colorado as public or "directory" information: name, mailing and permanent addresses, telephone numbers, e-mail address, dates of attendance, registration status, class, account balance, previous educational institutions attended, major field of study, awards, honors, degree(s) conferred, past and present participation in officially recognized sports and activities, physical factors (height and weight) of athletes, prior schools attended, date and place of birth, and account balance. Such

information may be disclosed by the institution at its discretion.

Students have the right to withhold directory information from inquirers. The privacy option prevents all directory and enrollment information from being released to all who do not have a clear educational interest for access to this information.

### **Sexual Harassment**

Cragmor Hall, room 101  
(719) 262-3372

### **Sexual Harassment Policy**

UCCS is a collegial academic community whose mission requires an open learning and working environment which values and protects individual dignity. UCCS' educational process is based upon mutual trust, freedom of inquiry, freedom of expression, and the absence of intimidation and exploitation.

As a place of work and study, UCCS must be free of inappropriate and disrespectful conduct and communication of a sexual nature, of sexual harassment, and of all forms of sexual intimidation and exploitation. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when: submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment, living conditions and/or academic evaluation; submission to or rejection of such conduct by an individual is used as the basis of employment or academic decisions affecting such individual; or such conduct has the purpose or effect of unreasonable interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or educational environment.

Any person who desires information, has questions about procedures, or feels that he/she may have been sexually harassed is encouraged to speak with the Sexual Harassment Officer. Copies of the university Policy on Sexual Harassment are available on the campus website, [www.uccs.edu](http://www.uccs.edu), and from the campus Sexual Harassment Officer and in most offices on campus.

### **Standards of Conduct**

Dean of Students  
Main Hall, room 202  
(719) 262-3258

#### **Purpose**

UCCS has established a code of conduct to maintain the general welfare of the university community. The university strives to make the campus a place of study, work, and residence where people are treated with civility, respect, and courtesy. Admission to the university carries with it the expectation that students will be responsible members of the campus community. This includes respecting the personal safety and individual rights of all in the university community, acting in accordance with accepted standards of social behavior, and abiding by the regulations of the university and the laws of the city, state, and nation. The Standards of Conduct clearly state the university's expectations for student behavior.

Students are expected to become familiar with these standards and fully understand their responsibility as university community members.

#### **Jurisdiction**

The Standards of Conduct apply to all students at UCCS, regardless of designation, program, or residence. These regulations apply primarily to misconduct on university premises; however, off-campus violations that may impact the university's mission fall under the jurisdiction of the Office of Student Conduct and may lead to disciplinary action. Students may be held accountable to both civil and criminal authorities as well as to the university, by breaking a law that also violates the university standards. Disciplinary action by the university will not be subject to challenge or postponement on the grounds that criminal charges involving the same incident have been dismissed, reduced, or are pending in any state or federal judicial system. In addition, the university can pursue disciplinary action if a student violates a standard of conduct and then withdraws from the university.

#### **Standards**

Standards of conduct help promote a safe and civilized campus environment. All students enrolled at UCCS are required to abide by these standards, or they will be subject to discipline. An

attempt to commit an act prohibited by these standards, or attempts to aid, abet, or incite others to commit acts prohibited by these standards, are subject to discipline to the same extent as a completed act. Similar standards of conduct apply to other members of the university community - faculty, staff, and visitors.

Prohibited acts are enumerated in the document, "Students' Rights and Responsibilities: Standards of Conduct," which is available in the Office of Student Conduct. Allegations of any violations should be directed to the Office of Student Conduct for resolution.

### **Complaints**

Any member of the university community may file a written complaint with the Office of Student Conduct alleging that a student has violated the Standards of Conduct. The complaint must include a statement of the facts describing the alleged violation. The Office will not accept anonymous complaints. The Office may also initiate charges. Upon receipt of a complaint, the Office decides whether there is substance to the complaint; whether the complaint falls within the jurisdiction of the Standards of Conduct; and whether disciplinary proceedings should occur. In order to make this determination, the Office may need to gather additional information about the incident.

### **Rights and Responsibilities**

The Standards of Conduct document details the rights and responsibilities of students accused of misconduct as well as victims of alleged student misconduct.

### **Additional Information**

Questions regarding behavioral issues should be directed to the Office of Student Conduct.

### ***Student Appeals***

The university has established systematic procedures for students who believe that inappropriate decisions have been made that affect them. Academic issues (for example, graduation requirements or course grades) should be addressed to the office of the dean of the appropriate school/college. Appeals of administrative actions (for example, financial aid awards or parking tickets) should be directed to the office who made that decision. Advice and assistance on appeal procedures are available from the Dean of Students,

Room 202, Main Hall, 262-3258. There is a one-year statute of limitations on appeals concerning financial matters.

### **Vision 2010**

Vision CU 2010 is a bold systemwide agenda intended to map the future of the University of Colorado (CU) for the next decade. CU 2010 consists of five action areas:

- A university without walls
- A culture of excellence
- Increasing resources and using them wisely
- Diversity
- Integrated Infrastructure

### **Vision Statement**

UCCS will provide unsurpassed, student-centered teaching and learning, and outstanding research and creative work that serve our community, state, and nation, and result in our recognition as the premier comprehensive, regional research university in the United States.

# College of Business and Administration

**Venkateshwar Reddy,  
Dean**

**Dwire Hall, room 179**

**Telephone: (719) 262-3113**

**Fax: (719) 262-3100**

**[business.uccs.edu](http://business.uccs.edu)**

The College of Business was established with the University of Colorado at Colorado Springs in 1965. The College serves the needs of the Pikes Peak Region and Southern Colorado for competent and responsible managers, for continued education of those already in such positions, and for research. It also serves the needs for business education throughout the world with its Distance M.B.A. program. The College is committed to providing its students with the knowledge, skills, and ethical framework to be effective leaders and managers in the contemporary business environment. Both the undergraduate and the graduate degree curricula have an applied perspective and offer students the opportunity for in-depth study in one of the primary business disciplines. The College works closely with the local business community in the professional development of its students. The Business Diversity Union (BDU) assists the College in the recruitment and retention of ethnic minority students and in promoting a community that values individual differences and perspectives.

College faculty contribute to the advancement of knowledge in their fields through research and publication, and by serving in positions of leadership in business, civic, and professional organizations locally, nationally, and worldwide.

The College regularly interacts with business leaders and students to incorporate their recommendations into its programs.

Both the undergraduate and the graduate business degree programs are fully accredited by AACSB International — The Association to Advance Collegiate Schools of Business.

## Vision

To be the College of Business of choice for those who are committed to excellence in education, scholarship,

and life-long learning in the markets we serve.

## Mission

The mission of the College of Business is to build futures. To achieve this mission, we will:

- Provide an innovative, learner-focused education of superior quality and value that integrates theory and practice;
- Cultivate strong partnerships;
- Create and disseminate knowledge through excellent teaching and nationally recognized publications; and
- Motivate students, faculty, and staff to achieve their potential, be principled professionals and positively impact the organizations and communities in which they work.

## Core Values

### Student Success

Student success is paramount to our thinking, teaching, programs, and processes and is the key to our success.

### Excellence, Integrity, and Professionalism

We commit to creating quality and value as the hallmark of the College, living our ideals, treating others with respect, and working collaboratively for the best interests of the College and the University.

### Building Lasting Relationships

We will establish and maintain mutually beneficial relationships with all of those individuals and organizations who have an interest in our success.

## Research Centers

### Small Business Development Center

The mission of the El Paso and Teller County Subcenter of the Small Business Development Center (SBDC) is to enhance economic development through assisting small businesses in reaching their growth and profit potential. Sponsored jointly by the U.S. Small Business Administration, the State of Colorado, UCCS, and Pikes Peak Community College, the SBDC offers seminars, workshops, and one-on-one counseling for startup and ongoing small businesses in the region.

### Southern Colorado Economic Forum

The Forum provides businesses in El Paso county with information to assess local economic conditions in order to help them make more informed and better decisions. The objective of the Economic Forum is to provide timely and useful information focused specifically on the Pikes Peak Region. This information serves as a community progress report, identifying areas where the local community excels as well as areas where it faces challenges.

### International Small Business Development Center

The College of Business has been named as the host of the International Small Business Development Center for the State of Colorado. Services include counseling, training programs, and web-based services. The Center will have a special emphasis on Spanish language material to assist companies interested in doing business with NAFTA-related industries.

### The Center for Entrepreneurship

The Center for Entrepreneurship is an innovative education environment established by the College of Business and based upon the student learning environment paradigm. The Center for Entrepreneurship is tasked with exposing students at UCCS to the ideas and concepts behind entrepreneurial activities. The Center's primary mission is to provide a real-world, learning lab by creating a company-like environment wherein students can apply the concepts studied in their business curriculum.

## Faculty

Interim Dean and Finance Professor: Venkat Reddy; Associate Dean and Professor: Eric Olson; Professors: Alan Davis, Richard Discenza, Jeffery Ferguson, Donald Gardner, Lexis Higgins, Robert Knapp, Paul Miller, John Milliman, Donald Warrick, Thomas Zvirlein; Associate Professors: Charles Beck, Margaret Beranek, Rebecca Duray, Benjamin Martz, Kenneth Meisinger, Morgan Shepherd, Kirkland Wilcox; Assistant Professors: Scott Butterfield, Andrew Czaplewski, Monique French, Ann Hickey; Associate Research Professor: Fred Crowley; Instructors: Bill Ayen,

Gordon Stringer, Sheri Trumpfheller, Sally von Breton, and Sam White.

## **Academic Policies**

All students are responsible for knowing and following the provisions set forth in this Bulletin and in the Schedule of Courses. Any questions concerning these provisions are to be directed to the College of Business Administration M.B.A. advising office (graduate inquiries) or the Student Success Center (undergraduate inquiries). It is the responsibility of the student to know and observe program requirements and deadlines.

In an effort to incorporate new business techniques and paradigms into our business programs, as well as to meet the needs of our students on a timely basis, we periodically make changes to our curriculum. These changes may not be reflected in this catalog. We therefore encourage you to visit our web site at [business.uccs.edu](http://business.uccs.edu).

A student's business program/catalog year is the one in effect at the time the student is admitted to UCCS College of Business or to LAS, Business Intent. Transfer students from Colorado Community Colleges may follow the graduation requirements in effect during the academic year the student began their study at the community college if they complete the AA Business Option (restrictions apply, please see UCCS Student Success Center). All others are evaluated on a case by case basis. Students transferring from both two- and four-year public higher education institutions of Colorado should consult the articulation agreements and transfer guides which are in effect between the College of Business and these institutions.

The academic policies and regulations stated herein are in effect at the time this bulletin is printed but may be subject to change. Any questions should be directed to the Student Success Center or the M.B.A. advising office.

### **Administrative Drop**

Individual faculty or the dean may initiate the process to drop students who do not have the proper prerequisites and/or class standing for classes. Students who fail to meet written class attendance policies may also be administratively dropped. Business faculty may also drop students who do not attend the first

class without prior permission from the instructor.

### **Attendance Policy**

It is the expectation of the College of Business that students will attend all classes. However, classroom attendance policy is left to the discretion of the faculty member. Students are responsible for knowing the attendance policies of their instructors. Students registering late for classes must obtain approval from the faculty member prior to enrolling. Business faculty may drop students who do not attend the first class without prior permission from the instructor. This policy allows the adding of waitlisted students who attend the first class.

### **Degree Credit**

To be considered for the degree, all academic credit must be listed by the Office of Admissions and Records on the student's official University of Colorado transcript or on the University Transfer Credit Evaluation report. Credit listed on these documents is then evaluated by the appropriate College of Business advising office for degree applicability.

### **Transfer Credit**

The College of Business reserves the right to disallow any credit that it determines not to be appropriate. Only credit from regionally accredited institutions will be considered for transfer to the undergraduate degree program, and from AACSB accredited graduate programs to the M.B.A. degree. See the following Undergraduate Degree Program and M.B.A. Program sections for more detail.

### **Independent Study**

Junior, senior, and graduate business students desiring to work beyond regular business course coverage may take variable credit courses (1- 3 semester hours) under the direction of a full-time member of the faculty who approves the project. The student must also have the prior approval of the dean. Information and request forms are available in the advising offices.

To receive degree credit for independent study and experimental studies courses in non-business areas, students must obtain the approval of the College of Business dean prior to registering for the course. The College does not grant credit for work experience or cooperative

education programs. Tutoring of lower division courses is considered a form of work experience, and is not accepted for academic credit.

A maximum of 6 hours of preapproved independent study credit may be applied to the undergraduate degree or M.B.A. degree.

### **Pass/Fail Course Registration**

With the exception of BUAD 301, 302, 303, internships numbered 496 and 696, and certain experimental courses, students in the College of Business may not use courses taken on a pass/fail basis to satisfy required business or non-business courses, or business elective courses. Only open electives may be taken on a pass/fail basis and applied toward the undergraduate degree. Pass/fail determination must be made within the first two weeks of the semester and is irreversible.

### **Grading Policies**

#### **Failed Courses**

Although failed courses may be repeated, the F will remain on the student's transcript and will be included in his/her grade point average.

#### **Grade Changes**

Final grades as reported by instructors are to be considered permanent and final. Grade changes must be approved by the associate dean or the dean. Please visit the website for the grade appeal policy: [business.uccs.edu](http://business.uccs.edu).

#### **No Credit**

The College will not approve business courses for no credit.

#### **Incomplete Grades**

The only incomplete grade authorized by the College of Business is IF; IW is not used. IFs are appropriate for students who have completed a substantial portion of the semester but who then become ill or encounter other documentable extenuating circumstances beyond their control that prevent them from completing their coursework.

Students who receive an IF must meet with their instructors to be advised of the terms and deadline for remedy. Students must make up the missing work and may not register for nor attend the course a second time. The student is responsible to ensure that incomplete grades are removed at least four weeks prior to his/her scheduled graduation date. To



resolve an IF the student must complete the specified work by the specified deadline. In all cases where an IF is not remedied, the IF grade automatically converts to an F on the student's permanent record one calendar year after award of the IF.

**Graduation Requirements**

By the beginning of the first semester of their senior year, students must schedule a senior audit with the business academic advisor to determine status with respect to graduation requirements. At this time, students are required to file a diploma card giving notice of intention to complete graduation requirements. Failure to complete the diploma card in a timely manner may delay a student's graduation.

**Commencement**

Students seeking to participate in commencement and other academic ceremonies will need to complete ALL academic requirements in advance. Participation in academic ceremonies that recognize or honor students for the completion of an academic program or specific academic accomplishment is based on the understanding that all requirements have been completed. Every effort will be made to determine eligibility in advance, and only students who have met requirements will be permitted to participate.

**Internships**

The College of Business offers internships for business degree students, undergraduate and graduate, both for credit and not for credit. To register for an undergraduate internship for academic credit, students must be in good academic standing in their junior or senior year. Internships are 1-3 credit hours, pass/fail only, and at the undergraduate level may be used as business elective credit or as area of emphasis credit if so specified in this Bulletin. At the graduate level, internships may be used as elective credit or may be approved for credit toward an area of emphasis.

Information on business internships is available at the College of Business Career and Placement Center.

**Career and Placement Center**

The Career and Placement Center for undergraduate and graduate business students is located in Dwire 239. The Center assists students searching

for business internships and M.B.A. students by assisting in the search for part-time and full-time positions, resume writing and career direction. The Center also can introduce you to the E-Campus Recruiter. This web site links M.B.A. students and alumni to area and national employers who are looking for qualified employees to fill open positions. Email the Career and Placement Center at career@uccs.edu or call 719-262-3587 to set up an appointment. Visit the Career and Placement website at business.uccs.edu, go to Current Student, then Career and Placement Center.

**Student Organizations**

Student organizations provide opportunities for professional development and for recognition of scholastic achievement of students are supported by the College of Business. Following are the Student Organizations in the College of Business:

**Delta Sigma Pi:** International fraternity for students of business

**SHRM:** Student chapter of the Society for Human Resource Management

**BDU:** Business Diversity Union

**MISA:** Management Information Systems Association

**SIFE:** Students in Free Enterprise

**BGS:** Membership in Beta Gamma Sigma is an honor, which must be earned through outstanding scholastic achievement. Students are invited to apply for membership. Such membership is one of the highest scholastic honors that a student in a business or management program can attain.

To be eligible for Beta Gamma Sigma membership, students must rank in the top 7 percent of their junior class, the top 10 percent of their senior class, or in the top 20 percent of those students receiving Master's degrees. Beta Gamma Sigma chapters may be chartered only in those schools of business and management accredited by AACSB.

For information on all student organizations, please visit ROAR (Refuge for Organizations and Recreation) in the University Center, or call 262-3470.

**Bachelor of Science  
— Business**

The student bears primary responsibility for the fulfillment of degree requirements. Any questions that a student might have should be directed to the Student Success Center. The College reserves the right to disallow any credit that is not appropriate academic degree credit. Students approaching graduation must complete a graduation audit the semester before their final semester.

**General Requirements**

**Total Credits.** A minimum of 120 semester hours of appropriate academic credit as follows:

Required Business hours.....	40
Required non-business hours.....	34
Business Area Electives.....	11-14
Area of emphasis (minimum).....	18-21
Required General Electives .....	14

A minimum of 45 hours must be upper level (300-400) course work.

A maximum of 64 semester hours of appropriate academic credit taken at a junior or community college may be applied toward the baccalaureate degree in business. A maximum of 90 hours can be transferred from two and four-year colleges, combined.

A maximum of 12 semester hours completed as an unclassified student may be applied toward a baccalaureate degree in business.

Course work at the graduate level is not applicable to the baccalaureate degree.

**Residency.** Students must complete at least 30 semester hours of business course work at UCCS, including 18-21 hours in the area of emphasis, and the senior capstone course, BUAD 450. These courses must be completed AFTER the student has been admitted to the College of Business.

**Undergraduate Admission**

**Freshmen**

Students who rank in the upper 30th percentile of their high school graduating class and who satisfy the suggested high school units and the entrance test score requirements are assured admission. Test scores for assured admission are: (a) for the SAT, a combined score of 1080 or above; or (b) for the ACT, a composite score of 24 or above, with



an English minimum score of 24 and a math minimum score of 22. Students not meeting the above standards will be considered on the basis of a combination of several factors including class rank and performance in college prep classes.

**Suggested High School Course Units**

English .....	4
(one year of speech/debate and two years of composition are strongly recommended)	
Mathematics .....	3
(including at least two years of algebra and one year of geometry)	
Natural science.....	3
(laboratory science courses)	
Social Science .....	2
Foreign language.....	2
Academic electives.....	1
(additional courses in English, foreign language, mathematics, natural or social sciences; not to include business courses)	
Total .....	15

Students with strong mathematics and verbal skills are encouraged to apply even though their test scores and/or class rank may vary from the indicated admissions criteria.

***Transfer Students***

Students may transfer to the College of Business from another institution. Transfer students must demonstrate proficiency in English and mathematics. Students should have earned a cumulative GPA of at least 2.4 to help assure admission. Students with cumulative GPA between 2.0 and 2.4 will require the Admissions Committee approval before being admitted into the College.

Applicants with less than 30 semester hours of college level work will be required to submit a high school transcript and SAT or ACT test scores. Applicants with 30 semester hours or more of college level work may or may not be required to submit high school transcripts and/or test scores. Additional credentials may be required in individual cases. The College of Business adheres to the University Minimum Academic Preparation Standards that are listed in the General Information section of the Bulletin. This includes Freshman, Transfer and Intrauniversity transfer students.

College of Business does not allow students who already possess a bachelor's degree in a business area to pursue a second bachelor's degree in

business. Students who already have a bachelor's degree in business are encouraged to inquire about admission criteria for the College's MBA programs and/or undergraduate certificate programs.

***Intrauniversity Transfer***

Students who wish to transfer to the College of Business from another degree program at UCCS may submit an application in the Student Success Center upon completion of at least 15 semester hours of graded work on campus. Students should demonstrate proficiency in English and math by completing freshman English and at least one required math course. Students must have completed at least 15 semester hours of graded academic work. Students must have earned a cumulative GPA of at least 2.4 to help assure admission. Students with cumulative GPA between 2.0 and 2.4 will require the Business Advisor approval before being admitted into the College.

Please see the business advisor in the Student Success Center once standards are met. The College of Business adheres to the University Minimum Academic Preparation Standards that are listed in the General Information section of the bulletin. This includes Freshman, Transfer and Intrauniversity transfer students.

***The Pre-Business Program***

Students admitted to the College of Business are initially designated as Pre-Business students. They follow the freshman and sophomore sequence of courses listed in the Model Degree Program. Students should choose an intended emphasis at this time. Business students will not be allowed to take 400 level business courses until all the skills courses are completed with a C- or better.

**Skills courses**

Engl 131 .....	3
Econ 101, 202 .....	6
Math 111 and 112.....	6
INFS 110.....	3
ACCT 201, 202.....	6
QUAN 201, 202 .....	6
BUAD 300 .....	3
<b>Total .....</b>	<b>33</b>

\*Information Systems majors also must complete Skills Course, INFS 205.

Completion of lower division requirements does not ensure

acceptance to the upper division Professional Program. See Admission to the Professional Program below for admission standards.

***The Professional Program***

The junior and senior years constitute the Professional Program of the undergraduate curriculum. Admission to the Professional Program is based on completion of all Skills Courses. Students must apply to the Professional Program when the Skills Courses are completed in order to declare an emphasis. Students must maintain a 2.0 overall GPA and a 2.5 business course GPA to graduate from the Professional Program.

**Admission to the Professional Program**

After admission to the College of Business, an overall GPA of 2.5 and a business course GPA of 2.5 are required for admission to the Professional Program. To apply to the Professional Program, students must have completed each of the above Skills Courses with a C- or better and at least 45 hours. Students not meeting the requirements for the Professional Program maintain a Pre-Business designation. Board of Regents policy requires that students declare a major by the time they have 60 hours toward their degree, or by the start of their junior year.

Students must submit an application, to the Professional Program generally as second semester sophomores. Please visit the business advisor in the Student Success Center to apply to the Professional Program.

**Admission to the Professional Golf Management Program**

The College of Business Administration does not allow students to register for Professional Golf Management classes or participate in PGM internships until they are officially admitted to the program.

**Graduation Requirements**

To graduate from the Professional Program, students must have an overall GPA of 2.0, a Business course GPA of 2.5, and a 2.5 GPA in their area of emphasis courses with no grade below a C- (1.7) in the area of emphasis.

**The General Business Degree**

Students not meeting the graduation requirements for the Professional

Program will earn a General Business Degree if they have an overall 2.0 GPA, a 2.0 Business course GPA, and a 2.0 GPA in at least 18 credits of 300-400 level business courses.

**Model Degree Program**

The following four-year plan lists all the specific course requirements for the bachelor of science (business) degree. Equivalent courses taken at other institutions prior to admission to this degree program may satisfy these requirements subject to College of Business policies regarding the transfer of academic credit. The order in which these courses are taken may vary with course availability. However, normal degree progress in the College of Business requires that students complete the degree in a freshman, sophomore, junior, senior sequence. All courses listed are degree requirements. Students are responsible for completing all course prerequisites. Course prerequisite and class standing requirements are enforced by the College of Business.

**Freshman Year**

ENGL 131. Composition (Note 1) .....3  
 ECON 101, 202. Micro and Macroeconomics.....6  
 MATH 111 and 112. Linear Algebra and Calculus .....6  
 Social Science elective .....3  
 INFS 110. Information-Based Decision Making .....3  
 General Elective Approved List (Note 6) ....6  
 Humanities elective (Note 2).....3

**Sophomore Year**

Natural science with Lab (Note 3).....4  
 BLAW 200 Business Law .....3  
 General Elective Open (Note 6).....6  
 COMM 210. Public Speaking.....3  
 ACCT 201, 202. Financial and Managerial Accounting.....6  
 QUAN 201. Business Statistics and QUAN 202 Process and Statistics-Based Decision .....6  
 BUAD 300. Integrated Skills for Management (Note 4).....3

**Junior Year**

Non Freshman communication elective (Note 1).....3  
 Humanities elective (Note 2) .....3  
 BUAD 302. Resume Writing and Interviewing Skills .....1  
 FNCE 305. Basic Finance.....3  
 MKTG 300. Prin of Marketing .....3  
 ORMG 330. Intro to Management and

Organization .....3  
 OPTM 300. Fundamentals of Operations Management .....3  
 Area of Emphasis (Note 5) .....6  
 General Elective Open (Note 6).....2  
 Area Elective (Note 7).....2

**Senior Year**

BUAD 400. Government, Law, and Society (Note 8).....3  
 BUAD 450. Cases and Concepts in Business Policy (Note 8) .....3  
 Area of Emphasis (Note 5) .....12  
 Area electives (Note 7) .....6  
 Area electives (Note 7) .....6

**Minimum to graduate .....120**

**Curriculum Notes:**

1. Composition and Communication. To fulfill the 6 hour composition requirement, students take ENGL 131 in their freshman year and may choose from ENGL 307, Business and Administrative Writing; ENGL 309, Technical Writing and Presentation; or COMM 324, Business and Professional Communication, their junior year. Students also must complete a competency requirement by turning in an English portfolio or completing an additional upper-division writing course. Please consult the Writing Program, Columbine Hall 1041 or 1045 for more details on the writing competency requirement.
2. Humanities Electives. Six credit hours are required. A complete list of acceptable courses is available from the Student Success Center or College of Business. Courses must come from the approved list to apply as a Humanities elective.
3. Natural Science with Lab. Requirement is 4 credits. Students may apply additional natural science credit toward general electives.
4. BUAD 300, Integrated Skills for Management. BUAD 300 should be taken during the second semester of the sophomore year. It is a required skills course for entry into the College of Business Professional Program.
5. Area of Emphasis. 18-21 hours required. Business students admitted to the Professional Program will select one of the following areas of emphasis: Accounting, Business Administration, Finance, Human Resources Management, Information Systems, International Business, Marketing, Organizational

Management, or Service Management. Students may elect also to obtain a double area of emphasis or a business minor. General Business is available to business students who do not meet the GPA requirements as they near graduation.

6. General electives. The business degree requires 14 hours of General electives. Electives should be chosen carefully based upon the student's interests and objectives. The student will choose 6 hours from an approved list and will have 8 hours of open electives. These credits provide a means to take elective courses geared toward expanding the breadth of their education to other topics pertinent to their course of study in business.
7. Area Electives. Courses in this area can be used to fulfill a business topic that is taught at a level above the introductory level of the core classes. Students may elect to utilize the Area Electives for a minor in business or minors offered through the College of Letters, Arts and Sciences, Engineering or Nursing.

The following special sources of credit may be appropriate for general electives:

- a. A maximum of 15 hours upper division ROTC credit if the student completes the ROTC program.
- b. A maximum of 2 hours of physical education activity, health, first aid and applied music can be used.

The College of Business does not accept courses that are considered redundant to courses in the business curriculum. This includes, but is not limited to: CS 100, 103, and 104.

The above examples are not exhaustive, but are intended to provide guidelines. The College of Business reserves the right to disallow any credit that is not appropriate academic credit as determined by the College. Students should direct questions and obtain written approval from the Student Success Center prior to undertaking these classes.

8. Business Seniors. Registration in BUAD 400 and 450 is restricted to business seniors only.



**Professional Program Areas of Emphasis**

Each candidate for the Bachelor of Science-Business degree in the Professional Program must complete the prescribed courses in an area of emphasis comprising a minimum of 18 semester hours taken at UCCS. A grade point average of 2.5 is required for the area of emphasis courses, with no grade below a C-; a 2.5 is required for all business courses; and a 2.0 is required overall. Students who graduate with area of emphasis and/or business grade point averages from 2.0 to 2.49 will graduate as General Business majors.

By completing extra courses it is possible for a student to earn a second area of emphasis. In order to earn a double area of emphasis, a student must fulfill all the requirements for both areas. If there are not at least 15 hours of unique courses in the areas, then the student cannot earn a double area of emphasis.

**Accounting**

The principal areas of study in accounting are financial accounting, managerial accounting and systems, taxation, and auditing. The emphasis is designed to prepare students for careers in public accounting, business and industry, and not-for-profit and governmental organizations.

Course work in accounting is intended to convey a comprehensive understanding of the theory and concepts that underlie accounting practice. Emphasis is placed on logical reasoning to enable students to solve problems in accounting and to make sound accounting policy decisions.

In addition to training in accounting, a thorough knowledge of the social, legal, and political environments is essential. Because solid communication skills are indispensable to the professional accountant, course work in English composition, report writing, and speech are highly recommended.

The undergraduate area of emphasis in accounting consists of a minimum of 18 semester hours beyond Accounting 201 and 202 plus 3 semester hours selected from a list of specified courses. The basic requirements for all accounting majors are as follows:

**The Certified Public Accounting (CPA)Track**

The Rules of the Colorado State Board of

Accountancy (effective January 1, 2001), specifies that students planning to take the Certified Public Accounting (CPA) exam must take 27 semester hours in accounting subjects in order to comply with the law in the State of Colorado and to be more fully prepared for the exam. These 27 semester hours normally include the following:

**Required Courses**

ACCT 201 Intro to Financial Accounting.....	3
ACCT 202 Intro to Managerial Accounting .	3
ACCT 301 Intermediate Accounting I.....	3
ACCT 302 Intermediate Accounting II.....	3
ACCT 311 Cost Accounting .....	3
ACCT 461 Auditing (required by state law) .....	3
Accounting electives .....	9

**Total .....27**

**Recommended Electives**

ACCT 401 Advanced Financial Accounting .	3
ACCT 402 Financial Accounting Theory .....	3
ACCT 421 Individual Income Tax.....	3
ACCT 422 Corporate and Partnership Taxation .....	3
ACCT 441 Fund Accounting for Government and Nonprofit Organizations .....	3
ACCT 496 Internship in Accounting.....	3

In addition, the applicant for the exam must have at least 24 semester hours in at least four other areas of business such as business law, finance, management, marketing, statistics, business communications, information systems, and ethics. No more than 6 semester hours may be taken in any area. Recommended courses that fit well with the accounting degree include:

FNCE 330 Investments & Personal Finance	
FNCE 400 Advanced Corporate Finance	

**Managerial/Systems Track**

Students who are not planning to take the CPA exam are encouraged to select a specialty track. These tracks can be in either managerial accounting/systems or taxation. In order to specialize in one of these tracks, it is recommended that the accounting electives be selected as described below:

**Required Courses**

ACCT 201 Introduction to Financial Accounting .....	3
ACCT 202 Introduction to Managerial Accounting.....	3
ACCT 301 Intermediate Accounting I.....	3
ACCT 302 Intermediate Accounting II.....	3
ACCT 311 Cost Accounting .....	3

Accounting electives.....	12
<b>Total .....</b>	<b>27</b>

**Recommended Electives**  
(minimum of 12 hours)

We recommend students take FNCE 400 or ACCT 496. However, students may choose from the following set of courses:

ACCT 496 Internship in Accounting.....	3
FNCE 400 Advanced Corporate Finance .....	3
ACCT 422 Corporate and Partnership Taxation.....	3
ACCT 431 Introduction to Accounting Systems .....	3
ACCT 441 Fund Accounting for Government and Nonprofit Organizations .....	3
ACCT 496 Internship in Accounting.....	3

**Taxation Track**

**Required Courses**

ACCT 201 – Introduction to Financial Accounting.....	3
ACCT 202 – Introduction to Managerial Accounting.....	3
ACCT 301 – Intermediate Accounting I .....	3
ACCT 302 – Intermediate Accounting II .....	3
ACCT 311 – Cost Accounting.....	3
Accounting electives .....	12

**Total .....27**

**Recommended Electives**

(minimum of 12 hours)

ACCT 496 – Internship in Accounting .....	3
FNCE 400 – Advanced Corporate Finance .....	3
ACCT 421 – Individual Income Tax .....	3
ACCT 422 – Corporate and Partnership Taxation.....	3

While it is permissible to take as many hours in accounting as the student desires, not more than 30 hours of accounting will be applied toward the total requirements for the undergraduate degree. Students should work closely with accounting faculty and the undergraduate business advisor in planning their accounting programs. Graduate study in accounting is receiving increasing emphasis by professional organizations and employers. In Colorado, for example, individuals may be certified as CPAs with no experience in the profession if they have 30 semester hours of course work above the baccalaureate degree and a total of 45 hours of accounting and related courses in their combined undergraduate and graduate studies. Students meeting admission requirements might consider continuing their education at the graduate level.

In addition, many states now require a minimum of 150 semester hours to be eligible to take the CPA exam. Students who plan to move from Colorado should check the specific requirements of the state to which they anticipate moving for specific requirements.

**Business Administration**

The Business Administration area of emphasis is part of the Professional Program. It allows the student to select 18 semester hours of upper division business course work based on the individual’s particular interests and objectives. Courses are upper division and must be selected from at least two different subject areas to provide a solid business foundation. Course work selected for the area of emphasis must be preapproved via a contract. Please see the business advisor in the Student Success Center for a contract.

**Finance**

Finance encompasses both the science and the art of managing money and investments. The finance curriculum is divided into three primary areas: financial management, financial markets and institutions, and investments. The study of finance provides students with an understanding of numerous financial theories such as the relation between risk and return, the factors that determine asset values, and strategies for minimizing the risk exposure of both corporations and investors. An understanding of these theories helps students develop the ability to make sound and practical business and personal investment decisions. The importance of finance in the economy and the functions and purposes of monetary systems, credit, prices, money markets, and financial institutions are stressed throughout the area of emphasis. Students are trained to think logically regarding financial problems and to formulate sound financial decisions, policies, and practices.

The finance emphasis prepares students for jobs in a corporate industrial setting or for the financial services industry. Students who study corporate finance prepare for careers managing corporate assets. Specific jobs in the corporate setting can include cash and receivables management, capital budgeting decision making, short- and long-term financial planning and analysis, risk analysis and management, and financing decisions. Financial services careers include

positions in investment counseling, insurance, personal asset management and other financial planning careers.

To meet the 18 credit hours of upper division course work in the finance emphasis, students must complete the following required courses and one of the elective courses listed below.

**Required Courses**

FNCE 400 Advanced Corporate Finance ....3  
 FNCE 410 Cases and Concepts in Finance 3  
 FNCE 420 Investment and Portfolio Management .....3  
 FNCE 440 International Financial Management .....3  
 FNCE 450 Money and Banking .....3

**Select one course from the following:**

FNCE 430 Bank Management .....3  
 FNCE 460 Financial Modeling .....3  
 FNCE 480 Entrepreneurial Finance .....3  
 FNCE 496 Internship in Finance .....3  
 ACCT 302 Intermediate Accounting II .....3  
 ACCT 311 Cost Accounting .....3

**Total .....18**

**Human Resources Management**

The goal of the human resources management (HRMG )function in organizations is to develop and maintain effective relationships between employers and employees. HR managers achieve this in a number of ways — matching people’s skills to job requirements, developing fair compensation practices, appraising employees’ performance levels, developing employees’ skills and abilities through training and career planning, implementing productivity improvement programs, and many other activities. HR managers perform these roles ethically and legally, in an ever-changing environment. These changes include new employment laws, the changing skills and demographics of the work force, people expecting more and different things from their employers, and companies becoming increasingly globalized in their operations. The HR manager’s job is challenging. HR managers are in high demand. The HRMG major prepares students for careers in HR by covering such topics as recruiting, staffing, training and development, performance appraisal, evaluation, compensation, career planning, safety and health, equal employment opportunity and affirmative action, and labor relations.

**Required Courses**

HRMG 434 Labor Relations and Negotiation .....3

HRMG 438 Human Resource Management .....3  
 HRMG 439 Legal and Social Issues in Human Resources Management .....3  
 HRMG 441 Motivating, Rewarding and Developing Employees.....3  
 HRMG 485 Directed Research in Human Resources and Management.....3

**and one of the following:**

ORMG 411 Experiences in Leadership .....3  
 ORMG 437 Organizational Development and Change .....3  
 HRMG 496 Internship in Human Resources .....3  
 BUAD 390 Improving Personal and Team Creativity .....3

**Total .....18**

**Information Systems**

The use of information technology is pervasive in the business world today. No matter what career is chosen, virtually all students will have to work with and understand the basics of information technology to be successful. As a business major, the information systems curriculum helps prepare students for this technology-centric world. The curriculum includes an introduction to basic computer hardware and software, programming, databases, networking, along with the fundamentals of analysis and design and project management. The continuous advances in the use of decision support systems and management information systems make the field one from which to build a productive career in business.

**Required Courses**

INFS 205 Intro to Information Technology (elective credit) .....3  
 INFS 308 Business Programming I .....3  
 INFS 340 Database Concepts and Application.....3  
 INFS 370 Computer Networks and Telecommunications .....3  
 INFS 410 Systems Analysis and Design ....3  
 INFS 450 Information Systems Project Management .....3

**and one of the following three courses**

INFS 310 Business Programming II .....3  
 INFS 440 Emerging Technologies .....3  
 INFS 496 Internship in Information Systems .....3

**Total .....21**

**International Business**

Economies are intertwined as never before, and in most industrial sectors competition is increasingly global. Simultaneously, there are a number of



new and dynamic events and processes that influence the world economic, cultural, and political arenas. It is essential that managers understand the implications of these changes. They affect managers in at least three ways.

First, firms that see themselves as primarily domestic companies are facing increased competition by foreign firms in their domestic market. Secondly, foreign markets and resources are increasingly becoming important in terms of incremental revenue, profitability, sources of technology, and capital. And third, U.S. world-wide economic influence has diminished in a relative sense, and it has become more important than ever for executives to be aware of international influences. This area of emphasis addresses these issues and introduces students to the challenges and basic skills required for effective international business management.

**Required Courses**

INTB 360 International Business.....	3
FNCE 440 International Financial Management .....	3
MKTG 490 International Marketing .....	3
INTB 480 International Management.....	3
<b>and two of the following nine elective options:</b>	
INTB 461 Regional Business Environment: Europe .....	3
INTB 496 Internship in International Business .....	3
COMM 328 Intercultural Communication...	3
ECON 328 International Political Economy	3
ECON 341 International Economics .....	3
P SC 421 International Politics .....	3
P SC 425 International Law .....	3
SOC 438 Globalization and Global Culture	3
Or a preapproved upper division business course that has significant emphasis on International issues.....	3
<b>Total .....</b>	<b>18</b>

**Foreign Language** – Students majoring in international business are strongly encouraged to use their lower-division electives for learning another language and/or taking a language immersion program.

**Marketing**

Global and national economies are directly influenced by marketing, a dynamic and challenging activity relevant to profit and nonprofit organizations alike. Marketing is the guiding force in conceiving and designing products and services, pricing them according

to perceived value in the marketplace, promoting them through advertising and personal selling to potential buyers, and providing acceptable distribution arrangements for customers. Customer-oriented planning and implementation provide the cornerstone of modern marketing techniques and strategies. Marketing is a vital ingredient in an organization’s formula for success, the essential bridge, the crucial link in effecting mutually beneficial exchanges between buyers and sellers. The field of marketing is eclectic in applying such disciplines as economics, psychology, statistics and sociology to creative work, problem solving and strategic management. For the graduate, career opportunities are plentiful in sales, advertising, marketing research, product development, retailing, wholesaling, and related endeavors, both domestically and internationally.

**Required Courses**

MKTG 330 Marketing Research.....	3
MKTG 465 Promotion Management and Strategy.....	3
MKTG 480 Marketing Policies and Strategies.....	3
<b>and three of the following six courses</b>	
MKTG 440 Service Management and Marketing .....	3
MKTG 455 Contemporary Issues in Marketing .....	3
MKTG 460 Business Marketing Management .....	3
MKTG 470 E-Commerce .....	3
MKTG 485 Marketing Analysis & Planning Project .....	3
MKTG 490 International Marketing .....	3
MKTG 496 Internship in Marketing .....	3
<b>Total .....</b>	<b>18</b>

**Additional recommended**

**business elective:**  
BUAD 390 Improving Personal and Team Creativity

**Marketing/Professional Golf Management**

The purpose of the Marketing/ Professional Golf Management is to prepare students to be professional managers in the golf industry holding the distinction of membership in the Professional Golfers’ Association of America (PGA). These individuals will be qualified to fill any of a number of roles in a variety of positions and specific entities.

The program involves a three-part preparation process: (a) completion of

the requirements for a bachelor’s degree in marketing, (b) completion of 16-18 months of supervised internships, and (c) completion of the PGA’s Professional Golf Management Training Program (PGA/PGM™), including passing the Playing Ability Test (PAT).

Individuals will generally enter the PGM Program as freshmen business majors; in addition to meeting standard academic entrance requirements, these students must have a documented handicap of no greater than 12.

All new PGM students must start their program in the Fall semester.

The undergraduate curriculum for the PGM includes the following required courses:

PGMT 100 Orientation to PGM .....	2
PGMT 101 Introduction to PGA/PGM™ (Level 1).....	3
PGMT 200 Introduction to PGA/PGM™ (Level 2).....	3
PGMT 201 Food & Beverage Management (formerly 401).....	3
BIOL 345 Anatomy and Exercise Science Applied to Golf .....	4
PGMT 300 PGA/PGM Level 3 .....	3
PGMT 400 Turf Grass Management.....	3
MKTG 330 Marketing Research.....	3
MKTG 440 Service Management & Marketing .....	3
MKTG 450 Retail Merch. & Management .....	3
MKTG 465 Promotion Management & Strategy .....	3
MKTG 480 Marketing Policies & Strategies.....	3

**One of the following two courses .....3**

MKTG 470 E-Commerce

MKTG 451 Sports Marketing

The following internships must be completed:

PGMT 110 Internship .....	1
PGMT 210 Internship .....	1
PGMT 211 Internship .....	1
PGMT 410 Internship .....	1
PGMT 411 Internship .....	1

PGMT 110 is to be taken in the summer following the freshman year. PGMT 210 and 211 are to be taken in successive Summer and Fall semesters following the sophomore year. PGMT 410 and 411 are to be taken in successive Fall and Spring semesters after the junior year.

All internships occur under the supervision of members of the PGA of America at facilities approved by the

PGM Program staff. The facilities can be located virtually anywhere in the country or, in some circumstances, outside the country. Placement is assisted by the Internship Coordinator in cooperation with each student. Internships typically provide compensation directly to the student. Each student will submit a post-internship report and will receive a grade in accordance with a recommendation from the facilities manager.

PGM students also must enroll in the PGA/PGM™ during their freshman year, which is accomplished through their enrollment in PGMT 101. The cost of the program is in addition to regular tuition and student fees. It is collected from students as special course-related fees and is passed through intact to the PGA of America. Completion of the PGA/PGM™ also requires passing three checkpoints (during the sophomore, junior, and senior years) as well as the Playing Ability Test administered by the Colorado Section of the PGA or other sections in other states. Students are encouraged to pass the PAT as soon as possible, even before enrollment and preferably before the second internship. PGA standards require freshmen to attempt the PAT at least once, sophomores at least twice, and all others at least three times per year until it is passed. Additional information about the PGA/PGM™ and the PAT is available at [www.pgalinks.com](http://www.pgalinks.com). Students who participate in the PGM Program are subject to additional unique academic and professional policies as described in the PGM Student Handbook. Copies of the handbook are available from the program's Director.

**Organizational Management**

Today's highly competitive, constantly changing global environment places a premium on skilled managers who know how to lead and motivate people, build high performance teams, develop world class organizations, and understand the dynamics of organization behavior. Organizations of all sizes and types need skilled managers. The organizational management curriculum provides a foundation for careers in management, human resource management, small business management and entrepreneurship, and public agency management. This area of emphasis addresses contemporary issues in management and the changing roles of managers and leaders at all levels of the organization.

**Required Courses**

BUAD 390 Improving Personal and Team Creativity.....	3
ORMG 437 Organizational Development and Change.....	3
ORMG 411 Experiences in Leadership .....	3
HRMG 438 Human Resource Management .....	3

**and two of the following courses**

HRMG 434 Labor Relations and Negotiation.....	3
HRMG 439 Legal and Social Issues in Human Resources Management .....	3
HRMG 441 Motivating, Rewarding and Developing Employees.....	3
HRMG 485 Directed Research Projects in Human Resources and Management.....	3
HRMG 496 Internship in Human Resource Mgmt.....	3
ORMG 496 Internship in Organizational Management .....	3
<b>Total .....</b>	<b>18</b>

**Service Management**

The Service Management area of emphasis is designed to provide skills and knowledge for those who will work in a management or professional capacity in the service sector, including customer service departments, call centers, help-desks, insurance, and other professional service organizations (e.g. law, accounting).

**Required courses**

ORMG 411 Experiences in Leadership .....	3
ORMG 437 Organizational Development and Change .....	3
MKTG 440 Service Management and Marketing .....	3
MKTG 480 Marketing Policies and Strategies.....	3

**and two of the following courses:**

BUAD 390 Improving Personal and Team Creativity.....	3
HRMG 434 Labor Relations and Negotiation.....	3
HRMG 438 Human Resource Management .....	3
HRMG 439 Legal and Social Issues in Human Resources Management .....	3
HRMG 441 Motivating, Rewarding and Developing Employees.....	3
HRMG 485 Directed Research Project in Human Resources Management.....	3
HRMG 496, ORMG 496 or MKTG 496 Internship in Human Resource Management, Organizational Management or Marketing .....	3
MKTG 330 Marketing Research.....	3
<b>Total .....</b>	<b>18</b>

**Minors**

**Minors for Business Students**

Professional Program students may minor in a second business area (9-12 credit hours) or business students may choose a minor through the Colleges of Letters, Arts, and Sciences; Engineering; or Nursing (18 credit hours). All 9-12 credit hours of business courses for the minor must be taken in residence in the College of Business and must not already be counting toward the area of emphasis. If the 9-12 hours are not unique courses, then a student cannot earn a minor. Courses taken for the minor will fulfill business electives. A minor GPA of 2.5 must be earned, and minor courses must have a C- grade or better.

**Accounting**

**Required Courses**

ACCT 301 Intermediate Accounting .....	3
ACCT 311 Intermediate Accounting II.....	3
ACCT 421 Individual Income Tax.....	3
<b>Total .....</b>	<b>9</b>

**Finance**

**Required Courses**

FNCE 400 Advanced Corporate Finance ....	3
FNCE 420 Investment and Portfolio Management .....	3
FNCE 450 Money and Banking .....	3
<b>Total .....</b>	<b>9</b>

**Human Resources**

**Required Courses**

HRMG 438 Human Resource Management .....	3
HRMG 439 Legal and Social Issues in Human Resources Management.....	3

**And one of the following:**

HRMG 434 Labor Relations and Negotiation.....	3
HRMG 441 Motivating, Rewarding, and Developing Employees.....	3
HRMG 485 Directed Research Projects in Human Resources and Management .....	3
<b>Total .....</b>	<b>9</b>

**Information Systems**

**Required Courses**

INFS 205 Introduction to Information Technology.....	3
INFS 340 Database Concepts and Application.....	3
INFS 410 Systems Analysis and Design.....	3

**And one of the following:**

INFS 308 Business Programming .....	3
INFS 370 Computer Networks and Telecommunications .....	3
INFS 440 Emerging Technologies .....	3
<b>Total .....</b>	<b>12</b>



**International Business****Required Courses**

Choose three of the following:

INTB 360 International Business .....	3
INTB 480 International Management .....	3
INTB 461 Regional Business Environment Europe .....	3
FNCE 440 International Financial Management .....	3
MKTG 490 International Marketing .....	3

**Total .....**9**Marketing****Required Courses**

Any three 300/400 Level MKTG courses, above MKTG 300.

**Total .....**9**Organizational Management****Required Courses**

ORMG 411 Experiences in Leadership .....	3
ORMG 437 Organizational Development and Change .....	3
BUAD 390 Improving Personal and Team Creativity .....	3

**Total .....**9**Service Management****Required Courses**

MKTG 440 Service Management and Marketing .....	3
MKTG 480 Marketing Policies and Strategies .....	3
ORMG 437 Organizational Development and Change .....	3

**Total .....**9**Minors in Business for Non-Business Students**

Students admitted to undergraduate degree programs other than business may elect to pursue a minor in business with the approval of the appropriate advisor in the Student Success Center. It is a College of Business requirement that all course work in the area of specialty composing the minor and a minimum of 9 credit hours be taken in residence at UCCS. Non-business students seeking a business minor must have a 2.5 GPA in required courses for minor. Specifically the minors available to non-business students are in the areas of business administration, accounting, finance, information systems, international business, organizational management, and marketing, and require the following course work:

**Business Administration****Required courses**

INFS 110 Information-Based Decision Making .....	3
ACCT 201 Intro to Financial Accounting .....	3

ORMG 330 Intro to Mgmt & Organization .....	3
MKTG 300 Principles of Marketing .....	3
Two courses from Course List below .....	6

**Total .....**18

ACCT 202 Introduction to Managerial Accounting .....	3
BUAD 300 Integrated Skills for Management .....	3
BUAD 400 Business, Government, Law, and Society .....	3

FNCE 305 Basic Finance .....	3
HRMG 438 Human Resource Management .....	3
INFS 205 Introduction to Information Technology .....	3

INFS 308 Business Programming .....	3
INFS 340 Database Concepts and Application .....	3
INFS 370 Computer Networks and Telecommunications .....	3

MKTG 330 Principles of Marketing .....	3
OPTM 300 Fundamentals of Operations Management .....	3
ORMG 411 Experiences in Leadership .....	3

QUAN 201 Business Statistics .....	3
QUAN 202 Process and Statistics-Based Decisions .....	3

**Accounting****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
ACCT 202 Introduction to Managerial Accounting .....	3
BUAD 300 Integrated Skills for Management .....	3

ACCT 301 Intermediate Accounting I .....	3
ACCT 302 Intermediate Accounting II .....	3

ACCT 311 Cost Accounting or .....	3
ACCT 421 Individual Income Tax .....	3

INFS 110 Information-Based Decision Making .....	3
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Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3
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**Total .....**24

ACCT 201 Intro to Financial Accounting .....	3
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QUAN 201 Business Statistics .....	3
QUAN 202 Process and Statistics-Based Decisions .....	3

FNCE 305 Basic Finance .....	3
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HRMG 438 Human Resource Management .....	3
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MKTG 300 Principles of Marketing .....	3
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MKTG 440 Service Management & Marketing .....	3
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OPTM 300 Fundamentals of Operations Management .....	3
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ORMG 330 Intro to Mgmt & Organization .....	3
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BUAD 390 Improving Personal and Team Creativity .....	3
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BUAD 400 Business, Government, Law, and Society .....	3
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FNCE 440 International Financial Management .....	3
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INFS 110 Information-Based Decision Making .....	3
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INFS 205 Intro to Information Technology .....	3
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INFS 308 Business Programming .....	3
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INFS 340 Database Concepts and Application .....	3
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INFS 370 Computer Networks and Telecommunications .....	3
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MKTG 490 International Marketing .....	3
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ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
Econ 101 Introduction to Microeconomics .....	3
Econ 202 Introduction to Macroeconomics .....	3
BUAD 300 Integrated Skills for Management .....	3
FNCE 305 Basic Finance .....	3
Electives in Finance Area (300-400 level) .....	6

**Total .....**24

\*Students are also recommended to take INFS 110 and ECON 101 or ECON 202.

**Finance****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
Econ 101 Introduction to Microeconomics .....	3
Econ 202 Introduction to Macroeconomics .....	3

BUAD 300 Integrated Skills for Management .....	3
FNCE 305 Basic Finance .....	3

Electives in Finance Area (300-400 level) .....	6
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<b>Total .....</b>	<b>24</b>
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<b>Human Resource Management</b>	
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**Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3
BUAD 300 Integrated Skills for Management .....	3
ORMG 330 Introduction to Management and Organization .....	3
Electives in Human Resources Management (400 level) .....	9

**Total .....**24**Information Systems****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3
BUAD 300 Integrated Skills for Management .....	3
ORMG 330 Introduction to Management and Organization .....	3
Electives in Human Resources Management (400 level) .....	9

**Total .....**24

<b>Information Systems</b>	
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**Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
INFS 205 Intro to Information Technology .....	3
BUAD 300 Integrated Skills for Management .....	3
INFS 340 Database Concepts and Application .....	3
INFS 370 Computer Networks and Telecommunications .....	3
INFS 410 Systems Analysis and Design .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3

**Total .....**24**International Business****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
INFS 205 Intro to Information Technology .....	3
BUAD 300 Integrated Skills for Management .....	3
INFS 340 Database Concepts and Application .....	3
INFS 370 Computer Networks and Telecommunications .....	3
INFS 410 Systems Analysis and Design .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3

**Total .....**24**International Business****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
INFS 205 Intro to Information Technology .....	3
BUAD 300 Integrated Skills for Management .....	3
INFS 340 Database Concepts and Application .....	3
INFS 370 Computer Networks and Telecommunications .....	3
INFS 410 Systems Analysis and Design .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3

**Total .....**24**International Business****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
INFS 205 Intro to Information Technology .....	3
BUAD 300 Integrated Skills for Management .....	3
INFS 340 Database Concepts and Application .....	3
INFS 370 Computer Networks and Telecommunications .....	3
INFS 410 Systems Analysis and Design .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3

**Total .....**24**International Business****Required courses**

ACCT 201 Introduction to Financial Accounting .....	3
INFS 110 Information-Based Decision Making .....	3
INFS 205 Intro to Information Technology .....	3
BUAD 300 Integrated Skills for Management .....	3
INFS 340 Database Concepts and Application .....	3
INFS 370 Computer Networks and Telecommunications .....	3
INFS 410 Systems Analysis and Design .....	3
Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics .....	3

**Total .....**24



BUAD 300 Integrated Skills for Management .....3  
 MKTG 300 Introduction to Marketing .....3  
 FNCE 305 Basic Finance.....3  
 and three of the following five course options:.....9  
 INTB 360 International Business  
 FNCE 440 International Financial Management  
 MKTG 490 International Marketing  
 INTB 480 International Management  
 INTB 461 Regional Business Environment: Europe  
**Total .....24**

**Marketing**

**Required courses**

ACCT 201 Introduction to Financial Accounting.....3  
 INFS 110 Information-Based Decision Making .....3  
 Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics3  
 BUAD 300 Integrated Skills for Management .....3  
 MKTG 300 Principles of Marketing.....3  
 Electives in Marketing Area (300-400 level) .....6  
**Total .....21**

**MBA Prep**

ACCT 204 Intro to Financial Accounting.....3  
 INFS 110 Information-Based Decision Making .....3  
 BUAD 300 Integrated Skills for Management.....3  
 BUAD 400 Business, Government, Law & Society .....3  
 QUAN 201 Business Statistics .....3  
 Choose from one of the following:  
 ACCT 202 or QUAN 202 .....3  
 Students should take ECON 202 as an elective in degree.  
**Total .....18**

**Organizational Management**

**Required courses**

ACCT 201 Introduction to Financial Accounting.....3  
 INFS 110 Information-Based Decision Making .....3  
 Econ 101 Introduction to Microeconomics or Econ 202 Introduction to Macroeconomics3  
 BUAD 300 Integrated Skills for Management .....3  
 ORMG 330 Introduction to Management and Organization .....3  
 ORMG 411 Experiences in Leadership .....3  
 ORMG 437 Organization Development & Change ..... 3

BUAD 390 Improving Personal and Team Creativity .....3  
**Total .....24**

Students may not register for business courses for which they do not have the stated prerequisites including class standing.

**Undergraduate Certificates**

The College of Business offers undergraduate certificates in several areas of emphases. Certificates consist of 15-21 hours of course work and are offered in accounting, finance, human resources management, information systems, marketing, organizational management, and service management. Some certificates require a bachelor's degree in business while others do not. Priority for registration for business courses is given to business degree students. A certificate GPA of 2.5 must be earned, and courses must have a C- grade or better.

Please contact the Director of Undergraduate Programs in the College of Business to apply for admission.

**Certificates that require a bachelor's degree**

**Accounting Certificate/CPA Track – 21 hours**

Prereqs: 6 hours fundamental accounting, ACCT 201, 202  
 ACCT 301 Intermediate Accounting I  
 ACCT 302 Intermediate Accounting II  
 ACCT 311 Cost Accounting  
 ACCT 421 Individual Income Tax  
 ACCT 422 Corporate & Partnership Taxation  
 ACCT 441 Fund Accounting for Gov't & Non profit  
 ACCT 461 Auditing

**Accounting Certificate/General – 15 hours**

Prereqs: 6 hours fundamental accounting, ACCT 201, 202  
 ACCT 301 Intermediate Accounting I  
 ACCT 302 Intermediate Accounting II  
 ACCT 311 Cost Accounting  
 Select two additional 400 level Accounting courses

**Finance Certificate – 15 hours**

Prereqs: Upper-level basic finance  
 FNCE 400 Advanced Corporate Finance  
 FNCE 410 Cases and Concepts in Finance  
 FNCE 420 Investment & Portfolio Management  
 FNCE 440 International Financial Management  
 FNCE 450 Money and Banking

**Information Systems Certificate – 15 hours**

Prereq: INFS 110 (can be waived w/ department permission.)

INFS 205 Introduction to Information Technology  
 INFS 308 Business Programming I  
 INFS 340 Database Concepts & Application  
 INFS 370 Computer Networks & Telecommunications  
 INFS 410 Systems Analysis and Design

**Marketing Certificate – 15 hours**

Prereq: MKTG 300  
 MKTG 330 Marketing Research  
 MKTG 465 Promotion Management & Strategy  
 MKTG 480.....Marketing Policies & Strategy  
 Select two additional upper division Marketing electives

**Service Management Certificate – 15 hours**

Prereq: MKTG 300 and ORMG 330  
 MKTG 440 Service Management & Marketing  
 MKTG 480 Marketing Policies and Strategies  
 ORMG 411 Experiences in Leadership  
 ORMG 437 Organization Development & Change  
 Select one additional HRMG elective  
 (If MKTG 300 and ORMG 330 were taken at UCCS, they will count towards the elective course.)

**Certificates for students without a bachelor's degree in business.**

**Business Administration – 18 hours**

INFS 110 Information-Based Decision Making  
 ACCT 201 Intro to Financial Management  
 ORMG 330 Intro to Mgmt & Organization  
 MKTG 300 Principles of Marketing  
 Two courses from the following:  
 ACCT 202 Introduction to Managerial Accounting  
 BUAD 300 Integrated Skills for Management  
 BUAD 400 Business, Government, Law, and Society  
 FNCE 305 Basic Finance  
 HRMG 438 Human Resource Management  
 INFS 205 Introduction to Information Technology  
 INFS 308 Business Programming  
 INFS 340 Database Concepts and Application  
 INFS 370 Computer Networks and Telecommunications  
 MKTG 330 Principles of Marketing  
 ORMG 411 Experiences in Leadership  
 QUAN 201 Business Statistics  
 QUAN 202 Process and Statistics-Based Decisions  
 OPTM 300 Fundamentals of Operations Mgmt.



**Human Resources Management****Certificate – 15 hours**

HRMG 438 Managing HR for Competitive Advantage

HRMG 439 Legal & Social Issues in HRM

HRMG 441 Motivating, Rewarding & Developing Empl.

HRMG 434 Collective Bargaining and Labor Relations

Plus one of the following:

HRMG 485 Directed Research Projects in HRM

ORMG 437 Organization Development and Change

**Organizational Management Certificate-15 hours**

Prereq: ORMG 330

ORMG 411 Experiences in Leadership

ORMG 437 Organization Development & Change

BUAD 390 Improving Personal and Team Creativity

Select two additional ORMG or HRMG electives

**Academic Advising**

Undergraduate:

Student Success Center

Main Hall, 2nd Floor

P.O. Box 7150

Colorado Springs, CO 80933-7150

(719) 262-3260 or (719) 262-3630  
800-990-8227 ext 3630 or 3260

FAX (719) 262-3645  
success@uccs.edu

**Undergraduate Academic Policies****Registration and Enrollment Status**

Course prerequisites as listed for individual courses in the Course Descriptions section of this Bulletin are enforced for all students, including non-business students. In addition, it is a requirement of business degree students that the Skills Courses listed in the Pre-Business Program section of this Bulletin be completed prior to taking 400 level business courses. Non-business students who register for upper division business courses are advised that the depth and breadth of instruction in these courses is geared to business students who have completed the Skills Courses. Priority for registration for business classes is given to business degree students.

Students enrolled in one section of a business course while attending a

different section will receive a final grade of F for nonattendance. Students attending classes for which they are not enrolled will not be added after the add period is over.

**Course Load**

The normal scholastic load for a full-time undergraduate business student is 16 semester hours, with 18 hours the maximum during the fall/spring semesters. A maximum of 12 hours may be taken in the 8 week summer session, and 6 hours in the 4 week summer term.

**Standards of Performance – Undergraduate**

To be in good standing, a minimum scholastic cumulative grade point average of 2.0 is required for all courses attempted at UCCS, as is a 2.0 for all business courses. For a student to be eligible to graduate from the Professional Program, he or she must have a grade point average of 2.5 for the area of emphasis courses with no grade below a C-, a 2.5 for all business courses attempted, and a 2.0 overall. Students who graduate with area of emphasis and/or business grade point averages from 2.0 to 2.49 and at least a 2.0 overall grade point average will graduate with General Business area of emphasis degrees. These grade point averages apply to work taken at all University of Colorado campuses. Remedial course work is not included in the overall average.

College rules governing probation and suspension are as follows:

1. Any student whose overall grade point average or business course average is less than 2.0 shall be immediately placed on probation. A student may be removed from probation when the overall average and the business average have been raised to 2.0.
2. Students may remain on probation for up to four semesters as long as they maintain normal degree progress each semester as determined by the college and obtain no grade below a C-. Such probationary status may continue for a maximum of four semesters providing these provisions have been met. Please note that students may be on probation a maximum of four semesters during their entire academic career in the College of Business, and probationary terms are not necessarily consecutive. Summer

is considered a semester. Failure to meet probationary provisions will result in suspension.

3. Indefinitely suspended students are not eligible to take College of Business classes for one calendar year from the time of their indefinite suspension.
4. A student who has been under indefinite suspension for one calendar year may apply for readmission to the College of Business. If readmitted, that readmission will be on a probationary status. After being readmitted under such probationary status, students who fail to comply with the requirements of their probation will be subject to permanent suspension.
5. Any student who is placed on suspension more than once will be permanently suspended from the College of Business and may not attend any campus of the University of Colorado as a business student.
6. Students who have been suspended at any time in the past by the College of Business will be automatically permanently suspended if their overall average or business course average again falls below 2.0.
7. Permanently suspended College of Business students who transfer into another degree program will not be eligible to register for business courses and will be subject to administrative drops. Suspended students who transfer into another degree program of the university are rarely readmitted to the College of Business, and then only by special consideration by petition to the college.
8. Any student earning all failing grades or no academic credit for the semester will be indefinitely suspended.

**Honors Recognition**

**President and Dean's List Criteria.** To qualify for semester honors, students must be enrolled in a minimum of 12 graded hours during a regular semester (Fall or Spring). Students who achieve a 3.75- 3.99 grade point average will be placed on the Dean's List. Students who achieve a 4.0 grade point average will be placed on the President's List.

**Latin Honors.** Upon recommendation of the faculty, undergraduate students who

demonstrate superior scholarship are given special recognition at graduation. To qualify for Latin Honors, students must have a minimum of 60 hours at the University of Colorado. Students must achieve an overall CU grade point average of 3.7 and a grade point average of 3.9 in all business courses taken at the University of Colorado to be considered for summa cum laude. Those who achieve an overall CU grade-point average of 3.5 and a grade-point average of 3.7 in all business courses taken at the University of Colorado will be considered for magna cum laude. An overall CU grade point average of 3.3 and a business course average of 3.5 qualify a student to be considered for cum laude.

### **Business Courses — Transfer Credit**

The college will limit transfer credit for business courses taken at a lower division level to such courses as the college offers at that level. Transfer students must be aware of the upper division minimum credit requirement of 45 semester hours for the Business degree.

A maximum of 64 semester hours of credit may be accepted from a community or junior college. Actual equivalent courses usually may be substituted for required courses. However, students must verify with the College of Business advising office that courses are equivalent. Students may be asked to provide additional information on courses completed at other institutions.

Information systems courses older than 5 years will not transfer toward any Bachelor of Science business degree, except as open electives.

Business students who wish to take course work at another institution or another campus of the University of Colorado and apply the work toward the degree must have the prior approval of the dean.

Transfer students must take a minimum of 30 semester hours of business courses including the six area of emphasis courses and BUAD 450 in residency at UCCS after admission to the undergraduate degree program of the College of Business.

Student transfer agreements between the UCCS College of Business and the two-year public institutions in the

Colorado system of higher education have been established and may be accessed through the advising offices of each institution. The College of Business adheres to the Business Statewide Articulation Agreement. This agreement varies depending on the student's specific catalog year.

### **Special Sources of Credit**

The College reserves the right to accept or reject all special sources of credit which do not have prior approval of the dean. See Model Degree Program Curriculum Notes 3 and 10 for a discussion of elective credit for the business degree.

### **Correspondence Credit**

Area of emphasis courses may not be taken by correspondence. All correspondence courses are evaluated to determine their acceptability. Approval for degree credit is required prior to registration.

### **Credit by Examination**

Please see the General Information section for information about Advanced Placement, International Baccalaureate, and College Level Examination Program (CLEP) credit.

Generally, CLEP credit is appropriate only for (a) lower division non-business requirements and (b) non-business electives. A maximum of 6 hours of credit in any one course area is allowed. CLEP may not be used in course areas where credit has already been allowed. General examinations are not acceptable. Credit for CLEP must have prior approval in writing from the business advisor.

### **ROTC Credit**

Students who complete the ROTC program may apply a maximum of 15 hours of advanced ROTC credit toward Area Elective requirements for the business degree. Students must be enrolled as official ROTC students in order to receive degree credit for ROTC courses. The ROTC advisor can provide more detailed information.

## **Master of Business Administration**

The Master of Business Administration program is devoted to the concepts, analytical tools, and communication skills required for competent and responsible management. The management of an enterprise is viewed

in its entirety and within its social, political, and economic environment. All on-campus graduate level courses are scheduled during the evening hours to accommodate employed students.

The Graduate School of Business Administration offers an M.B.A. program delivered via two modes — residence and distance (online.) Students may choose to complete their entire M.B.A. program through either of the two modes or take a combination of on-campus and on-line courses. However, on-line courses have a higher tuition. Please contact the M.B.A. advising office for more information.

### **Graduate Admission**

The Graduate School of Business Administration seeks to admit students who show a high likelihood of success in postgraduate business study. The following three basic indicators are used to evaluate candidates for admission:

1. Prior academic experience. A four-year baccalaureate degree from a regionally accredited institution or foreign equivalent is a condition for application. The applicant's complete academic record from all institutions attended is examined.
2. Graduate Management Admission Test (GMAT) scores. The total score as well as the individual verbal, quantitative and analytical writing scores of the applicant are examined. Results of other standardized graduate admission tests may be used with the approval of the M.B.A. advising office. In some special cases where the applicant has substantial business experience, the GMAT may be waived and a portfolio application process may be used. Please contact the M.B.A. Advising Office for more information.
3. Employment experience. Of particular interest is the candidate's progression of work. Recommendations from prior and current colleagues are optional. Though employment experience may be used to evaluate a candidate, it is not required.

Individuals may be admitted on a provisional status at the discretion of the admissions committee. If the terms of the provisional admittance are met, the student will be transferred to regular degree status. Students who do not meet the terms of the provisional admission are not eligible for admittance into the program.

Seniors in this university who have satisfied the undergraduate residence requirements and who need not more than 6 semester hours of advanced subjects and 12 credit points to meet their requirements for undergraduate degrees may be admitted to the M.B.A. program. They must meet regular admissions criteria and submit a completed application by the published deadline. They must complete their final undergraduate courses during their first semester as an M.B.A. student.

The application, GMAT or other test scores, two official transcripts (not student copies) from each post-secondary institution attended, a resume, and the nonrefundable application fee should be submitted by April 1 for summer admission, by June 1 for fall admission, and by November 1 for spring admission. See M.B.A. web site: [www.uccs.edu/mba](http://www.uccs.edu/mba) for the online application or contact the M.B.A. advising office by phone at 1-800-990-8227, ext. 3408 or by email at [mba@uccs.edu](mailto:mba@uccs.edu).

The mailing address for supporting materials is as follows:

Graduate School of Business  
Administration  
UCCS  
1420 Austin Bluffs Parkway  
Colorado Springs, CO 80918

### **M.B.A. Preparatory Requirements**

The College of Business provides the following series of business preparatory courses as required background courses for the graduate study of business. These courses, which are open only to admitted M.B.A. degree students, may be waived on a course-by-course basis with prior academic course work or successful scores on designated achievement tests.

#### **Course/Title/Credit**

BCOM 550 Professional Business Communication .....	3
BUAD 550 Fundamentals of Economics ....	3
BUAD 560 Business, Government and Society .....	3
QUAN 550 Fundamentals of Business Statistics .....	3

These preparatory courses are graduate level courses which — if required — are taken in addition to the 36 semester hours required for the M.B.A. degree.

Graduate students who are interested in waiving one or more of the M.B.A.

preparatory courses based on related prior course work must consult with an M.B.A. advisor. Waivers of preparatory courses are based on a number of criteria including the age of the prior course work, the grade earned and other considerations determined by the faculty. Prior course work must have been completed at a regionally accredited institution. Preparatory course waivers are made at the discretion of the College of Business and are recorded on a degree plan approved by the dean.

### **M.B.A. Degree Requirements**

In addition to any preparatory courses which may be required (see previous section), students must complete a minimum of 36 semester hours of course work for the M.B.A. degree. This course work consists of 21 hours of core courses, 9 hours in an area of emphasis, and 6 hours of 600-level business electives, of which at least 3 hours are outside the student's area of emphasis. (Accounting, Health Care Administration, and Information Systems Basic Technology Track majors complete 12 - 15 hours of emphasis courses and 0-3 hours of electives.) Students who do not choose to have an area of emphasis may select 15 hours of course work outside of the core which are tailored to the student's interest and which satisfy the requirements for a general M.B.A. All M.B.A. degree plans require the final approval of the dean.

#### **M.B.A. Core Requirements (21 hours)**

ACCT 600 Contemporary Issues in Accounting .....	3
FNCE 600 Corporate Financial Management .....	3
INFS 600 Information Systems .....	3
MGMT 600 Leading and Managing in Changing Times .....	3
MKTG 600 Marketing Strategy .....	3
OPTM 600 Operations: Competing through Capabilities .....	3
BUAD 650 Strategic Management .....	3

### **M.B.A. Areas of Emphasis**

Students may choose to receive a general M.B.A. or decide to specialize in a functional or interdisciplinary area of emphasis as listed below.

Project Management & Health Care Administration are only offered through the distance mode.

#### **Accounting – 12 hours**

Students who select a functional area

in accounting will take 21 semester hours of the M.B.A. core courses, 3 semester hours of M.B.A. electives and 12 semester hours of accounting courses. The recommended programs for a functional area in accounting are as follows:

#### **Students with accounting undergraduate Semester Hours**

ACCT 601 - Seminar: Financial Accounting Theory .....	3
ACCT 611 - Seminar: Managerial Accounting Issues .....	3
ACCT 661 - Seminar: Issues in Auditing .....	3
ACCT 4xx - (Accounting elective with prior approval) .....	3

#### **Students with nonaccounting undergraduate:**

ACCT 600 – Contemporary Issues in Accounting (may substitute Acct 201 and Acct 202) .....	3
ACCT 301 – Intermediate Accounting I .....	3
ACCT 302 – Intermediate Accounting II .....	3
ACCT 311 – Cost Accounting .....	3
The three 600-level accounting courses and one 400-level accounting course as listed above (12 hours) .....	12

The 400-level accounting course included above should be selected after consultation with the accounting faculty and must be approved for graduate credit prior to enrollment. Course work assignments in the 400-level course will be appropriate to graduate degree course work. Accounting 301, 302, and 311, or their equivalents are prerequisites for 600-level accounting courses in the accounting major.

Those graduate students who are preparing for a career as a Certified Public Accountant (CPA) should read the legal requirements and recommendations for becoming certified in Colorado and other states as described in the undergraduate section for AREA OF EMPHASIS in Accounting for the CPA track in this course bulletin.

#### **Finance — 9 hours**

All organizations, large and small, must effectively invest and manage their capital. The finance function is critical in both for-profit and not-for-profit organizations. Job opportunities exist for finance graduates in almost all industries including the financial services industry and positions within the finance area of corporations. Finance graduates manage capital for large organizations and their independent business units as well as for small organizations.

**Complete any three of the following:**

FNCE 610 Problems and Policies in Financial Management.....3  
 FNCE 620 Investment Management and Analysis .....3  
 FNCE 640 International Financial Management .....3  
 FNCE 650 Managerial Economics and the Business Cycle .....3  
 FNCE 660 Financial Engineering and Corporate Risk Management.....3

**General**

A General M.B.A. allows the student to select 15 hours of 600 level business courses based on the individual's particular interests and objectives.

**Health Care Administration Area of Emphasis – 15 hours**

The many changes in government laws and regulations, technology, society needs and insurance plans create a large need for administrative and business education for health care professionals.

HCAD 619 Health Care Administration ..... 3  
 HCAD 629 Health Care Policy..... 3  
 HCAD 639 Health Care Ethics and Law .... 3  
 HCAD 649 Health Care Budget and Finance ..... 3  
 HCAD 659 Clinical Research Application .. 3

**Information Systems – 9-12 hours**

The Information Systems functional area is designed in tracks to be appropriate for several career choices in the Information Systems field. Each student should select the proper path in consultation with the M.B.A. advisor and one or more Information Systems faculty members.

**Information Systems: Basic Technology Track**

The basic technology track is for students with minimal skills in information systems who wish to be current in the field. This track is appropriate for persons who wish to change career fields or for those who have an interest in expanding their understanding of the technology that supports their chosen field (accounting, marketing, finance, etc.)

**Required courses for the basic technology track are:**

INFS 630 Principles of Programming.....3  
 (INFS 630 is a prerequisite course for INFS 640 and INFS 660 and may be replaced with an elective if prior programming courses or work experience is documented.)

INFS 640 Development of Information Systems .....3  
 INFS 660 Database Principles.....3  
 INFS 681 Telecommunications and Networking Principles .....3  
 Strongly recommended:  
 OPTM 630 Managing Projects for Competitive Advantage .....3

**Information Systems: Infrastructure Integration Track**

The infrastructure integration track is for students who have significant Information Systems education or experience and seek to understand the integrating technologies that are deconstructing standard modes of organizational operations. The focus is on the marshalling and deployment of technology resources in a dynamic economic climate.

Required are three of the following four courses (offered alternate years) for the infrastructure integration track:

INFS 661 Data Warehouse Implementation and Applications.....3  
 INFS 671 Enterprise Systems .....3  
 INFS 673 IT Portfolio Management.....3  
 INFS 683 Building Virtual Organizations ....3  
 Strongly Recommended:  
 OPTM 630 Managing Projects for Competitive Advantage .....3

**International Business – 9 hours**

An emphasis in International Business will prepare students to excel in the field of international business. This field of study is becoming more relevant and important as the global economy expands. Students are encouraged to take a foreign language to strengthen this area of emphasis.

**Complete three of the following six courses:**

BUAD 690 Managing in Global Markets ....3  
 BUAD 691 Regional Business Environment: Europe .....3  
 FNCE 640 International Financial Management .....3  
 INTB 660 Contemporary Topics in International Business.....3  
 INTB 670 International Field Project.....3  
 MKTG 690 International Marketing and Export Management .....3

**Management — 9 hours**

In today's highly competitive global environment, a premium will be placed on skilled managers who know how to motivate and lead people. This area of emphasis addresses these

issues and other contemporary issues in management. Additionally, the changing roles of managers and leaders at management levels within the organization are explored. The Management emphasis also focuses on the development and maintenance of effective relationships between employers and employees.

**Required courses:**

MGMT 610 Development of Groups and Organizations.....3  
 MGMT 630 Managing Human Resources for Competitive Advantage .....3

**and complete one of the following:**

MGMT 620 Managing Organization Development and Change .....3  
 MGMT 640 Legal Issues in Managing Human Resources.....3

**Marketing – 9 hours**

An effective marketing program is necessary to the success of any business organization. Through the marketing efforts of a firm, products and services are designed and delivered that maximize customer satisfaction. Students choosing the marketing area of emphasis may find exciting careers in such diverse fields as product management, professional selling, customer support, advertising and marketing research. The marketing curriculum is designed to give the student hands-on marketing experience through applied classes and projects.

**Required course:**

MKTG 630 Marketing Research and Decision Making .....3

**and two of the following five courses:**

MKTG 610 M.B.A. Seminar in Contemporary Topics in Marketing .....3  
 MKTG 640 Services Marketing.....3  
 MKTG 650 Marketing Communications .....3  
 MKTG 670 E-commerce .....3  
 MKTG 690 International Marketing and Export Management .....3

**Operations Management – 9 hours**

Both tangible products and services require effective process technology management. In the past few decades, changes have revolutionized how products are manufactured. Quality management has become a major focus of most contemporary manufacturing organizations.

Students completing this emphasis will be prepared to seek positions in manufacturing in virtually all industries.



**Complete three of the following four courses:**

BUAD 670 World Class Service Management .....	3
OPTM 610 Customer Focused Processes: Quality Management and Metrics .....	3
OPTM 620 Managing Supply Chains .....	3
OPTM 630 Managing Projects for Competitive Advantage .....	3

**Project Management Area of Emphasis – 12 hours**

Companies are turning to a project structure to manage the increasingly complex, cross-functional tasks present in today's business climate. As the number of both "successful" and "unsuccessful" projects continues to grow, the impact of project management on an organization is more visible. Students completing this area of emphasis can expect to master traditional project management skills and be prepared to manage in complex multiple project environments with a global reach.

OPTM 630 Managing Projects for Competitive Advantage .....	3
(OPTM 630 is a prerequisite course for the Project Management area of emphasis.)	
OPTM 649 Organizational Skills for Project Management .....	3
OPTM 659 Project Estimation and Risk Management .....	3
OPTM 669 Bridging Strategy and Tactics in Project Management.....	3

**Services Management – 9 hours**

Service industries are expected to continue to grow at a rapid rate in the 21st century. The services management emphasis is taught in an interdisciplinary fashion which allows students to explore several different areas within the firm. This enables students to better understand how to manage a service organization properly.

**Required Courses:**

BUAD 670 World Class Service Management .....	3
MKTG 640 Service Marketing.....	3

**Complete one of the following:**

MKTG 630 Marketing Research and Decision Making .....	3
OPTM 610 Customer Focused Processes: Quality Management and Metrics .....	3

**Technology Management – 9 hours**

The development of technology continues to grow at an increasing rate both domestically and globally. Students completing this emphasis can expect to be prepared to function effectively in the

many technology-based organizations in the business environment today. The technology management emphasis helps the student grasp and begin to master the complexities of managing both product technology and process technology.

**Required courses:**

BUAD 661 Managing Technology for Strategic Advantage .....	3
BUAD 671 Transforming Technology Organizations and Employees.....	3

**Complete one of the following courses:**

BUAD 670 World Class Service Management .....	3
BUAD 680 New Venture Management .....	3
MGMT 610 Development of Groups and Organizations.....	3
MGMT 620 Managing Organization Development and Change .....	3
MKTG 630 Marketing Research and Decision Making .....	3
OPTM 610 Customer Focused Processes: Quality Management and Metrics .....	3
OPTM 630 Managing Projects for Competitive Advantage .....	3

**M.B.A. Electives – 6 hours**

All M.B.A. students who complete a 9 hour area of emphasis must also complete 6 hours of 600-level M.B.A. electives beyond the core and area of emphasis requirements. Three of the 6 hours must be taken outside the area of emphasis. Students may choose their electives from any 600-level M.B.A. courses not counting towards their core or area of emphasis requirements. Students completing a 12 - 15 hour area of emphasis must complete 0-3 hours of 600-level M.B.A. electives beyond the core and area of emphasis requirements and outside the area of emphasis.

**Distance M.B.A. Program**

The Graduate School of Business Administration offers M.B.A. students the opportunity to earn their degrees from a distance. This program consists of 36 hours of course work delivered through web-based materials and communication among students and faculty. Students may be required to take up to 4 courses of M.B.A. preparatory course work. For additional information on this program, please visit our web site at [www.uccs.edu/mba](http://www.uccs.edu/mba) or contact the M.B.A. Advising Office by phone at 1-800-990-8227, ext. 3408, or by e-mail at [mba@uccs.edu](mailto:mba@uccs.edu). The online application is available on our web site.

**Technology Requirements**

Access to a Pentium II or better computer with a minimum 56 KBPS modem or broadband, sound card, speakers, and web access – Internet Explorer 6.0 or higher (recommended) or Netscape Navigator 7.0 or higher.

Adobe Acrobat 6.0 or higher

MS Office Suite

**Course Requirements**

(All courses are offered on line.)

**M.B.A. Preparatory Courses**

BCOM 559 Professional Business Communication .....	3
BUAD 559 Macroeconomics for Managers .....	3
BUAD 569 Business, Government and Society .....	3
QUAN 559 Fundamentals of Business Statistics.....	3

**M.B.A. Core Courses (21 hours)**

ACCT 609 Contemporary Issues in Accounting.....	3
FNCE 609 Corporate Financial Management .....	3
INFS 609 Information Systems.....	3
MGMT 609 Leading and Managing in Changing Times .....	3
MKTG 609 Marketing Strategy .....	3
OPTM 609 Operations: Competing through Capabilities .....	3
BUAD 659 Strategic Management .....	3

Distance students may complete a General area of emphasis by choosing 15 hours of M.B.A. 600-level electives beyond the core courses. Students may also choose to complete an area of emphasis in Finance, International Business, Management, or Technology Management by completing 9 hours of course work in their area of emphasis and 6 hours of 600-level M.B.A. electives; they may select an emphasis in Information Systems by completing 9-12 hours of course work in the Information Systems emphasis and 3-6 hours of 600-level M.B.A. electives; they may select an emphasis in Project Management by completing 12 hours of course work in their area of emphasis and 3 hours of 600-level M.B.A. electives; or they may select an emphasis in Health Care Administration by completing 15 hours of course work in their area of emphasis. At least 3 hours of electives must be outside the chosen area of emphasis except for those in Health Care Administration.

**Elective Courses**

- INFS 659 E-commerce Practice .....3
- QUAN 619 Research Tools for Managers...3

**Finance Area of Emphasis – 9 hours**

All organizations, large and small, must effectively invest and manage their capital. The finance function is critical in both for-profit and not-for-profit organizations. Job opportunities exist for finance graduates in almost all industries including the financial services industry and positions within the finance area of corporations. Finance graduates manage capital for large organizations and their independent business units as well as small organizations.

**Complete the following courses:**

- FNCE 629 Investment Management and Analysis.....3
- FNCE 649 International Financial Management .....3
- FNCE 659 Managerial Economics and the Business Cycle .....3

**Health Care Administration Area of Emphasis – 15 hours**

The many changes in government laws and regulations, technology, society needs and insurance plans create a large need for administrative and business education for health care professionals.

- HCAD 619 Health Care Administration ..... 3
- HCAD 629 Health Care Policy..... 3
- HCAD 639 Health Care Ethics and Law ..... 3
- HCAD 649 Health Care Budget and Finance 3
- HCAD 659 Clinical Research Application .... 3

**Information Systems Area of Emphasis – 9-12 hours**

Since the use of information technology is pervasive, all business students need a solid foundation in information systems to enable them to acquire increasing levels of sophistication in computer use. The continuous advances in technology and methodology for developing management information systems and decision support systems make the field an exciting and challenging area. Information Systems students complete 9-12 hours in their area of emphasis.

(INFS 639 is a prerequisite course for INFS 649 and INFS 669 and may be replaced with an elective if prior programming courses or work experience is documented.)

- INFS 639 Principles of Programming.....3
- INFS 649 Development of Information Systems .....3
- INFS 669 Database Principles.....3
- INFS 689 Telecommunication and Networking Principles .....3

**International Business Area of Emphasis – 9 hours**

An emphasis in International Business will prepare students to excel in the International aspect of International Business. This field of study is becoming more relevant and important as the global economy expands.

- BUAD 699 Regional Business Environment: Europe ..... 3
- INTB 619 Managing in Global Markets ..... 3
- FNCE 649 International Financial Management ..... 3

**Management Area of Emphasis – 9 hours**

In today’s highly competitive global environment, organizations are increasingly placing a premium on managers and employees who know how to motivate and lead people. This area addresses these issues and other contemporary issues in management, including how to deal with rapid change, delivery of excellent customer service, cross-cultural communication, and management of technology and innovation. Employees who have both technical and management skills will be most likely to achieve successful careers and attain greater job mobility and security.

**Complete 3 of the following 4 courses:**

- BUAD 669 Managing Technology for Strategic Advantage .....3
- BUAD 679 World Class Service Management .....3
- MGMT 629 Managing Organizational Change.....3
- MGMT 639 Managing Human Resources for Competitive Advantage .....3

**Project Management Area of Emphasis – 12 hours**

Companies are turning to a project structure to manage the increasingly complex, cross-functional tasks present in today’s business climate. As the number of both “successful” and “unsuccessful” projects continues to grow, the impact of project management on an organization is more visible. Students completing this area of emphasis can expect to master traditional project management skills and be prepared to manage in complex multiple project environments with a global reach.

- OPTM 639 Managing Projects for Competitive Advantage .....3

(OPTM 639 is a prerequisite course for the Project Management area of emphasis.)

- OPTM 649 Organizational Skills for Project Management .....3
- OPTM 659 Project Estimation and Risk Management .....3
- OPTM 669 Bridging Strategy and Tactics in Project Management.....3

**Technology Management Area of Emphasis – 9 hours**

The development of technology continues to grow at an increasing rate both domestically and globally. Students completing this emphasis can expect to be prepared to function effectively in the many technology-based organizations in the business environment today. The technology management emphasis helps the student grasp and begin to master the complexities of managing both product technology or process technology.

- BUAD 649 Transforming Technology Organizations and Employees.....3
- BUAD 669 Managing Technology for Strategic Advantage .....3
- OPTM 639 Managing Projects for Competitive Advantage .....3

**Graduate Certificates**

Graduate certificates are available to students who have already completed a bachelor’s degree (not necessarily in a business field) at a regionally accredited institution and have demonstrated their admissibility to the graduate program. Certificates are also available to students with a graduate degree from any field. The application process will vary based on the student’s academic background. Students in the certificate program are subject to the same Standards of Performance as all admitted M.B.A. Students. For additional information or an application for the certificate program, please contact the M.B.A. advising office, or see the website: [www.uccs.edu/mba](http://www.uccs.edu/mba).

Graduate certificates consist of 12-15 hours of course work beyond any prerequisites. Certificates are offered in accounting, finance, health care administration, information systems, international business, management, marketing, operations and technology management, project management, services management, and technology management. Certificates are available both on campus and online, but all certificates may not be available in both formats.



## ***Graduate Academic Policies***

### **Access to M.B.A. Courses**

Students must be officially admitted to the M.B.A. program in order to register for graduate level courses.

Students who are officially admitted to other CU graduate programs may be eligible to register for M.B.A. courses. All course prerequisites must be met. Interested students should contact the M.B.A. advising office for more information.

### **Course Load**

The normal course load for full-time graduate students is 12-15 semester hours during the fall and spring semesters. The normal course load for part-time graduate students is 3-6 hours during the fall and spring semesters.

Students are limited to 15 credit hours for the Fall and the Spring semesters. Students are limited to 9 credit hours for the summer semester. Credit hours over these limits require an academic petition be approved. Concurrent enrollment in both campus and distance classes are subject to the same credit hour limits.

### **Grade Point Average**

Any grade below C (2.0) is not a passing grade for graduate students. A student may repeat a course once for which he or she has received a grade below C. Both the original grade and the grade for the repeated course count in the computation of the grade point average. Please see the Standards of Performance - Graduate section for more information.

### **M.B.A. Completion Timeframe**

Candidates for the M.B.A. degree are expected to complete the degree within five years after they begin their first 600-level course. If course work is completed more than five years before the expected graduation date, the work will not be acceptable for the degree unless it is validated by the Graduate School of Business Administration dean.

### **Standards of Performance — Graduate**

No individual grade below a C will count towards M.B.A. requirements.

To be in good standing, students must have an overall grade point average of not less than 3.0 for all degree program course work attempted.

1. The academic performance of each student will be reviewed at the end of each semester. Upon the completion of nine semester hours, any student who has a grade point average less than 3.0 in M.B.A. course work will be placed on probation immediately. In general, students will not be placed on probation until a minimum of nine semester hours has been completed.
2. After a student has been placed on probation, the student has a maximum of one calendar year to raise his or her grade point average to 3.0. Courses taken to raise the cumulative grade point average must be applicable to the degree, and must be taken in the three semesters (including summer) immediately following the semester in which the cumulative grade point average fell below 3.0. Failure to raise the cumulative grade point average to 3.0 in the time period outlined will result in immediate suspension.
3. While on academic probation, failure to demonstrate satisfactory academic progress towards a M.B.A. degree, may result in academic suspension.
4. In the event a student attains probationary status more than one time, the same time limits shall apply.
5. A suspended M.B.A. student is eligible to petition the dean for readmission after one calendar year.

### **Transfer Policy**

A maximum of 6 semester hours of appropriate coursework from another AACSB graduate program may be considered for transfer to the degree program.

### ***M.B.A. Academic Advising***

Each student must meet with an M.B.A. advisor during the student's first term in residence to prepare a degree plan. Distance M.B.A. students will have a degree plan mailed to them which must be signed and returned to the M.B.A. advising office. Each degree plan requires the approval of an M.B.A. advisor and the dean. The preparatory courses which the student will complete (if any), and the student's area of emphasis will be discussed at that time.

Graduate School of Business  
Administration  
Dwire Hall 179  
1420 Austin Bluffs Parkway  
Colorado Springs, CO 80918

(719) 262-3408  
1-800-990-8227, ext 3408  
Fax: (719) 262-3100  
mba@uccs.edu



**Mark Malone, Interim Dean**

**Columbine Hall, room 3023**

**Telephone: (719) 262-4996**

**Fax: (719) 262-4110**

**[web.uccs.edu/education](http://web.uccs.edu/education)**

The College of Education (COE) professional education programs are accredited by the North Central Association of Colleges and Secondary Schools, the National Council for the Accreditation of Teacher Education (NCATE), the Colorado Department of Education (CDE), and the Colorado Commission on Higher Education (CCHE), and the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The COE offers the following programs in professional education:

- **Teacher licensure** - Initial preparation and recommendation for licensure at the undergraduate, post baccalaureate and graduate levels for elementary or secondary education. Students participating at the graduate level may earn a Master of Arts degree in Curriculum and Instruction with additional coursework.
- **Special Education Teacher licensure** – Initial preparation and recommendation for licensure at the undergraduate or graduate level. Students participating at the graduate level may earn a Master of Arts degree in Special Education.
- **Counseling** – Licensure preparation at the graduate level for school counseling or community counseling. Students completing the counseling program earn a Master of Arts degree in Counseling and Human Services. Additional program areas not leading to licensure are Student Affairs in Higher Education and Counseling and Leadership.
- **Educational Leadership** – Preparation and recommendation for licensure for the principalship at the graduate level. Students participating in the leadership program may earn a Master of Arts degree in Curriculum and Instruction with an emphasis in Leadership.
- **English as a Second Language** – Preparation and recommendation

for licensure at the undergraduate and graduate levels. Students participating at the graduate level may earn a Master of Arts degree in Curriculum and Instruction with additional coursework.

- **Reading** – Professional endorsement at the graduate level. Students participating in the Reading endorsement program may earn a Master of Arts degree in Curriculum and Instruction with an emphasis in Reading.
- **Development of additional expertise** – Teachers may earn a Master of Arts degree in Curriculum and Instruction in the following areas of emphasis: General Curriculum and Instruction (C&I), English as a Second Language (ESL), Leadership, Reading, and Science Education.

### Faculty

Professors: Margaret Bacon, David Fenell, Nadyne Guzman, Mark Malone, Barbara Swaby; Associate Professors: Randall De Pry, Beverly Snyder, Martha Venn; Assistant Professors: Julie Armentrout, Michael Brunn, Dick Carpenter, Elaine Cheesman, Lindy Crawford, Clint Fisher, Catherine Kelly, Susan Lloyd, Jayamala Madathil, Rhonda Williams; Instructors: Rob Danin, Kimberly Frazier, Laura Huber Marshall Dallas Strawn.

### Teacher Education Programs

The bulletin that governs a student's graduation requirements is the one in effect at the time of a student's most recent admission into the college of the student's degree program.

### Licensure and Endorsement Programs

#### General Licensure Requirements

All students in initial teacher education programs must pass specific required tests prior to licensure. Elementary, secondary, and special education licensure candidates must pass the PRAXIS II Content Test prior to student teaching. Special Education licensure candidates must also pass appropriate PLACE tests. Request specific information from the COE.

The Licensing Act of 1991 requires the completion of a background check. All students admitted into licensure programs must pass a background check as a condition of admission. Request specific information from the COE.

### Provisional Licensure

All teachers initially licensed in Colorado first receive a provisional license. Provisional licensure through the Teacher Education Program (TEP), elementary or secondary, requires two semesters of study during the professional year plus one to four courses during the prior summer session for Elementary and two to four courses for Secondary and additional course work before the professional year. TEP and Special Education Licensure Program (SELP) coursework for undergraduates is included as a part of a four-year degree program in the College of Letters, Arts, and Sciences (LAS), or may be pursued after a bachelor of arts degree has been earned in a liberal arts program. The program is a one year program and requires a bachelor's degree to be accepted. The Alternative Licensure Program provides training for initial licensure for secondary only. Provisional Principal Licensure and Administrative Licensure are provided as a graduate program.

### Additional Endorsement

Certified/Licensed teachers seeking an additional teaching area endorsement to an existing credential should see a TEP or ESL adviser to determine the requirements. Special programs can be developed to meet the requirements. The appropriate area of the PRAXIS II Content Test is required. Spanish and Special Education will take the appropriate PLACE test. ESL may be required to pass a competency examination in a foreign language.

### Changes of Program Requirements

Program requirements may change without notification due to changes in licensure standards or state statutes.

### Teacher Education Program (TEP)

The Teacher Education Program leads to initial licensure in elementary teaching or secondary teaching in the fields of English, foreign language (Spanish), mathematics, science or social studies.

Students who wish to enter the TEP should request information from the COE office during the freshman year, if possible. Students planning on either elementary or secondary education must complete an undergraduate degree in the College of LAS as well as TEP. Students with undergraduate degrees from an accredited institution must meet similar requirements. Before applying to enter the program, students must attend a group-advising meeting for a full explanation of the nature of the program and the admission process.

Central features of the TEP are the integration of education courses with field experiences. The program requires students to have experiences with diverse populations and in diverse settings. The professional year preparation portion of the program is full-time, (fall and spring) consisting of 27 credit hours. Students participate in the professional year as a cohort group beginning the professional year with one course in the summer, completing the program the following spring semester. The 35-38 credit hours requirement consist of professional course work (foundations of education, educational psychology, curriculum, and methods) and field experiences (observations, co-teaching, and student teaching) in Professional Development Schools (PDS). Additional coursework may be required to meet all of the program requirements.

### **Course Requirements for Elementary Education Students**

The specific course requirements for elementary education students fall into three categories: (1) general education, (2) subject specialization, and (3) professional courses.

#### **General Education**

Students should see the LAS undergraduate requirements list for the roster of courses which will fulfill the requirements for the 12 hours in three of the areas of general education identified below.

1. Humanities: 13 credit hours
2. Social Sciences: 13 credit hours
3. Natural Sciences: 13 credit hours, including a laboratory experience
4. Mathematics: two courses in mathematics, MATH 301 and 302, are required. Students must receive a grade of at least a C in each course.

5. English Language: All students must complete English 131 – Composition I and English 141 – Composition II.

#### **Subject Specialization for Elementary Education Students**

To ensure that they have adequate background in the subjects they will teach in elementary school, undergraduate students interested in elementary education must complete a major in an academic subject area. Approved majors for elementary teachers are English, geography, history, biology, and Spanish. Students must meet LAS requirements. The LAS adviser will assist students in this process. Completion of a major does not meet all the teaching field requirements. Students must see the subject field advising sheets for the specific certification field requirements.

#### **Professional Courses**

Teacher Education courses required for an elementary emphasis are:

- SPED 300/500-3 Introduction to Special Education
- CURR 5701-3 Methods and Materials for Multicultural Education (Graduate students only)
- T ED 300/500-3 Contemporary American Education
- T ED 301-1-3 Early School Experience
- T ED 441/551-1 Children's Literature
- T ED 452/552-3 Educational Psychology
- T ED 460/560-3 School Experience
- T ED 457/557-3 Elementary Literacy Methods
- T ED 458/558-2 Curriculum and Instruction
- T ED 462/562-3 Elementary Reading Methods
- T ED 463/563-(8-12) Student Teaching Elementary
- T ED 464/564-3 Elementary Math Methods
- T ED 465/565-2 Elementary Science Methods
- T ED 466/566-1 Elementary Social Studies Methods

#### **Course Requirements for Secondary Education Students**

The specific course requirements for secondary education emphasis areas fall into three categories: (1) general education, (2) subject specialization, and (3) professional courses.

#### **General Education**

Students should see the LAS Undergraduate Requirement List and an advisor in the Student Success Center for the courses which will fulfill the

requirements for the 12 hours in three of the areas of general education identified below.

1. Humanities: 12-13 credit hours
2. Social Sciences: 12-13 credit hours
3. Natural Sciences: 12-13 credit hours
4. English Language: English 131-Composition I and English 141-Composition II
5. Quantitative: 3 credit hours

#### **Subject Specialization for Secondary Education Students**

Secondary students must complete a major in their field. This may be in an individual discipline (e.g. English, history, biology, physics, chemistry, Spanish, or mathematics).

Individual requirements for licensure in particular subject areas are available with either LAS or COE advisers. Completion of a major does not meet all the teaching field requirements. Students must see the subject field advising sheets for the specific certification field requirements.

#### **Professional Courses**

Teacher education courses required for secondary education majors are:

- SPED 300/500-3 Introduction to Special Education
- T ED 300/500-3 Contemporary American Education
- T ED 301-1-3 Early School Experience
- T ED 452/552-3 Educational Psychology
- T ED 480/580 ESL for Educators
- T ED 470/570-2-6 Field Experience
- T ED 471/571-1-3 Methods for Secondary Education
- T ED 472/572-3 Teaching Reading and Writing in the Content Area
- T ED 473/573-(8-12) Student Teaching

#### **Secondary Content Methods Courses:**

- T ED 491/591-3 Secondary English Methods
- T ED 492/592-3 Secondary Math Methods
- T ED 493/593-3 Secondary Science Methods
- T ED 494/594-3 Secondary Social Studies Methods
- T ED 495/595-3 Secondary Spanish Methods
- T ED 479/579-(3-4) Secondary Curriculum, Instruction, and Evaluation

#### **Teacher Education Student Teaching**

Students in the TEP complete field experiences and student teaching in an assigned Professional Development School (PDS). PDS are regular

elementary, middle, or high schools that are selected to work in partnership with the University to prepare teachers for licensure. Each PDS supports the development of student teachers through co-teaching, research and inquiry, and professional development for in-service teachers.

### **TEP Admission Requirements**

Admission to the TEP is a selective process. Students are admitted twice a year, in November and April.

### **Undergraduate Teacher Education Admission**

The undergraduate program has an admission process beyond the admission requirements of the University.

Attend undergraduate group advising session.

Undergraduate students apply to the TEP at two levels:

- First tier Introductory level
- Second tier Professional level

Prerequisites/requirements: Appropriate content courses for major and grade level in order to meet content requirements.

Complete the following core courses before applying to the first tier:

T ED 300 – 3 Contemporary American Education

T ED 301 – (1-3) Early School Experience Practicum

### **First Tier: Introductory Year Application Process and Criteria**

**Application dates: October 1 for spring admission; February 1 for summer admission; and May 1 for fall admission.**

Upper division status or consent of TEP Director

Appropriate major for content and level

SAT or ACT scores

Scholarship: GPA 2.5 or better in all course work

Completion of T ED 300-3

Experience: Completion of T ED 301 or 45 hours of early school experience

References: Two references from teacher(s) with whom applicant worked in T ED 301 or early school experience.

Background check with CDE

### **First Tier: Introductory Year required course work:**

T ED 452-3 Educational Psychology

SPED 300-3 Introduction to Special Education

### **Second Tier: Professional Year Criteria**

Career Goals Statement (describing motivation, interest, decision, and personal qualities)

Interview with COE team

Additional experience with children or youth

Additional reference (a minimum of 1, a maximum of 3)

Completion of or enrollment in all core courses:

SPED 300-2 Introduction to Special Education

T ED 452-2 Educational Psychology

Current GPA: 2.5 or better in all college course work

### **Second Tier: Professional Year**

**(set sequence of required courses from June to May)**

27 credit hours for Secondary; 31 credit hours for Elementary

Fall: Deadline to apply – October 1; Acceptance – November 1

Spring: Deadline to apply – February 1; Acceptance – April 1

PRAXIS II Content Test must be taken no later than the June test date prior to beginning TEP.

Additional testing requirements may need to be met. It is essential to keep in contact with the COE and the Student Success Center to learn what these requirements may be. All students admitted to the TEP at UCCS whether undergraduate or graduate must take the Academic Profile Test before beginning the Professional Year. Test dates are available in the COE.

All courses taken for completion of TEP and licensure must be completed with a grade of B- or better and the stated level of achievement on all levels of performance demonstration assessments.

### **Post-Baccalaureate and Graduate Program Admission**

Process:

- Attend Group Advising Session
- Individual transcript review and advising appointment
- Application
- Interview

### **Prerequisites/requirements:**

Appropriate courses for major and level in order to meet content requirements for licensure. A checklist will be completed by the appropriate TEP content advisor.

### **Admission dates:**

Fall: Deadline to apply – October 1; Acceptance – November 15

Spring: Deadline to apply – February 1; Acceptance – April 1

### **Post-Baccalaureate Selection Criteria:**

Academic Degree completed or nearly completed

GPA of 2.75 or better

Experience with children and youth (45 hours)

Recommendations (TEP)(minimum of 3, maximum of 5) and graduate school references (minimum of 2)

Career Goals Statement (describing motivation, interest, decision, and personal qualities)

Content area requirements met or timeline for completion before licensure (TEP Checklist)

Timeline for completion of prerequisites (TEP checklist)

Background check (CDE Educator Licensing)

### **Graduate Application and Recommendations**

Completion of the PRAXIS II Content Test and scores. If PRAXIS II Content Test has not been taken by application date the candidate must furnish a copy of the confirmation of Registration. Applicants should plan to take the PRAXIS II Content Test on the test dates in fall or spring prior to applying to the program. PRAXIS II Content Test must be passed prior to student teaching.

Completion of, enrollment in, or timeline for completion for all core courses:

T ED 300/500-3 Contemporary American Education

SPED 300/500-3 Introduction to Special Education

T ED 452/552-3 Educational Psychology

T ED 480/580 ESL for Educators

### **Extended Support Program (ESP) for First Year Teachers**

Although the initial preparation that TEP teachers receive from TEP is excellent, the challenges of the first year of teaching are considerable and may often extend beyond the ability of even the best first year teacher. The Extended Support Program (ESP) is a special program provided by The College of Education to assist first year TEP teachers who request assistance from the appropriate faculty. There is no cost to the TEP teacher, school, or district. ESP will provide the edge necessary to make the first year experience a more positive experience and provide a

better foundation for the future years of teaching. Students will be the ultimate beneficiaries of ESP.

### **Alternative Licensure Program (ALP)**

Students who wish to enter the secondary Alternative Licensure Program (ALP) should request information from the COE office. Students planning on secondary licensure must have completed an undergraduate degree. Before applying to enter the program, students should attend a group-advising meeting for a full explanation of the program and the admission process.

The professional preparation program in ALP is a twelve month program of three semesters: summer, fall, spring. Classes during the summers are held both during the day and evenings. Classes during the fall and spring semesters are held in the evenings and/or Saturdays. All of the classes consist of a combination of professional coursework, which includes foundations of education, educational psychology, curriculum and content methods, classroom management and instruction, and resident teaching. The program emphasizes a commitment to working with at-risk students. Secondary ALP requires 30 credit hours to complete the licensure portion of the program.

A feature of ALP is the option to obtain alternative licensure and to serve as a resident teacher/learner for an entire school year having full classroom responsibility with supervision and assistance by a support team from the University and the district. While the COE will help market ALP candidates, students must obtain their own resident teaching positions.

The ALP leads to provisional licensure. Coursework from the ALP may be used as a part of the Master of Arts in Curriculum and Instruction.

### **Alternative Licensure Program Admission Requirements**

Admission to the ALP program is a selective process. Students must submit completed applications by February 1 using the ALP application packet, which includes the standard graduate application process for the COE. A complete application includes records (transcripts) of all previous work, a career goals statement, references, and evidence of experience with children and youth. In addition, students must hold

at least an undergraduate degree and be able to meet CDE subject area review requirements. Individual interviews are scheduled for applicants during the spring semester.

Students who pursue the master's degree apply 33 credit hours from the ALP coursework. The degree involves six additional credit hours of Research Methods CURR 5001-3 and a research paper/project for three hours of credit.

Admission is based on a combination of the following factors:

1. Past academic record, including a GPA of 2.75.
2. Personal commitment and motivation for teaching, ability to adapt quickly to the school setting, and capability of completing a rigorous fast-paced program, as determined by an interview, the career goals statement, and the quality of the candidate's references.
3. Experiences with children and youth.
4. Individual interview with a team of professional educators.

### **ALP Secondary Education Program Requirements**

Students planning to work toward secondary teaching licensure (grades 7-12) in English, social studies, science, Spanish, or mathematics, must complete the following requirement: confirmation by the CDE after a transcript review as having the necessary knowledge of the subject matter to teach in the appropriate endorsement area (generally a major in the endorsement area). This content knowledge is validated by successful completion of the PRAXIS II Content Test or PLACE test (for Spanish).

### **ALP Secondary Education Professional Course Requirements**

Professional Courses – Secondary (33 credit hours):

- T ED 500-3 Introduction to Contemporary American Education
- T ED 552-3 Educational Psychology
- SPED 500-3 Introduction to Special Education
- CURR 5701-3 Methods and Materials for Multicultural Education
- CURR 5014-3 Instruction and Classroom Management Strategies I, Secondary
- CURR 5016-3 Instruction and Classroom Management Strategies II, Secondary
- CURR 5018-3 Resident Teaching and Seminar

- CURR 5020-3 Resident Teaching and Seminar
- CURR 5400-3 Reading and Writing in the Content Areas

### **Secondary Content Courses for specific area of endorsement:**

- CURR 5491-3 Secondary English Methods
- CURR 5492-3 Secondary Math Methods
- CURR 5493-3 Secondary Science Methods
- CURR 5494-3 Secondary Social Studies Methods
- CURR 5495-3 Secondary Spanish Methods

### **Additional coursework to complete the Master of Arts in Curriculum and Instruction:**

- LEAD 570-3 Introduction to Research and Statistics
- CURR 5090-3 Research Project

### **Special Education Programs**

The Special Education Program provide professional preparation for undergraduate and graduate students as special education teachers through exemplary teaching, scholarship, and community service for the purpose of increasing the quality of life for individuals with disabilities and those at risk for societal failure. The Special Education Program offers courses leading to licensure in special education. A non-licensure option is also available. Application packets are available from the COE. The Master of Arts degree in Special Education is also available (see Graduate Programs section.)

### **Undergraduate Special Education Licensure Program (SELP)**

The COE, in collaboration with the College of LAS has adopted a program of study that allows undergraduate teacher candidates to major in one of five content areas: biology, English, geography, history, or Spanish. Students who are accepted into the undergraduate special education program will choose their undergraduate major and complete degree-related coursework (80 credit hours), complete core coursework in special education (44 credit hours) in the generalist licensure endorsement. The undergraduate SELP allows all teacher candidates to complete a content major within LAS and the generalist licensure area in special education in four years (124 credit hours). The undergraduate special education core classes for the generalist are outlined below:

**Undergraduate SPED Tier Generalist Core Classes**

**Tier 1**

SPED 3001 Introduction to Special Education .....3  
 SPED 3002 Professional Seminar in Special Education .....3  
 SPED 3003 Classroom and Instructional Management .....3  
 SPED 3004 Self-Determination and Transition .....3  
 TED 352 Educational Psychology .....3

**Tier 2**

SPED 4010 Multisensory Structured Language Education .....3  
 SPED 4011 Assessment and Instructional Monitoring .....3  
 SPED 4012 Differentiated Learning .....3  
 SPED 4013 Direct Instruction Practicum ...3

**Tier 3**

SPED 4020 Significant Support Needs .....3  
 SPED 4021 Positive Behavioral Intervention and Supports .....3  
 SPED 4022 Consultation and Collaboration .....3

**Tier 4**

SPED 4030 Elementary/Secondary Internship .....3  
 SPED 4031 Elementary/Secondary Student Teaching .....4

**Total Credit hours 44**

**Special Education Student Teaching**

- 1. Student Teaching.** Students seeking licensure will participate in student teaching at the completion of their generalist licensure special education program. Students MUST complete one 16 week student teaching experience at either the elementary or secondary level. This placement may only be completed during fall or spring semester.
- 2. Internship.** Students seeking licensure will participate in an internship at the completion of their generalist licensure special education program. Students MUST complete the equivalent of a 16 week internship experience at the opposite level in which they did their student teaching (elementary or secondary level). This placement may be completed in summer session.
- 3. Paraprofessionals.** Students who are employed as special education paraprofessionals may complete their student teaching experience at their place of employment. The

special education teacher and principal must agree that opportunities are available to you to complete the course competencies with students in your classroom.

- 4. Students must** complete their student teaching and internship within a 50 mile radius of the UCCS main campus.

**Special Education Graduate Licensure Program (SELP)**

**Admission**

To enter the SELP graduate program:

Request a graduate application and information packet from the COE.

Schedule an appointment with a special education faculty member to develop a graduate plan.

**Application deadlines:**

Spring Semester-October 15;  
 Summer Semester-April 1; and  
 Fall Semester-June 15.

**Requirements**

Students who are accepted into the graduate special education program receive their Generalist licensure after completing 43 semester hours. They receive their Masters of Arts in Special Education when they have completed an additional 9 credit hours for a total of 52 credits. The graduate special education generalist core classes are outlined below:

**Graduate SPED Tier Generalist Core Classes**

**Tier 1**

SPED 5001 Introduction to Special Education .....3  
 SPED 5002 Professional Seminar in Special Education .....3  
 SPED 5003 Classroom and Instructional Management .....3  
 SPED 5004 Self-Determination and Transition .....3  
 TED 552 Educational Psychology .....3

**Tier 2**

SPED 5010 Multisensory Structured Language Education .....3  
 SPED 5011 Assessment and Instructional Monitoring .....3  
 SPED 5012 Differentiated Learning .....3  
 CURR 5410 Informal Diag./Remediation of Reading Difficulties .....3

**Tier 3**

SPED 5020 Significant Support Needs .....3  
 SPED 5021 Positive Behavioral Intervention and Supports .....3

SPED 5022 Consultation and Collaboration .....3

**Tier 4**

SPED 5030 Elementary/Secondary Internship .....3  
 SPED 5031 Elementary/Secondary Student Teaching .....4

**Total credit hours for licensure 43**

**Additional Masters Degree Requirements**

LEAD 570 Introduction to Research and Statistics .....3  
 SPED 5090 Applied Research Project .....3  
 SPED 5091 Current Topics in Special Education .....3

**Initial Licensure and MA in Special Education 52**

**Special Education Student Teaching**

- 1. Student Teaching.** Students seeking licensure will participate in student teaching at the completion of their generalist licensure special education program. Students MUST complete one 16 week student teaching experience at either the elementary or secondary level. This placement may only be completed during fall or spring semester.
- 2. On-the-Job (OJT) Student teaching.** Students who are employed as teachers and hold a current Temporary Teaching Endorsement (TTE) may complete the OJT 16-week student teaching experience. OJT teachers must work with special education students and be evaluated by a district special education supervisor.
- 3. Internship.** Students seeking licensure will participate in an internship at the completion of their generalist licensure special education program. Students MUST complete the equivalent of a 16 week internship experience at the opposite level in which they did their student teaching (elementary or secondary level). This placement may be completed in summer session. A student teacher who participated in the OJT student teaching option must do their internship in another educational setting. Paraprofessionals who do their student teaching at their place of employment must do their internship in another educational setting.
- 4. Paraprofessionals.** Students who are employed as special education



paraprofessionals may complete their student teaching experience at their place of employment. The special education teacher and principal must agree that opportunities are available to you to complete the course competencies with students in your classroom.

**5. Students must** complete their student teaching and internship within a 50 mile radius of the UCCS main campus.

### **Reading Endorsement**

The special education endorsement program in reading provides graduate preparation for state endorsement as K-12 reading teacher.

The program requires the completion of all master's degree requirements in Curriculum and Instruction with an emphasis in reading. Endorsement seekers must complete the PLACE exam in reading. The COE office should be contacted for information concerning application to this program. For specific course requirements, please see the reading endorsement in the Curriculum and Instruction section.

### **Principal Licensure/ Administrator Licensure**

The Curriculum of the Educational Leadership Program has been structured to ensure the appropriate theoretical and professional development of school leaders. The program is designed for individuals who seek Principal or Administrator Licensure through the CDE or for individuals who wish to serve as non-administrator leaders in the schools and school community. Specific eligibility requirements for licensure should be discussed with a faculty advisor prior to enrollment. The Educational Leadership Program's underlying philosophy is that quality instructional leaders, whether classroom teachers or administrators, are essential to effective schools.

The curriculum of the program has been aligned with the requirements of the CCHE, the Colorado standards for principal and administrator licensure, the NCATE Curriculum Guidelines, and the ELCC Professional Standards for School Leaders.

### **Principal Licensure**

Eligibility criteria for the Principal Licensure program are:

1. Eligibility for the MA in Curriculum

and Instruction with an emphasis in Educational Leadership;

2. Documented successful experience as a licensed professional in education;
3. Demonstrated motivation and involvement in leadership activities;
4. Field recommendations.

### **Administrator Licensure**

Eligibility criteria for the Administrator Licensure program are:

1. MA degree from an accredited institution;
2. Demonstrated motivation and involvement in leadership activities;
3. Field recommendations;
4. Completion of an approved Principal Licensure program.

Individual questions about these criteria should be discussed with a faculty advisor.

Principal licensure with an MA degree in Curriculum and Instruction requires 42 credit hours of coursework. Administrator Licensure requires nine credit hours beyond the Principal Licensure. Individual exceptions can be discussed for students with extended previous coursework.

## **Master of Arts — Curriculum and Instruction (C&I)**

The Curriculum and Instruction (C&I) Master of Arts degree is primarily designed for licensed, practicing teachers who desire to continue developing their professional expertise. The program is also open to students in the ALP or the master's level TEP, above, who may use selected coursework as part of their degree plan. The College offers a master of arts degree with five areas of emphasis including: General C&I Emphasis, English as a Second Language (ESL) Emphasis, Leadership Emphasis, Reading Emphasis, and Science Education Emphasis. A minimum of 30 credit hours of coursework is required for the degree. Some emphasis areas require more hours.

Most courses in this master's degree program emphasize the application of electronic technology in teaching. Students entering the program must be proficient in using electronic technology

in C&I. Students who do not have adequate skills in word processing, Internet access, e-mail, and making electronic presentations, etc. are advised to seek out remedial training before beginning the program. All students complete a core of work that asks them: (1) to examine educational issues from the perspective of their social context and (2) to become intelligent consumers of research and apply research to their instructional settings. To this end the degree requires these core courses:

LEAD 560 -3 Social Foundations of Education Trends

LEAD 570 -3 Introduction to Research & Statistics

CURR 5090-3 Research Project (Should be taken at the end of the degree program. Replaces comprehensive exams.)

### **General Curriculum and Instruction Emphasis**

The General C&I Emphasis is designed for students with broad interests in the field of education as opposed to those who wish to concentrate in a particular area of the curriculum. Students in this area of emphasis are required to take CURR 5002-3 (Issues, Strategies, and Models in Curriculum Design) to further their understanding of curricular design and models of teaching.

The selection of a cognate field allows students to concentrate their coursework in an area of instruction in which they wish to develop their expertise while allowing them to use electives from other areas of the school curriculum to pursue a broad array of interests.

### **MA Core Courses – 9 credit hours**

CURR 5002 - 3 credit hours

Cognate Fields - 9 credit hours

Students may choose their cognate field from the following areas: Counseling and Human Services, Leadership, Mathematics, Reading, Science Education, Special Education, Educational Technology, and English as a Second Language.

### **Electives – 9 credit hours**

The 9 credit hours of elective courses may come from either the COE or the College of LAS.

### **English as a Second Language (ESL)**

The Master of Arts program in English as a Second Language is designed primarily for teachers who wish to improve their effectiveness with English Language Learners or become leaders in the field

of ESL. The program is appropriate for teachers at all levels (K-12) who wish to learn more about applying contemporary ESL teaching strategies in their schools.

The ESL program requires a total of 30 credit hours of coursework. A thesis is required.

**Leadership**

The program requires 42 credit hours of coursework. Requirements for completion of the program include a prescribed portfolio (described in the student handbook) and a final research paper. The master's degree program is combined with the program for principal licensure.

**Reading**

The Graduate Reading Program at UCCS consists of 40 credit hours. Of these, 33 credits (11 courses) are core requirements and seven credits (2 courses) are practicum experiences. The complete course requirement list follows:

**Core Courses**

CURR 5401 Teaching Reading in the Elementary School .....	3
CURR 5410 Diagnosis and Remediation of Reading Difficulties .....	3
CURR 5400 Teaching & Writing in Content Areas .....	3
CURR 5412 The Reading Writing Connection .....	3
CURR 5420 Literature for Children and Adolescents .....	3
CURR 5413 Developing and Implementing Literacy Programs.....	3
CURR 5403 Introduction to Clinical Experiences .....	3
CURR 5701 Methods and Materials in ESL/Multicultural Education .....	3
CURR 5411 Psycholinguistics and Reading.....	3
CURR 5001 Introduction to Research and Statistics .....	3
CURR 5090 Research Project .....	3

**Total: 11 courses/ 33 credits**

**Required Practica**

CURR 5430/31 Reading Clinic Procedures: Supervised Practicum 1 .....	4
CURR 4532/33 Practicum 11: Field Based Practicum in Reading.....	3

**Total: 2 courses/ 7 credits**

The coursework culminates in a research project that investigates a specific question related to literacy, analyzes the relevant data, and comes to a conclusion that may be useful in the practical instruction of reading.

**Science Education Emphasis**

The Master of Arts program in Science Education is designed primarily for teachers who wish to improve their science teaching skills or become leaders in the field of science education. The program is appropriate for teachers at all levels (K-12) who wish to learn more about applying contemporary science teaching strategies in their schools.

The program is designed to provide classroom teachers with a sound background in current science education research, theory and practice. Emphasis is placed on utilization of inquiry strategies, manipulative activities, and science process skills as a basis for science instruction. Teachers completing this program will be prepared to: teach science in a self-contained setting, serve as science teachers for schools utilizing departmentalization, serve as a science resource teacher at the school or district level, or pursue an advanced degree in science education.

The Science Education program requires a total of 33 credit hours of coursework. A thesis option is available but not required. Coursework hours required include:

- 12 to 18 hours of science education (offered through the COE)
- 12 to 18 hours of other COE courses
- 0 to 6 hours of courses for the College of LAS (300 or level or above)

**Additional requirements:**

Core courses of the Curriculum and Instruction Degree: CURR 5000-3 (was SFND 500), CURR 5001-3 (was REM 501), and CURR 5090-3 (was CURR 587).

**Master of Arts — Special Education**

Students may earn the Master of Arts degree in Special Education after completing a minimum of 32 specified credit hours as outlined in their graduate plan. In the final course (SPED 550 Applied Research Project) students complete a field-based research project and present data to faculty and peers. Students must complete additional coursework as outlined on their graduate plan to be eligible for licensure.

**Master of Arts — Counseling and Human Services**

The primary objective of the graduate programs in Counseling and Human Services is to prepare counselors and other human services personnel to serve as competent agents of change in a globally diverse world. Four tracks are available for students in Counseling and Human Services. Track One is designed to prepare professionals for work as school counselors. Track Two is designed to prepare professionals for work in mental health centers, agencies, business and industry, and private practice. Track Three, Student Affairs in Higher Education, is designed for students who wish to work on a college campus in a variety of positions. Track Four, Leadership and Counseling, is offered in collaboration with the Air Force Academy for military personnel.

The Professional Core is a six course (18 credit hour) sequence lasting one full academic year (two semesters + summer). Students admitted to the program must commit to completing these courses in sequence beginning the summer semester of their first year in the program. Students are also required to complete a practicum of 100 clock hours and a two-semester internship of 600 clock hours in a school or agency.

**School Counseling**

The Department of Counseling and Human Services offers a program emphasis in School Counseling. The School Counseling Program meets the requirements of the CDE and is accredited by CACREP. In accordance with CACREP standards, the school counselor program requires the completion of 48 credit hours of appropriate academic credit.

School counselors are specifically credentialed professionals who work in school settings with students, parents, educators, and others within the community. They design and manage comprehensive developmental guidance programs to help students acquire skills in the social, personal, educational, and career development that are necessary for living in a multicultural society. School counselors assist students by employing interventions such as guiding and counseling students, individually or in small groups, by providing information through group guidance, by contributing



to the development of effective learning environments, by providing student advocacy, and by providing consultation with others.

The School Counselor Program is designed to prepare students to work in elementary, middle, or secondary levels. Students are endorsed in either elementary or secondary counseling depending on their career goals and through the appropriate selection of practicum and internship sites. School counseling graduates may meet the academic requirements for licensure as a professional counselor in Colorado.

### ***Community Counseling***

The Department of Counseling and Human Services also offers a Community Counseling Program. This program is designed to prepare graduate students to assume positions as counseling professionals in mental health centers, community agencies, business and industry, and in private practice. Students are prepared in the areas of human development, research and testing, professional ethics, career development, theories and practice of individual, group, and marriage and family counseling, conflict resolution, and the etiology of mental illness and dysfunctional behavior. They may provide professional services to individuals, couples, families, and groups for the purposes of treating psychopathology and promoting optimal mental health. Promotion and enhancement of healthy, self-actualizing, and satisfying life-styles are the primary goals of community counseling.

The Community Counseling Program is based on national training standards, is accredited by CACREP, and is designed to meet the academic requirements for licensure as a professional counselor in Colorado. To prepare Community Counselors for licensure a 48 credit hour training program is required.

Through the appropriate selection of course projects and field experiences, the students in the Community Counseling Program may develop specialization areas such as addictions counseling, reality therapy, play therapy, hypnotherapy, marriage and family counseling, or counseling in business and industry. Students with specialized interests should make these known to their adviser for inclusion in degree planning.

### ***Student Affairs in Higher Education***

The Student Affairs in Higher Education Program is offered to students who wish to work in a counseling or administrative capacity in higher education. This includes Admissions, Student Success, Financial Aid, the Counseling Center, Housing, and other areas. This 48 credit hour program may lead toward licensure as a professional counselor and requires a total of 700 hours of field experiences.

### ***Counseling and Leadership***

The Counseling and Leadership Program within the Department of Counseling and Human Services is designed to prepare active-duty military leaders to effectively apply counseling and leadership skills to their professional work settings. This 44 credit hour track does not lead to licensure as a professional counselor but offers a strong foundation in applying counseling skills to leadership roles and functions. It has the same core requirements as other students' programs and includes 400 hours of field experiences.

### ***Application Procedures***

The Department admits students only once each year for programs beginning in the summer semester. Admission to the Department of Counseling and Human Services is a selective process with limited enrollment in a day and evening cohort group. Complete applications must be submitted by February 28th for consideration.

#### **The application includes:**

1. Official transcripts of all previous academic work;
2. Career goals statement and self-evaluation;
3. Scores from the Miller Analogies Test (MAT) or the Graduate Record Exam (GRE);
4. Four letters of recommendation; and
5. An admissions interview and other admissions activities.

Applicants will be notified of the results of this review by April 15th each year.

### ***Admission Requirements***

#### **Graduate Programs**

An applicant to the Graduate School must:

1. Hold a baccalaureate degree from

a college or university of recognized standing and equivalent to the degree given at this University or have done work equivalent to that required for such a degree and have completed at least 96 credit hours of work that would be acceptable toward a corresponding degree at this University.

2. Show promise of ability to pursue satisfactorily advanced study and research, as reflected by previous scholastic records and other data.
3. Have an adequate preparation to enter graduate study in the field chosen.

#### **Specific Graduate Admission Requirements of the College of Education**

In addition to the general requirements, the student admitted to regular graduate standing in the COE must meet the following requirements.

1. Satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores. Special Education does not require GRE or MAT tests.
2. Attainment of an undergraduate GPA of 2.75 or higher on a 4.0 scale for regular admission. Occasionally students with an undergraduate grade point of 2.74 or below may be admitted provisionally if other factors warrant acceptance. These may include marked improvement in upper division work compared with lower division work, high GRE or MAT scores, excellent references from paid or volunteer work experiences relating to the area of proposed graduate study, and/or well articulated verbal and written statements of goals. A student who seeks admission but does not have an acceptable grade-point average may take graduate course work as an unclassified student to demonstrate ability to do graduate work. A maximum of 9 credits may apply toward the degree.
3. Preference will be given to students who have a sound program of undergraduate work in the liberal arts and in a teaching field, a valid teaching certificate, and teaching experience (with the exception of counseling students).
4. An interview with at least one faculty member prior to applying is required.



**Transfer Students**

Students transferring from accredited collegiate institutions must meet the same requirements as students entering teacher education. Formal application along with the required documentation must be made both to the University and to the COE within the stated deadlines.

College work more than seven years old may not count or may require updating, especially in the teaching field and in professional education.

Credits transferred from other institutions to the University of Colorado will be limited to the type and amount of credit given for similar work in the University of Colorado. A maximum of 10 credit hours of education credit may be transferred to the TEP. The TEP Director will determine transfer of education credit.

**Unclassified Students Graduate Programs**

Many persons professionally engaged in education feel the need to update their competence or are required to complete a specified amount of graduate study for certificate renewal, advancement in salary, change of assignment, or the like. If they are not interested in earning a graduate degree, they should apply to the Office of Admissions (not the COE) for admission as University unclassified students. Upon admission they may enroll, and after the term receive an official record of work completed. They may confer with COE faculty about courses in which to enroll. If unclassified students should decide at a later date to apply for graduate student status they should know that only 9 credit hours taken in unclassified student status may apply toward a graduate degree.

**Academic Policies**

**Transfer Credit**

Work already applied toward a master's degree received at another institution cannot be accepted for transfer toward a master's degree at the University of Colorado; extension work completed at another institution cannot be transferred; and correspondence work, except to make up deficiencies, is not recognized. Course work completed at another CU campus will most likely transfer.

All work accepted by transfer must come within the six-year time limit or be validated by special examination.

Credit will not be transferred until the

student has established, in the Graduate School of this University, a satisfactory record of at least one semester in residence. Such transfer will not reduce the residence requirement at this University, but it may reduce the amount of work to be done in formal courses.

Excess undergraduate credits from another institution may not be transferred to the Graduate School. Seniors in this University may, however, transfer a limited amount of advanced resident work (up to 9 credit hours) provided such work:

1. Is completed with distinction in the senior year at this University.
2. Comes within the six-year time limit.
3. Has not been applied toward another degree.
4. Is recommended for transfer by the department concerned and is approved by the dean of the Graduate School. To be eligible for courses to be considered for transfer, a student must have an overall B average in all courses taken at the University of Colorado in Graduate School.

**Special Sources of Credit**

**Transfer of Unclassified Student Credit**

A department may recommend to the graduate dean the acceptance of as much as 9 hours of credit toward the requirements for a master's degree for courses taken either as a student at another recognized graduate school, as an unclassified student at this University, or both.

**Extended Studies Coursework**

Students may take graduate courses through Extended Studies in the pursuit of graduate study if they obtain prior academic approval from the major department and the dean.

**Computer Literacy Requirements**

All students admitted into COE programs after January 1, 1983 must demonstrate proficiency in computer literacy prior to graduation or completion of certification.

**Access to Teacher Education Courses**

The following 300-level courses in teacher education may be taken by students who are at least at the sophomore level and are considering entering Teacher Education:

T ED 300-3 Contemporary American Education

T ED 940-(1-6) Independent Study

The following 500 level course in teacher education may be taken by students who are considering entering one of the graduate teacher education courses:

T ED 500-3 Contemporary American Education

All other T ED courses may be taken only by students who have been accepted into the TEP of the COE or who have received special permission from the TEP Director.

**Graduate Program Policies**

Please refer to the Graduate School section of this Bulletin for this information.

**Graduation Procedures**

Please contact the COE at the end of the semester prior to the intended semester of graduation for appropriate paper work. Failure to submit required graduation materials prior to the first day of classes in the semester of intended graduation may result in a delay of graduation.

**Course Fees**

Students enrolled the following courses within the College of Education will be charged course fees:

COUN 502 Lab & Practicum in Individual Counseling.....	\$20
COUN 530 Lab & Practicum in Professional Counseling .....	\$20
COUN 511 Lab - Group Coun Skills Devel .....	\$10
COUN 570 Internship in Sch. Coun.....	\$100
COUN 572 Internship in Comm. Coun....	\$100
CURR 4101/5101 Intro Micros in Education Lab .....	\$25
CURR 4130/5130 Multimedia Development .....	\$25
CURR 4140/5140 Graphics Design.....	\$25
CURR 5017 Sch.Res. & Tchg. Sem., Elem. ....	\$25
CURR 5018 Sch.Res. & Tchg. Sem., Sec. ....	\$25
CURR 5019 Teaching Seminar – Elem.....	\$25
CURR 5020 Teaching Seminar – Elem.....	\$25
CURR 5153 Authoring .....	\$25
CURR 5170 Intro to Technology in Education .....	\$25
CURR 5171 K-12 Web-based Educational Resources .....	\$25



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CURR 5172 Multimedia Development K-12 Education .....	\$25
CURR 5502 Developing Manipulative Materials for Science Teaching .....	\$10
CURR 5503 Integrating Reading and Science .....	\$10
CURR 5510 Science and Environmental Education for Gifted Students .....	\$10
CURR 5511 Teaching Energy and Environment .....	\$10
CURR 5512 Energy and Environmental Activities .....	\$10
CURR 5513 Activities for Teaching Earth Science .....	\$10
CURR 5514 Activities for Teaching Weather .....	\$10
CURR 5520 Activities for Teaching Physical Science .....	\$10
CURR 5521 Activities for Teaching Electricity and Magnetism .....	\$10
CURR 5530 Cutting-Edge Science for Cutting-Edge Teachers .....	\$10
CURR 5704 Practicum in ESL/Multicultural Education .....	\$100
LEAD 682 Practicum: The Principalship ..	\$100
LEAD 688 Practicum in Central Office Leadership & the Superintendency .....	\$100
SPED 410/510 Academic Assessment and Instruction .....	\$35
SPED 428/528 Self-Determination and Transition I .....	\$35
SPED 436/536 Student Teaching Elem.	\$100
SPED 437/537 Student Teaching Sec. ..	\$100
SPED 471/585 Practicum II.....	\$100
SPED 476/576 & 477/577 Student Teaching .....	\$100
CURR 5704 Practicum in ESL/Multicultural Education .....	\$100
SPED 481/581 Elem S.T. Mod. Aff. Cog. ....	\$100
SPED 482/582 Sec S.T. Mod. Aff. Cog. ....	\$100
T ED 374 Practicum in ESL/Multicultural Education .....	\$100
T ED 460/560 School Experience – Elem. ....	\$25
T ED 463/563 Student Teaching – Elem. ....	\$100
T ED 464/564 Elem. Math Methods.....	\$25
T ED 465/565 Elementary Science Methods.....	\$25
T ED 470/570 School Experience – Sec. ....	\$25
T ED 473/573 Student Teaching – Sec. ....	\$100

**NOTE:** Fees listed above are based on the best information available at the time of publication. Actual fees may differ.

# College of Engineering and Applied Science

**Jeremy Haefner, Dean**

**Engineering Building, room 201  
Telephone: (719) 262-3543**

**Fax: (719) 262-3542**

**[easweb.uccs.edu/](http://easweb.uccs.edu/)**

## **Vision**

To be an active and respected leader in the education, research and production community in the region.

## **Mission**

Support the needs of the region by providing unparalleled undergraduate and graduate engineering and applied science education and by engaging in research of international stature, which supports these needs.

## **Academic Programs**

### **Bachelor of Arts**

Mathematics

### **Bachelor of Science**

Computer Engineering  
Computer Science  
Electrical Engineering  
Mathematics  
Mechanical Engineering

### **Master of Science**

Applied Mathematics  
Computer Science  
Electrical Engineering  
Mechanical Engineering

### **Master of Engineering**

Software Engineering  
Information Assurance  
Engineering Management  
Space Operations (distance only)

### **Doctor of Philosophy**

Engineering

## **Engineering Advisory Council**

The College of Engineering and Applied Science (EAS) has an Engineering Advisory Council, which consists of leaders (Chief Executive Officers, Presidents, Engineering Managers, etc.) of many of the large electronics/computer/aerospace companies in the region. In addition, there are representatives from organizations such as Air Force Space Command, Economic Development Corporation, Air Force Academy and Chamber of Commerce. This Engineering Advisory Council works

closely with the Dean and faculty of the College to develop first-class programs to meet present and future needs of the region. The Council helps provide the financial and human resource support to the College. The Council also advises the College on areas of excellence to be developed, degree programs needed, courses needed, equipment available, joint research areas, and cooperative faculty and student programs.

## **Engineering and Applied Science**

Engineering is the application of scientific theories and resources of nature for the benefit of humanity. Mathematics provides the fundamental theories and basis for all of the sciences. Computer science provides the essential computational and process control tools for nearly every aspect of modern society. Computer engineering offers a mixture of half computer science and half electrical engineering. The disciplines of computer science, computer engineering, electrical engineering, and mechanical engineering all require a significant study in mathematics. Graduates of these four disciplines, along with those of mathematics work primarily in technical careers, either public or private, but some also become teachers, managers, or entrepreneurs with their own businesses.

## **Requisite Qualifications**

The prospective computer scientist, engineer or mathematician should appreciate mathematics and have a keen interest in science and its methods. The ability to express ideas in both written and verbal form is of primary importance. The ability to understand problems and produce creative and innovative solutions is also a necessary prerequisite. Personal qualities such as initiative, energy, willingness to take responsibility, reliability, honesty, good judgment, understanding diversity, the ability to work and cooperate with others, and to work through to the conclusion of an assignment are important. Obviously, the fundamentals of sound citizenship are necessary in any profession.

## **Employment**

Employment demand for computer scientists, computer engineers, electrical engineers, mechanical engineers, and

mathematicians is expected to grow faster than the average of all professions well into this century. Abundant opportunities will present themselves to graduates of these disciplines, in both public and private laboratories, in industry, and in commercial enterprises. Financial rewards to be earned compare favorably with those of other professions; however, no one should enter any profession solely for monetary rewards. Rather, the dominant consideration should be the opportunity to use a lifetime for the advancement of society and the consequent personal satisfaction and enjoyment.

## **Laboratory Facilities**

### **Computer Science**

The Computer Science Department laboratories provide students (of all majors) with access to the latest programs in support of their degrees. The well-equipped laboratories contain a wide variety of computing resources. The Software Development Laboratory contains 27 networked Windows XP Workstations. The Advanced Computing and UNIX Laboratory contains 30 Windows XP and 8 Linux workstations. The Graphics and Networks Laboratory contains several Silicon Graphics workstations and NT/Linux workstations. This laboratory supports research in graphics, computer communications networks and multimedia computing.

### **Electrical and Computer Engineering**

The Electrical and Computer Engineering Department has a wide variety of labs to enhance the learning of the undergraduate and graduate in his/her education and research. With state of the art technology, the students will get hands-on experience in many aspects of the Electrical and Computer Engineering Areas. The labs include: the Communications and Signal Processing Laboratory, Control-Systems Laboratory, Electronics Laboratory, Electromagnetics Laboratory, Microelectronics Research Laboratories, VLSI Circuit Design/ Embedded Systems Laboratory, and the Multi-purpose Laboratory. A short description of each lab follows.

### **The Communications and Signal Processing Laboratory (CSPL)**

provides a focus for sponsored and unsponsored research in communication

systems, communication theory, and signal processing. Research projects have included analyses, computer simulation, and hardware experimentation involving spread spectrum communications, space communications, and wireless mobile communications.

**The Control-Systems Laboratory (CSL)** comprises a number of student and research work centers. Each work center has at least one device to control, which includes Educational Control Products' (ECP) Magnetic Levitation and Control-Moment Gyroscope systems and a Rhino Robotics six-degree-of-freedom robotic arm. Each center has a full complement of test-and-measurement equipment.

**The Electronics Laboratory (ECL)** is used for instruction in basic circuits design, digital circuits design, microcomputer systems design, and electronic circuits design. The laboratory is equipped with personal computers, power supplies, function generators, oscilloscopes, logic analyzers, and other components needed to support required laboratories in the Electrical Engineering and Computer Engineering curriculum. This laboratory also houses stations for embedded systems design.

**The Electromagnetics Laboratory (EML)** supports programs in the areas of wave propagation, microwaves, antennas, and metrology. Undergraduate and graduate laboratory courses have been developed in the areas of microwaves, millimeter waves, and infrared (IR) diagnostic techniques to support the existing courses in electromagnetic theory. These laboratory facilities provide students with measurement techniques and skills in the radio frequency (RF), microwave, millimeter wave, and IR wavelength regions. The EML contains a large broadband, shielded microwave anechoic chamber.

**The Microelectronics Research Laboratories (MRL)** are a group of related laboratories supporting all aspects of microelectronics, including fundamental microelectronic device modeling and processing, integrated circuit design and fabrication. MRL links the efforts of the following associated laboratories: (1) Advanced Development Laboratory (Class 100 clean room), (2) Device Characterization and Analysis Laboratory, (3) VLSI Circuit Design Laboratory, and (4) Advanced Materials Laboratory for undergraduate and graduate students.

#### **The VLSI Circuit Design Laboratory (VLSI)**

is associated with MRL to provide support for all phases of integrated circuit design. The laboratory is equipped with computer-based engineering workstations with software for designing modern integrated circuits and digital computers. The Laboratory's design suite includes leading edge commercial and public-domain tools for schematic capture, analog and logic simulation, timing analysis and verification, behavior modeling and simulation, fault simulation, test generation, physical layout, design verification, logic synthesis, PLA design, and FPGA design.

The ECE Department has a multi-purpose engineering education classroom/laboratory equipped with computers to assist students in a wide variety of projects in different applications.

#### **Mathematics**

The Mathematics Department maintains exceptionally well-equipped laboratories containing a wide variety of computing resources. The Mathematics Hewlett-Packard Laboratory contains networked microcomputer systems, running a variety of mathematical computer software such as Maple and Scientific Notebook.

#### **Mechanical and Aerospace Engineering**

The Mechanical and Aerospace Engineering Department maintains a variety of essential labs to enhance the undergraduate and graduate in the education and research for each student, the Flight Dynamics and Control Laboratory.

#### **The Flight Dynamics and Control Laboratory (FDCL)**

is focused on support to aeronautics and the space program. Research projects and lab support involve both theoretical and applied investigations in flight dynamics, dynamic modeling, orbit mechanics, optimal flight guidance, space navigation and aerospace vehicle flight-control systems. Graduate and undergraduate students in all departments of the College may become involved in research programs funded by NASA, the U.S. Navy, and the Air Force. Topics of investigation range from spacecraft orbit and attitude determination to integrated flight and propulsion control for next-generation aircraft and launch vehicles. The facilities

include Hewlett-Packard 700-Series workstations and a networked cluster of Macintosh, Windows, and Windows NT workstations. A full complement of MATLAB-based CAD tools are available for dynamic-system analysis and control design, along with several state-of-the-art software packages for spacecraft mission analysis and non-linear programming.

#### **EAS Instructional Fee**

Effective Fall 2003, the College of EAS will no longer collect course fees and will instead collect a college-wide EAS instructional fee (EAS IF). This new EAS IF will allow greater flexibility, be more equitable, increase student services, be more efficient, and reduce costs.

As of Fall 2004, the fee will be as follows: \$10 per EAS credit hour with a maximum of \$120 per student per semester. This applies to all courses offered in the College of EAS with the exception of graduate thesis courses. There are no additional fees levied within the College.

The fee is non-refundable. The overall use of the fee is to assist the College in providing exceptionally high-quality instruction, including but not limited to:

1. Support for all instructional labs and smart classrooms managed by the College of EAS.
2. Support for the College IT network and servers.
3. College or departmental help centers, or instructional supplements provided by students for students, and student-run mentoring programs.
4. Support for career placement services that are specific to EAS, such as mock interviews with technology companies.

#### **Admission Requirements**

The bulletin that governs a student's graduation requirements is the one in effect at the time of a student's most recent admission into the college of the student's degree program.

The college seeks to identify applicants having a high probability of successful completion of their academic programs. Admission is based on evaluation of many criteria; among the most important are the general level of academic performance before admission to the college and other evidence of motivation, potential, scholarly ability, and accomplishment. These are indicated by trends in the student's record, by

College Board scores, by letters of recommendation from teachers and others qualified to evaluate the student, by accomplishments outside academic work, and by other relevant evidence.

### **Freshmen Admission Requirements**

In order to enroll, the student must meet the requirements of the College of Engineering and Applied Science and the University requirements described in the General Information section of this Bulletin. Students interested in Bachelor of Science and Bachelor of Arts Degrees with a GPA of 2.4 who rank in the upper 50th percentile of their high school graduating class and have test scores of ACT composite score of 20 or above or an SAT composite score of 1080 or above, may be admitted into the College. Students who rank in the upper 25th percentile of their high school graduating class and have an ACT composite score of 28 or above or an SAT composite score of 1230 or above are assured admission to the College.

Students should insure that they are taking the Minimum Academic Preparation Standards (MAPS) for Engineering and Applied Science, as outlined in the General Information Section. Beginning students in engineering, computer science, or mathematics must be prepared to start analytic geometry-calculus. No credit toward a degree will be given for algebra or trigonometry (however, courses will be offered to allow a student to make up deficiencies). In order to be prepared for the type of mathematics courses that will be taught, the student must be competent in the basic ideas and skills of ordinary algebra, geometry, and plane trigonometry. These include such topics as the fundamental operations with algebraic expressions, exponents and radicals, fractions, simple factoring, solution of linear and quadratic equations, graphical representation, simple systems of equations, complex numbers, the binomial theorem, arithmetic and geometric progressions, logarithms, the trigonometric functions and their use in triangle solving and simple applications, and the standard theorems of geometry. It is estimated that it will usually take seven semesters to cover this material adequately in high school. Freshman will be given a mathematics placement test during orientation to insure that they begin the correct mathematics course based on their abilities.

### **Engineering Prep Program**

The Engineering Prep Program is a preparatory program designed for students who do not meet the academic admissions requirements for the major or need additional math or science prerequisites. Students admitted into this program are admitted into the College so that faculty and staff from the College may monitor their progress as they learn to master the math/science fundamentals, which are the basis for success in engineering. Engineering Prep students are not, however, admitted into their selected major.

After these students have successfully completed appropriate background courses of two calculus courses (Math 135 and Math 136) and one of the required basic science courses (PES 111 or CHEM 103), and have the appropriate GPA, they may initiate a request for acceptance into their major. If a student has completed the appropriate courses and has a cumulative CU GPA of 2.5 or above, the student will be transferred into their requested major. If a student has a cumulative CU GPA of 2.0 to 2.5, approval of the department chair of the major is required before a student will be allowed into the major. To transfer into the major, students need to contact the Engineering Advisor at (719) 262-3427 or stop in the Student Help Center, 2nd Floor Main Hall to fill out the Transfer Form.

### **Former Students**

If students are returning after being gone for more than one year, they must contact Admissions and Records to reactivate their application to the University and the College. If students have been gone for more than five years, a full reapplication to the University is required. If a student, after being gone for any length of time, is transferring in 12 or more credits from another school, a full reapplication to the University is required.

### **Unclassified Students**

Persons who have been admitted to the university in the category of unclassified students may be permitted to register for courses in the College of Engineering and Applied Science upon approval subject to the availability of space in classes. Unclassified students should be aware of the College of Engineering and Applied Science rule that at least the last 30 semester hours must be earned in degree status in the College of Engineering and Applied Science in order to apply toward an engineering degree.

A maximum of 12 semester hours of credit earned while in unclassified student status may be carried toward an undergraduate degree at the University of Colorado. High school concurrent students may exceed this 12 hour rule for unclassified students.

### **Intra-University Transfer Students**

Students from other colleges at UCCS may transfer into the College of Engineering and Applied Science. Students transferring into the College must have completed at least 2 full semesters at UCCS and have a cumulative CU GPA of at least 2.5 (with preference that at least Calculus I is completed). Students with cumulative GPA between 2.0 and 2.5 will require department chair approval before being admitted into their major.

### **Transfer Students**

#### **Students Planning to Transfer to UCCS**

Students transferring from other accredited collegiate institutions will be considered for admission if they meet the requirements outlined in the General Information section of this bulletin or the freshman requirements for entering the College of Engineering and Applied Science. The student should understand that engineering degree requirements differ from one campus to another; from course selection to the number of credit hours required for the degree. To ensure the maximum acceptance of credit toward degree requirements and minimize the length of time required to complete the degree, the student planning to transfer to UCCS should contact the Engineer Advisor (719-262-3427) as soon as possible to minimize classes that would not apply to an engineering degree.

#### **Students Planning to Transfer to Another School for Their Degree**

Students planning to transfer to another university should contact the gaining major department at the university as soon as possible to decide on what classes to take at UCCS to minimize classes that would not apply in the transfer. Generally, an intercampus transfer should be accomplished at the end of the first year, with some course selection coordination required between the student and the degree granting major department during that year. With increased course selection coordination, some students may be able to delay their

transfer until the middle or end of the sophomore year. Beyond that point, the student is most likely to lose extensive course credit and time in completing degree requirements. To assist the prospective intercampus transfer student in contacting a faculty or staff advisor in the gaining major department, the following list is provided.

**UCCS Campus**

For undergraduate programs, SS Help Center, 2nd Fl. Main Hall, (719) 262-3260

**For graduate programs:**

Mathematics, Engr Bldg Rm. 274, (719) 262-3311

Computer Science, Engr Bldg Rm. 199, (719) 262-3325

Electrical & Computer Engr, Engr Bldg Rm. 299, (719) 262-3351

Mechanical and Aerospace Engr, Bldg 1867 University Office Park, Rm. 200, (719) 262-3243

**For the other University of Colorado Engineering related programs, contact:**

University of Colorado Boulder  
Campus Dean's Office, EC AD 1-01  
(303) 492-5071

Aerospace Engineering Sciences, EC OT 6-16, (303) 492-6417

Applied Mathematics, EC OT 2-06, (303) 492-4668

Civil, Eng. and Arch. Engineering, EC OT 4-21, (303) 492-4193

Chemical Engineering, EC CH 1-43, (303) 492-7471

Computer Science, EC OT 7-08, (303) 492-7514

Electrical Engineering and Electrical & Computer Engineering, EC EE 0-02, (303) 492-7327

Engineering Physics, DUANE E-032, (303) 492-6952

Mechanical Engineering, EC ME 1-19, (303) 492-7151

**University of Colorado Denver Campus**

Dean's Office, NC Bldg Rm. 3024, (303) 556-2870

Applied Mathematics, UCD Bldg Rm. 540, (303) 556-4276

Civil Engineering, NC Bldg Rm. 3027, (303) 556-2871

Computer Science, NC Bldg Rm. 2605, (303) 556-4314

Electrical Engineering, NC Bldg Rm. 2615, (303) 556-2872

Mechanical Engineering, NC Bldg Rm. 3502, (303) 556-8516

The College of Engineering and Applied Science has developed a series of courses at the freshman and sophomore level, which meet the requirements for some engineering disciplines at most accredited universities throughout the country. Our advising will follow these generally accepted guidelines. Since curricula will vary slightly from time to time and place to place, you should check with the college/university to which you plan to transfer to verify that the two-year program suggested here would transfer in its entirety.

**Transfer Programs**

**Chemical Engineering (Sample Program)**

**Freshman Year**

**Fall Semester (18 semester hours)**

Math 135 Calculus I .....	4
Chem 103 Gen. Chem I .....	5
CS 115 Principles of Computer Science ....	3
Soc/Hum .....	3
Engl 131 Engl. Comp. ....	3

**Spring Semester (17 semester hours)**

Math 136 Calculus II .....	4
Chem 106 Gen. Chem. II .....	5
PES 111 Gen. Physics I .....	4
PES 115 Physics I Lab. ....	1
Soc/Hum .....	3

**Sophomore Year**

**Fall Semester (17 semester hours)**

Math 235 Calculus III .....	4
Chem 331 Organic Chem I .....	3
Chem 333 Org. Chem. Lab. I .....	2
PES 112 Gen. Physics II .....	4
PES 115 Physics II Lab. ....	1
Soc/Hum .....	3

**Spring Semester (17 semester hours)**

Math 313 Lin. Algebra .....	3
Math 340 Diff. Equations .....	3
Chem 332 Organic Chem II .....	3
Chem 334 Org. Chem. Lab. II .....	2
Soc/Hum .....	3
Soc/Hum .....	3

**Civil, Architectural, Environmental (Sample Program)**

**Freshman Year**

**Fall Semester (18 semester hours)**

Math 135 Calculus I .....	4
Chem 103 Gen. Chem. I .....	5
MAE 2501 Comp. Aid. Drawing and Fab. ....	3
ENGL 131 English Comp. ....	3
Soc/Hum.....	3

**Spring Semester (18 semester hours)**

Math 136 Calculus II .....	4
PES 111 Gen. Physics I .....	4

PES 115 Physics I Lab. ....	1
CS 115 Principles of Computer Science .....	3
Soc/Hum .....	3
Soc/Hum .....	3

**Sophomore Year**

**Fall Semester (17 semester hours)**

Math 235 Calculus III .....	4
PES 112 Gen. Physics II .....	4
MAE 2101 Statistics .....	3
ENGR 342 Engineering Economy .....	3
ECE 2210 Circuit Analysis I .....	3

**Spring Semester (18 semester hours)**

Math 313 Lin. Algebra .....	3
Math 340 Diff. Equations .....	3
MAE 2102 Dynamics .....	3
MAE 3201 Strength of Materials .....	3
Soc/Hum .....	3
Soc/Hum .....	3

**Project Lead the Way**

UCCS is the Colorado Affiliate University for Project Lead the Way (PLTW), a national pre-engineering curriculum geared for middle and high school students. The College of Engineering and Applied Science supports Project Lead the Way by providing high school and middle school teacher training and support and by offering graduate continuing education credit for PLTW teachers.

The College of Engineering and Applied Science also grants college credit for high school students enrolled in PLTW courses from certified high schools. UCCS transcribed credits can be earned for three PLTW courses offered by the College of EAS: Principles of Engineering, Introduction to Engineering Design and Digital Electronics. High school students must complete the PLTW course, score 80 (based on a scale of 100) or better on the end-of-course college credit exam and register for the UCCS credit the semester immediately following the high school course. Up to 5 credits (two courses) are direct course replacements toward a BS degree from UCCS in:

- Computer Engineering (Principles of Engineering & Digital Electronics)
- Electrical Engineering (Principles of Engineering & Digital Electronics)
- Mechanical Engineering (Principles of Engineering & Intro to Engineering Design)

Additional credits will count as general credits toward a degree from the college. For further information contact the PLTW office at 719-262-3184.

## Graduate Programs

Every prospective graduate student should consult the graduate student advisor in the respective department at the College of Engineering and Applied Science at UCCS prior to submitting an application for admission to the Graduate School. Students wishing to take graduate courses without formally enrolling as graduate students may enroll in the unclassified student category described in the General Information section of this bulletin.

### Guaranteed Early Admission

Students who are seniors in any of the undergraduate programs in the College of Engineering and Applied Science at UCCS may be eligible for guaranteed and simplified admission to the graduate programs. Contact the appropriate graduate degree program director for more details.

### Fast Track Admission Process for Recent Graduates

Students who graduated within the past 4 years with a degree from the College of Engineering and Applied Science at UCCS are eligible for fast track admission process. Contact the appropriate graduate degree program director for more details.

### Normal Admission

Students having an overall undergraduate G.P.A. of 3.0 or better (on a scale of 4.0) in all college-level academic work attempted are normally admitted to regular degree status.

### Provisional Admission — Committee Review

Students with a G.P.A. between 2.75 and 3.0 and with strong prospects for success at the graduate level may be admitted to provisional degree status upon the recommendation of the Graduate Committee and the concurrence of the UCCS Graduate School. In special cases, with a G.P.A. of less than 2.75, the student may be accepted provisionally by taking the G.R.E. and earning acceptable scores. Provisional acceptance requires the student to complete a minimum of 9 hours of graduate course work applied to the program with a G.P.A. of 3.0 or better. Students with an undergraduate G.P.A. below 2.5 should take remedial work to raise their G.P.A. to at least 2.5.

## Doctor of Philosophy in Engineering

The College of Engineering and Applied Science offers a Ph.D. in Engineering degree. The degree has its root in the successful Ph.D. program in Electrical Engineering offered in the College, and allows a broad range of research areas including Engineering (Electrical, Mechanical, and Computer Engineering), Science (Computer Science), and Mathematics (Applied Mathematics and Computational Mathematics). The interdisciplinary nature of this program enables our students to devise programs of study that better suit their interests and needs.

For general information about this program students are encouraged to contact the College Dean's office at 719-262-3543 or by email at dean@eas.uccs.edu.

Students who are interested in research areas with an emphasis in computer science, and would like to pursue the Ph.D. in Engineering degree should contact the Department of Computer Science at 719-262-3544.

Students who are interested in research areas with an emphasis in electrical engineering, and would like to pursue the Ph.D. in Engineering degree should contact the Department of Electrical and Computer Engineering at 719-262-3351.

Students who are interested in research areas with an emphasis in applied mathematics, and would like to pursue the Ph.D. in Engineering degree should contact the Department of Mathematics at 719-262-3311.

Students who are interested in research areas with an emphasis in mechanical and aerospace engineering, and would like to pursue the Ph.D. in Engineering degree should contact the Department of Mechanical and Aerospace Engineering at 719-262-3243.

## Academic Policies

### Undergraduate Course Load Policies

#### Full-Time Students and Overload Approvals

Students should register for the regular course load as outlined by their advisor. Students may register for 18 hours or less without approval. Permission to take more than 18 semester hours may be granted only after approval, using an

Overload Approval Form, submitted to the Engineering Advisor (for 19-21 hours) or, the chair of the appropriate department (for over 21 hours). The forms can be obtained from the Student Success Help Center, 2nd floor Main Hall.

### Employed Students Course Load Guidelines

Course load guidelines for students employed 10 or more hours per week are as follows:

Employed 40 or more hrs/wk	2 courses (max. 9 sem. hrs.)
Employed 30 to 39 hrs/wk.	3 courses (max. 12 sem. hrs.)
Employed 20 to 29 hrs/wk	4 courses (max. 15 sem. hrs.)
Employed 10 to 19 hrs/wk	5 courses (max. 18 sem. hrs.)

The above guidelines result from the experience of those who are both employed and in school. Students who wish to discuss a deviation from these guidelines may call the appropriate department office in the College of Engineering and Applied Science.

### Transfer Credit

After a prospective transfer student has made application and submitted transcripts to the UCCS, the Office of Admissions and Records issues a computer generated student transfer credit evaluation listing those courses that are acceptable by University standards for transfer. Once a student receives the transfer evaluations, an appointment should be made with the Engineering Advisor (262-3427) to conduct an evaluation of the transfer credits as applicable to a degree in the College of Engineering and Applied Science. If at any time a student wishes to have a course not previously accepted considered again for transfer, the student should consult with the Engineering Advisor.

UCCS has established articulation agreements with all two-year colleges in Colorado. For students from such a college, the transfer process to UCCS will be easier. It is, therefore, beneficial for students from two-year colleges in Colorado to check with their administration to see what courses will transfer.

### Special Sources of Credit

#### Advanced Placement

Advanced placement and college credit

may be granted on the basis of the College Entrance Examination Board's Advanced Placement Tests or by special examinations administered by the department involved. For students who have taken an advanced placement course in high school and who make scores of 4 or 5 in the CEEB's Advanced Placement Test, advanced placement as well as college credit will be granted (outlined in General Information, Advanced Placement Program, in the beginning of this Bulletin). Advanced placement credit for the freshman mathematics courses in calculus and differential equations will be limited to not more than 4 hours each.

**Work Experience**

It is the policy of the College of Engineering and Applied Science at UCCS, that any credits accrued in the official records of the student that were awarded for work experience will not apply as part of the 128 semester hours required for an engineering degree in the College.

**ROTC Credit**

Credit from courses completed in the ROTC program will not apply toward fulfillment of the requirements for degrees in Mechanical Engineering, Electrical Engineering and the BS in Mathematics. A maximum of 5 semester hours of work from the ROTC program may be applied toward the BS in Computer Science or Computer Engineering and all ROTC classes will count as free electives in the BA Mathematics Degree.

**Nontransferable Credits**

Students desiring to transfer credits from engineering technology programs should note that such credits are accepted only upon the submission of evidence that the work involved was fully equivalent to that offered in this college.

Some technology courses are given with titles and textbooks identical to those of some engineering courses. These may still not be equivalent to engineering courses because of emphasis that is nonmathematical or otherwise divergent.

In order to assist engineering technology students with transfer problems, the following guidelines have been established:

1. Courses on basic subjects such as mathematics, physics, literature, or history may be acceptable for direct

transfer of credit if they were taught as part of an accredited program for all students and were not specifically designated for technology students.

2. Students who have taken technology courses (courses with technology designations) that may be valid equivalents for engineering courses have these options:
  - a. They may petition the department head concerned to waive the course. The requirement for a course can be waived if a student demonstrates that by previous course work, individual study, or work experience he has acquired the background and training normally provided by the course. No credit is given toward graduation for a waived course, but a strong student may benefit from the waiver by being able to include more advanced work later in his or her curriculum. Other students may profit by taking the course at this college instead and thus establishing a fully sound basis for what follows.
  - b. Credit for a course may be given if the course work was done at an accredited institution of higher education. The University of Colorado department involved may recommend that credit be transferred to count toward the requirements for a related course in its curriculum. Credit cannot be given for vocational technical or remedial courses under rules of the University. (See general section on transfer of college-level credit.)
  - c. They may seek credit for the course by examination. See Advanced Placement and College Level (CLEP) Credit.

**Common EAS Core**

The College of Engineering and Applied Science has implemented a common EAS Core for entering freshmen students. This is a set of courses in English, science, mathematics, the humanities, and social sciences that count towards all undergraduate degrees offered by the College. Though some students declare a major upon acceptance into the College, others may delay the selection of a major. The curriculum of the Common EAS Core provides the students with the necessary foundation for pursuing their education career in the College and at the same time allows a change of major within the College to occur during the freshman year with minimum loss of credit or delay in graduation. The

Common EAS Core makes up for 25 of the 32 semester credit hours typically taken by a full time freshman. For the selection of the remainder 7 credit hours, students should consult their college advisors.

The Common EAS Core consists of the following courses:

Course/Title	Credit
Math 135 Calculus I.....	4
Math 136 Calculus II.....	4
PES 111 General Physics I.....	4
PES 112 General Physics II.....	4
English 131 Composition I .....	3
Humanities/Social Science electives .....	6

**General Requirements for Graduation**

**Bachelor's Degree**

To be eligible to graduate with one of the bachelor's degrees in the College of Engineering and Applied Science, a student must meet the following minimum requirements:

1. Be admitted into the degree major at least 30 credit hours prior to graduation
2. Have at least a 2.0 CU cumulative GPA for graduation
3. Complete the Writing Competency as outlined in the General Information Section of this Bulletin
4. Satisfactorily complete the MAPS deficiencies before graduation (the requirement is 2 high school years or 2 college semesters of a foreign language).
5. Satisfactorily complete the prescribed degree curriculum requirements as outlined by the department section later in this book.

It is the responsibility of students to be sure they have fulfilled all the requirements, by completing a graduation check in the Engineering Advising office the semester before they anticipate graduating. It is the responsibility of the student to keep the Engineering Advisor informed of any changes in the students' plans throughout the senior year. The department chair must approve deviations from departmental degree requirements, in advance by petition. Petition forms may be obtained at the Engineering Advising office.

**Graduate Degrees**

Refer to the appropriate College of Engineering and Applied Science degree programs.



## Advising

### Undergraduates

All undergraduate students are required to be advised EACH semester (except Summer semester) before enrolling in classes. Students will be advised by their respective departments or the Engineer Academic Advisor. Academic advising is available throughout the year in the Student Success Center, 2nd floor, Main Hall. If you do not know who your advisor is or would like advising, contact the Engineering Advising Office at (719) 262-3427, or for appointments, 262-3260.

### Graduate Students

Please refer to the appropriate degree program for information regarding academic advising.

## Academic Progress

To remain in good academic standing, undergraduate students must maintain a cumulative CU grade point average of 2.0 or better in hours taken. Students whose full-time semester's or cumulative GPA falls below 2.0 will be placed on probation for the next semester in which they are enrolled in the College of Engineering and Applied Science and will be notified by mail. If, after that semester, the semester or cumulative GPA is still below 2.0, the student will be suspended from the college. Graduate students should contact their appropriate department for proper academic progress standards.

## Scholastic Suspension

Students who have been suspended from the College of Engineering and Applied Science cannot register for courses at the University (except for summer sessions, correspondence courses or extended studies classes) unless the suspension has been lifted or they transfer to another college. Students who have been suspended by the College of Engineering and Applied Science may apply to transfer to another college within the University, and if approved take course in the new major. Students are responsible for knowing whether or not they are under a current suspension.

Students who have been suspended may apply for readmission during the second semester following the suspension (not including summer school) if they meet the following requirements:

1. They have brought their cumulative CU GPA up to 2.00 through summer

session, and/or correspondence work and/or

2. Satisfactorily completing, at another college or university, a minimum of 15 semester hours of work appropriate to an engineering curriculum

Suspended students must apply to have their suspension to be removed (after meeting the above requirements) to the Dean, Engineering and Applied Science. In addition, students may be required to reapply to the University.

Students who are in doubt about their standing with regard to scholastic deficiency are strongly urged to consult with the Engineering Advisor.

## Grading Policies

Consult the General Information section of this Bulletin for details and more information.

## Incomplete Courses

An incomplete may be given by the instructor (subject to approval by the appropriate department chair/EAS Dean) for circumstances beyond the student's control, such as a documented medical or personal emergency. When it is given, the student is informed in writing by the instructor of what the student is to do in order to remove the incomplete and when the tasks are to be completed. The instructor may assign only the IF grade. The student is expected to complete the course requirements, e.g., the final examination, term paper, etc, within the established deadline and not to retake the entire course. The grade will be converted automatically to a grade of F after one year unless the specified work is completed. The grade I/W may not be given.

## No-Credit Courses

Students who register NC (no credit) are expected to attend classes and take all examinations but receive no credit. In the College of Engineering and Applied Science, students may not register NC for a required course or change registration to NC in any course except by petition to the chair/dean. If the student does failing work, the chair/dean may request the Office of Admissions and Records to change the registration from NC to credit, whereupon the student will receive a grade of F. A course previously taken for NC may not be retaken for credit to apply toward an undergraduate or graduate degree awarded by the College of Engineering and Applied Science. Engineering courses completed

for NC by students not admitted to the College of Engineering and Applied Science may not be taken again for credit after transferring to the college.

## Pass/Fail Option

The primary purpose for offering courses in which undergraduates may be graded pass or fail (P/F) rather than A, B, C, D, or F is to encourage undergraduate students to broaden their educational experience by electing challenging courses without serious risk that their academic records might be jeopardized. Not more than one course per semester or summer session may be taken P/F. Courses which a student may elect to be taken P/F shall be designated by the major department. A student who has not designated a major field will not be allowed the P/F option. In the College of Engineering and Applied Science only social sciences/humanities courses at the 300 level or above may be taken P/F. The maximum number of P/F hours counting toward graduation shall not exceed 16 credit hours, including courses taken in the Honors Program under the program's P/F grading system. A transfer student may count toward graduation 1 credit hour of P/F courses for each 9 credit hours completed in the college.

## Intern Program

The College of Engineering and Applied Science offers an Intern/Co-op Program to assist students in finding positions related to their studies. The Intern Program assists in the placement of students in part-time positions while they are attending school, and the Co-op Program provides alternate semesters of work and study for students. The purpose of the program is to allow qualified students an opportunity to supplement their education with work experience in their major area of study.

To qualify as an intern/co-op applicant, a student must be enrolled in the College of Engineering and Applied Science and maintain a G.P.A. of at least 2.5 to qualify for the program.

Further information may be obtained by calling (719) 262-3347 or writing to: Intern/Co-op Program Coordinator, UCCS, College of Engineering and Applied Science, P.O. Box 7150, Colorado Springs, CO 80933-7150.

## Student Organizations

The College of Engineering and Applied

Science has encouraged the formation of a wide range of student organizations for those students interested in science, engineering and technology. There are organizations within the College that represent each discipline and advocate all forms of diversity. The student organizations are involved in arranging speakers/lectures, tours, community service projects, seminars, tutoring, mock interviews, competitions, forums, mentoring, field trips, recruitment, and demonstrations. The student organizations also provide support for the various College activities throughout the year.

For more information about any of these organizations, please contact the Office of Student Support at 262-3347.

**Asian Society of Engineers (ASE).**

ASE's mission is to promote the development of Asians/Pacific Islanders in engineering, science, and other professions to achieve educational excellence, economic opportunity and social equity.

**Association for Computing Machinery (ACM)**

Founded in 1947, ACM is the world's first educational and scientific computing society. It's membership includes over 80,000 computing professionals and students world-wide.

**American Institute of Aeronautics and Astronautics (AIAA).**

AIAA is the principal society and voice serving the aerospace profession. Its primary purpose is to advance the arts, sciences, and technology of aeronautics and astronautics and to foster and promote the professionalism of those engaged in these pursuits.

**American Society of Mechanical Engineers (ASME).**

ASME is the premier organization for promoting the art, science, and practice of mechanical engineering throughout the world.

**American Indian Science and Engineering Society (AISES).**

AISES is a national, nonprofit organization which nurtures building of community by bridging science and technology with traditional Native values.

**Colorado Alliance for Minority Participation (CO-AMP).**

This program is a collaborative effort by the universities in Colorado and is funded by the National Science Foundation (NSF). CO-AMP's primary goal is to increase the under-represented minority students in the sciences,

mathematics, engineering and technology to successfully complete their baccalaureate degrees by offering free tutoring, summer bridge programs, and summer research opportunities.

**Institute of Electrical and Electronics Engineers (IEEE).**

IEEE helps advance global prosperity by promoting the engineering process of creating, developing, integrating, sharing, and applying knowledge about electrical and information technologies and sciences for the benefit of humanity and the profession.

**Eta Kappa Nu (HKN), The Theta Chi Chapter.**

HKN is the International Honor Society for electrical engineers. Outstanding students are elected to HKN primarily from the junior and senior class. Eligibility depends on marked ability, scholarship, personal character, useful voluntary services, and distinguished accomplishments.

**National Society of Black Engineers (NSBE)**

NSBE's mission is to increase the number of culturally responsible African-American engineers who excel academically, succeed professionally and positively impact the community. NSBE is the largest student-managed organization in the country.

**Mathematics Association of America (MAA)/Math Club.**

MAA is the world's largest organization devoted to the interests of collegiate mathematics. A major emphasis of the MAA is the teaching of mathematics at the collegiate level, but anyone interested in mathematics is welcome to join.

**Students for the Exploration and Development of Space (SEDS).**

SEDS was founded in 1980 at MIT and Princeton and consists of an international group of high school, undergraduate, and graduate students from a diverse range of educational backgrounds who are working to promote space as a whole.

**Society of Automotive Engineers (SAE).**

The Society of Automotive Engineers is an international organization oriented towards designing, building, maintaining, and operating self-propelled vehicles for use on land or sea, in air or space. As a student club, they participate in various annual SAE Collegiate Design Competitions to design, build, and test the performance of a race-caliber vehicle. The competitions include all aspects of

a design project and incorporate aspects of all majors: design, construction, engineering and business analysis, and product marketing.

**Society of Hispanic Professional Engineers (SHPE).**

Founded in 1974, SHPE is a national not-for profit organization that promotes Hispanics in engineering, math and science. SHPE is committed to helping our nation to fill a growing need for engineers and scientists in this decade and beyond.

**Society of Women Engineers (SWE).**

SWE's mission is to stimulate women to achieve full potential in careers as engineers and leaders, to expand the image of the engineering profession as a positive force in improving the quality of life, and to demonstrate the value of diversity.

**University Amateur Radio Club (UARC).**

UARC is dedicated to fostering an interest in Amateur Radio among the students, staff, and faculty of UCCS. Club members often assist people interested in obtaining an Amateur Radio license for the first time or upgrading an existing license. UARC operates and maintains an Amateur Radio station for the enjoyment and education of club members. The club also provides a service to the community, especially in times of natural disaster.

**Department of Computer Science**

Engineering Building, Room 199  
(719) 262-3325 Fax: (719) 262-3369  
<http://cs.eas.uccs.edu/>  
E-mail: [csinfo@cs.uccs.edu](mailto:csinfo@cs.uccs.edu)

**Faculty**

Professors: Augusteijn, Boulton (El Pomar Chair of Computer Communications and Networking), Semwal and Shub; Associate Professors: Chow, Kalita, Pinson, Sebesta, and Wiener; Assistant Professors: Chamillard and Zhou

**Programs coordinated by the department:**

Minor in Computer Engineering  
Minor in Computer Science  
Bachelor of Science in Computer Engineering  
Bachelor of Science in Computer Science  
Software Engineering Certificate  
Master of Engineering in Information Assurance

Master of Engineering in Software Engineering

Master of Science in Computer Science

Ph.D. Program in Engineering, Computer Science concentration

Computer science encompasses a relatively new body of knowledge that treats both theoretical foundations and practical applications of computers. Since the 1950s, significant human, financial, and physical resources have been directed toward the design and development of both less expensive and more powerful computers. These efforts have resulted in a wide variety of computers ranging microcomputers costing a few hundred dollars to multi-million dollar parallel processors.

Computer science has applications in virtually every major field including banking, business administration and management, engineering, applied and pure mathematics, physics, chemistry, biology, word-processing, database management, simulation, numerical analysis, statistics, games, robotics, medicine, animation, automobile and aviation industry, personal communication and security

The application of digital computers in all phases of our lives has created many career opportunities. The job market for graduates having a degree in computer science is strong and supported by clear trends for continued growth.

The UCCS curriculum in computer science presented in this bulletin is modern and rigorous. The Department of Computer Science takes great pride in emphasizing quality teaching supported by modern computer facilities. The UCCS curriculum in computer science also requires a concentration of related courses chosen by the student. This requirement is intended to insure that the graduates of the program will have a base of knowledge embracing a field where computers are applied.

UCCS offers a complete four-year program of study leading to a B.S. degree in computer science. The undergraduate curriculum provides students with theoretical foundations and practical experience in both hardware and software aspects of computers. The curriculum in computer science is integrated with courses in the sciences and the humanities to offer an education that is broad, yet of sufficient depth and relevance to enhance student employment opportunities

upon graduation. As a degree program within a professional school of the University, the curriculum is based on the criterion that graduates are expected to function successfully in a professional employment environment immediately upon graduation.

The Departments of Computer Science and Electrical and Computer Engineering jointly offer a B.S. Degree in Computer Engineering. This program is described in detail in the Electrical and Computer Engineering section.

UCCS also offers a flexible minor in computer science. The minor provides students the ability to formally supplement their study in other fields with a rigorous computer science background that will enhance employment opportunities after graduation.

Students who do not intend to major or minor in computer science may take computer science courses to broaden their backgrounds and complement their degree curricula.

Introductory courses CS 100, 103, 104, 105, 106, and 107 are intended to make computer literacy and programming available to a broad class of students. CS115 and 145 are recommended for those who anticipate doing extensive computing in their student or professional careers.

**Accreditation**

The B.S.C.S. degree at UCCS is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: 410-347-7700.

***Bachelor of Science – Computer Science***

**Degree Requirements**

The degree requirements for the bachelor of science degree in Computer Science require completion of at least 128 hours, a minimum 2.0 average in all CS courses taken, and in all CS 400-level (or higher) courses taken, and in all CU courses taken, and completion of the Computer Science Major Field Assessment test. This test will be given on a Saturday morning about three weeks prior to the end of the fall and spring semesters. A student must have completed 110 credit hours before taking the exam. The courses for the degree are outlined as follows

**Mathematics (21 semester hours)**

MATH 135. Calculus I.....4  
 MATH 136. Calculus II.....4  
 MATH 215. Discrete Mathematics.....3  
 MATH 235. Calculus III.....4  
 MATH 313. Introduction to Linear Algebra.....3  
 MATH 381. Probability and Statistics.....3

**Science (14 semester hours)**

Physics: PES 111, 112, 115.....9  
 Remaining hours selected from classes below.....5  
 CHEM 103, 106; Biology: BIOL 110 and 111 or 115 and 116; GEOL 101 and 101L, 102 or additional physics courses that require PES 111 as a prerequisite.

**Computer Science Core (37 semester hours)**

CS 115. Principles of Computer Science....3  
 CS 145. Data Structures and Algorithms....3  
 CS 202. Programming in UNIX.....2  
 CS 206. Programming with C.....2  
 CS 216. Computer Organization and Assembly Language Programming.....3  
 CS 306. Object-Oriented Programming in C++.....3  
 CS 316. Concepts of Programming Languages.....3  
 CS 330. Software Engineering.....3  
 CS 410. Compiler Design I.....3  
 CS 420. Computer Architecture I.....3  
 CS 450. Operating Systems I.....3  
 CS 470. Computability, Automata, & Formal Languages.....3  
 CS 472. Design and Analysis of Algorithms.....3

**Computer Science Electives (9 semester hours)**

CS 401-489 or 502-599.....9

**Technical Electives (9 semester hours)**

- Select from following list:  
 Computer Science (300 level or above)  
 Electrical and Computer Engineering (2000 level or above, except ECE 2400)  
 Mathematics (300 level or above, except MATH 465) and all CS400 level or higher courses taken  
 Science (additional courses from the list above or courses with prerequisites from above list)  
 College of Business (300 level or above, except 301, 302 or 303)

**Humanities and Social Science (24 semester hours)**

CS 305. 1 credit hour, Social and Ethical Implications of Computing, REQUIRED.  
 The remaining 23 credit hours involve study in humanities, social sciences, arts, and other disciplines that serve to broaden the



background of the student.

Courses in the following departments and programs satisfy this requirement:

Anthropology (except courses on human biology and ecology), Art History, Communication, Economics, English (150 or above), Film, Foreign Culture Studies, Foreign Languages, History, Humanities, Interdepartmental Studies 101, Music (except university choir and private instruction courses), Philosophy, Political Science, Psychology, Religious studies, Sociology, and Women’s Studies. Students may also petition to include selected other courses in Interdepartmental Studies, Theater, or other departments.

**Communications Skills  
(6 semester hours)**

ENGL 131. Rhetoric & Writing I  
or ENGL 141. Rhetoric & Writing II .....3  
ENGL 309. Technical Writing and  
Presentation .....3

**Free Electives (8 semester hours)**

Any course that is a prerequisite course for a required course may not be counted as a free elective. A maximum of 3 credit hours of CS courses numbered less than CS 115 can be used as free electives provided they are taken prior to a CS course numbered 115 or greater. Six credit hours of 200-level CS courses may be taken as free electives. At most, 3 credit hours of free electives may be taken in a particular programming language. Students planning to later enter a graduate program in computer science or electrical engineering are advised to take at least 6 hours of CS or ECE electives at the 300 or 400 levels. Students who complete their ROTC programs and receive their commissions are allowed up to six semester hours of ROTC course work as free electives toward their computer science degree.

**Sample Schedule**

**Freshman Year**

**Fall Semester (16 semester hours)**  
CS 115. Principles of  
Computer Science .....3  
Math 135. Calculus I .....4  
Free Elective .....2  
ID 101 or other Humanities/  
Social Science .....3  
Engl 131. Composition I .....3

**Spring Semester (16 semester hours)**  
CS 145. Data Structures  
& Algorithms .....3  
Math 136. Calculus II .....4  
CS 206 Programming with C .....2  
PES 111. General Physics I .....4  
Humanities/Social Science Elective .....3

**Sophomore Year**

**Fall Semester (17 semester hours)**  
CS 202. Programming in UNIX .....2  
CS 216. Computer Organization &  
Assembly Language Programming .....3  
Math 235. Calculus III .....4

PES 115. General Physics Laboratory I .....1  
PES 112 General Physics II .....4  
ENGL 309. Technical Writing and  
Presentation .....3

**Spring Semester (17 semester hours)**  
CS 306. Object-Oriented Programming  
Using C++ .....3  
CS 316. Concepts of Programming  
Languages .....3  
Math 215. Discrete Mathematics .....3  
Science Elective  
(Chem 103 recommended) .....5  
Humanities/Social Science Elective .....3

**Junior Year**

**Fall Semester (18 semester hours)**  
CS 330. Software Engineering .....3  
CS 472. Design and Analysis of  
Algorithms .....3  
Technical Elective Course .....3  
Math 313. Introduction  
to Linear Algebra .....3  
Humanities/Social Science Electives .....4

**Spring Semester (16 semester hours)**  
CS 305. Social and Ethical  
Implication of Computing .....1  
CS 420. Computer Architecture I .....3  
CS 470. Computability, Automata and  
Formal Languages .....3  
Math 381. Probability and Statistics .....3  
CS Elective (CS400-599) .....3  
Humanities/Social Science Elective .....3

**Senior Year**

**Fall Semester (16 semester hours)**  
CS 450. Operating Systems I .....3  
CS Elective (CS400-599) .....3  
Technical Elective .....3  
Free Elective .....3  
Humanities/Social Science Elective .....4

**Spring Semester (15 semester hours)**  
CS 410. Compiler Design .....3  
CS Elective (CS400-599) .....3  
Technical Elective Course .....3  
Humanities/Social Science Elective .....3  
Free Elective .....3  
Total Credit Hours ..... 128

**Minor in Computer Science**

The minor in Computer Science requires at least 19 credit hours of course work and every course in the minor must be completed with a grade of C or better. The student will be responsible for any prerequisites to required courses. At most, 9 credit hours of transfer work may be applied to the minor. Minor courses are as follows:

CS 145. Data Structures and Algorithms  
CS 216. Computer Organization and

Assembly Language Programming

CS 202. Programming in UNIX

CS 206. Programming with C

Upper Division (9 hours minimum)  
selected from CS 300 or above courses

**Master of Science  
– Computer Science**

The Department of Computer Science offers a program leading to the Master of Science in Computer Science. Courses at the graduate level and the undergraduate courses required for admission to the graduate program are regularly offered in the late afternoon or evening to enable students from local industry to continue their studies.

**Admission Requirements**

1. An overall undergraduate grade-point average of 3.0 on a scale of 4.0. In special cases a student may be admitted with a lower grade-point average as a provisional degree student. Students with an average below 3.0 who completed their undergraduate degree a significant number of years ago will also be considered on an individual basis. Students with grade-point average deficiencies who take several undergraduate courses to meet entrance background requirements will have their performance in those courses considered in making the admission decision. Students who recently earned an undergraduate degree in computer science with a grade-point average below 3.0 may be asked to take the general G.R.E. before they can be considered for admission. The Graduate Studies Committee will make the admissions decision on an individual basis.
2. Four semesters of mathematics courses: two semesters of university calculus, a course in discrete mathematics and one additional course of a mathematical nature.
3. Courses in computer science equivalent to the following courses: Principles of Computer Science (Java or C++), Data Structures and Algorithms, Programming in UNIX, Programming in C, Computer Organization and Assembly Language Programming, Concepts of Programming Languages, and Software Engineering. A student who has completed the requirements

for Principles in Computer Science and Data Structures and Algorithms but not the other computer science pre-requisites could be admitted, but would still be required to take the unfulfilled pre-requisites after admission. Students lacking four or more courses should register as an unclassified student until the courses are completed.

4. Additional requirements may be specified by the Graduate School.
5. Application forms may be obtained in the Engineering Advising Office and in the Computer Science Office.

### **Degree Requirements**

1. A total of 30 semester hours of graduate course work is required. These must include CS 550 (Operating Systems I), CS 570 (Computability, Automata, and Formal Languages) and CS 572 (Design and Analysis of Algorithms), if they have not been taken previously
2. Up to 6 semester hours of graduate courses can be taken from other departments if first approved by the student's M.S. Advisory Committee.
3. Student must select either a Thesis (plan I) or Non-Thesis (plan II) option. Plan I requires a thesis worth from 4 to 6 semester hours of credit. Plan II requires a 3-semester hour project. In both cases, an oral presentation and defense is required, which is open to the public and which can include questions over all work presented for the degree.
4. At most four computer science courses may be taken that are cross-listed. The three required courses are cross-listed. If taken, they are counted among the four.
5. All work applied to the degree must be accomplished within a six-year time limit.
6. Students are advised by the chair of the graduate studies committee during their first semester. A student must choose an advisor by the time 12 credit hours have been completed.
7. After completion of 24 credit hours, a student must be continuously enrolled and has a maximum of two years to complete the program.

### **Master of Engineering – Software Engineering**

Complex software-intensive systems permeate every aspect of our lives. These

systems are among the most complex products humankind has ever tackled. Software engineering is the disciplined application of proven principles, techniques, and tools to the creation and maintenance of cost-effective, user friendly software systems that solve real problems. To accommodate the demand for well educated software engineers in almost all industries today, UCCS has established the Master of Engineering degree in Software Engineering. UCCS offers a unique environment to study, learn, and share experiences surrounding this special engineering discipline. Our faculty comes from a broad spectrum of backgrounds. Many have had years of experience in industry prior to joining the faculty. The result is a diverse melting pot of ideas, technologies, and experiences. Courses at the graduate level (and the undergraduate courses required for admission to the graduate program) are regularly offered in the late afternoon and evening to enable students from local industry to continue their studies.

### **Admission Requirements**

1. A Bachelor of Science or a Bachelor of Arts degree in mathematics, computer science, engineering, information systems.
2. An overall undergraduate grade point average of 3.0 (on a scale of 4.0; awarded within the past five years) or minimum 1800 G.R.E. (verbal + quantitative + analytic). Applicants with a grade point average of less than 3.0 awarded more than five years ago will be admitted on a case-by-case basis. Applicants with a grade point average between 2.75 and 3.0 awarded within the past five years may be admitted provisionally.
3. It is recommended that the applicant have two years experience with commercial, industrial or Government software development or maintenance.
4. A concise statement of experience and career goals.
5. Completed Admission Forms include two copies of official transcripts and references from four people sent to the Computer Science Department.

### **Program Prerequisites**

Knowledge of modern programming language, e.g. Java, C++

Data Structures and Algorithms (CS 145)

Discrete Mathematics (MATH 215)

Software Engineering Basics (CS 330)

Note: Some of these courses may have prerequisites.

Note: Any comparable course from another approved university will suffice.

### **Degree Requirements**

A total of 30 semester hours of graduate course work is required.

CS-531. Software Requirements

CS-532. Software Design

CS-534. Software Maintenance

CS-535. Software Project Management

CS-536. Software Product Assurance

Plus one of the following options:

A. CS 539. Capstone or CS 701 Project  
*Plus four elective graduate computer science courses.*

B. CS 700. Thesis (6 credits)  
*Plus three elective graduate computer science courses*

In either case, a maximum of two cross-listed courses can be applied to the requirements of the degree program.

### **Additional Graduate Degree Requirements**

1. Students must select either the thesis or non-thesis option. A thesis is for 6 credit hours, the non-thesis option is either CS 539(capstone Project) or CS 701 (Project). In all cases, an oral presentation and defense is required, which is open to the public and which can include questions over all work presented for the degree.
2. Students are advised by the chair of the Graduate Studies Committee during their first semester. A student must choose an advisor by the time 12 credit hours have been completed.
3. All work applied to the degree must be accomplished within a six-year time limit.
4. All courses included to count for this degree must be part of an approved plan of study. This plan must be developed by the student and approved by his/her advisor within the first semester after being admitted to the program.

### **Master of Engineering – Information Assurance**

Network and system security has become very critical and increasingly urgent

in today's network and information systems. Information Assurance deals with operations that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. The Information Assurance curriculum includes courses designed to prepare individuals, who engineer computer/network systems or develop policy for these systems, with knowledge of methods, techniques, and tools used in information assurance. These courses are regularly offered in the late afternoon and evening to provide a more ideal time slot for the working professional.

### Admission Requirements

1. A Bachelor of Science or a Bachelor of Arts degree in mathematics, computer science, engineering information systems, or equivalent.
2. An overall undergraduate grade point average of 3.0 (on a scale of 4.0; awarded within the past five years) or minimum 1800 GRE (verbal + quantitative + analytic). Applicants with a grade point average of less than 3.0 or with degrees awarded greater than five years ago will be admitted on a case by case basis. Applicants with a grade point average between 2.75 and 3.0 awarded within the past five years may be admitted provisionally.
3. It is recommended the applicant have two years experience with commercial, industrial or government software development or system/network administration.
4. Completed Application Forms which include two copies of official transcripts references from four people, and a concise statement of experience and career goals to be sent the Department of Computer Science.

### Program Prerequisites

Knowledge of a modern programming language, e.g., Java or C++

CS - 145 Data Structures and Algorithms

CS - 202 Programming with Unix

CS - 216 Computer Organization and Assembly Language Programming

### Degree Requirements

A total of 30 semester hours of graduate course work is required.

### Required Core Courses

(15 credit hours, common to both the Thesis option and Non-thesis option):

CS - 520 Computer Architecture

CS - 522 Computer Communications

CS - 550 Operating Systems I

CS - 591 Fundamentals of Computer/Network Security

CS - 592 Applied Cryptography for Secure Communications

### Degree Completion Courses:

(15 credit hours) Two alternate options are available: Thesis or Non-Thesis.

#### 1. Thesis option:

- a. Complete CS - 700 Master Thesis (6 credit hours)
- b. Complete 3 courses from the approved list of courses. The Graduate Studies Committee must approve the courses selected.

#### 2. Non-Thesis option:

- a. Complete CS - 701 Master Project (3 credit hours)
- b. Complete 4 courses from the approved list of courses. The Graduate Studies Committee must approve the courses selected.

### Additional Graduate Degree Requirements

- a. An overall 3.0 grade point average in all graduate work.
- b. All work applied to the degree must be accomplished within a six year time limit.
- c. Up to 9 hours of graduate work may be transferred from an accredited graduate program, provided:
  - i. The course work has not been used for any other degree,
  - ii. Grade earned for the course(s) is B or better,
  - iii. The course work has been taken within the past six years,
  - iv. The course coverage is equal in level, content, and depth to the course for which it is being substituted.
- d. All courses counted towards this degree must be part of an approved plan of study. This plan must be developed by the student and approved by his/her advisor (appointed by the department) within the first semester after being admitted to the program.

### Certificate in Software Engineering

The College of Engineering and Applied Science offers a Certificate in Software Engineering to qualified students. The program has two purposes: (1) provide employees of local companies with an

opportunity to enhance their software engineering skills and their chances for career advancement, and (2) provide students currently enrolled in the Masters of Science in Computer Science (MSCS) with more in-depth knowledge in software engineering to enhance employability and career advancement. Please call or write the Department of Computer Science for more information.

### Ph.D. in Engineering — Concentration in Computer Science

The Department of Computer Science supports the Ph.D. in engineering program with a concentration in computer science. Students who are interested in research areas with an emphasis in computer science, and would like to pursue the Ph.D. in Engineering degree should contact the Department at 719-262-3544.

### Department of Electrical and Computer Engineering

Engineering Building, Room 299  
(719) 262-3351/3548  
Fax: (719) 262-3589  
<http://eceweb.uccs.edu/>  
E-mail: [ecedept@eas.uccs.edu](mailto:ecedept@eas.uccs.edu)

### Faculty

Professors: Araujo, Ciletti, Dandapani (Chair), Kalkur, Kwor, Norgard, Sega, Wickert, and Ziemer; Associate Professors: Oleszek and Wang; Assistant Professor: Plett;

### Programs coordinated by the department:

Minor in Computer Engineering

Minor in Electrical Engineering

Bachelor of Science in Computer Engineering

Bachelor of Science in Electrical Engineering

Master of Science in Electrical Engineering

Ph.D. program in Electrical Engineering

Electrical and computer engineering harnesses the properties of electricity and materials to make possible a variety of devices and systems used for communication, computation, robotic control, navigation, remote sensing, medical imaging, and power generation and transmission. In today's world,

engineers are involved in a host of design activities. They design complex integrated circuits used in computers and communications equipment, as well as the processes that fabricate arrays of transistors in materials such as silicon and gallium arsenide. They develop the control logic that determines how industrial robots operate and create sophisticated computer programs that allow computers and robots to behave as though they have vision. Electrical engineers play a key role in the design of radar equipment used for navigation in virtually all spacecraft, aircraft, and ships, as well as the brains found in microwave ovens and automobile engines. Some specialize in the engineering of modern, high-speed, digital computers. Many also function effectively in management, marketing and sales efforts of corporations that create technical products. Others pursue advanced studies and participate in the education of other engineers.

The Department of Electrical and Computer Engineering (ECE) offers course work leading to undergraduate (B.S.E.E.) and graduate (M.S.E.E. and Ph.D.) degrees in electrical engineering and undergraduate degree in computer engineering. The B. S. degree in computer engineering (B.S.Cp.E.) is offered jointly with the Computer Science Department.

## ***Bachelor of Science Degree Programs***

The educational objectives of the Department of Electrical and Computer Engineering are that its B.S.E.E. and B.S.Cp.E. degree graduates are able to:

- Read, interpret, and critically assess literature in electrical and computer engineering and evaluate its impact on current issues in engineering and society.
- Write technical reports and other documentation and to present oral reports of a technical nature.
- Use basic knowledge in science and mathematics; as well as knowledge and tools in engineering disciplines, to analyze and synthesize real-world engineering problems.
- Design processes, devices, circuits, or systems using engineering knowledge and tools while considering economics, safety, ethics, ergonomics, and aesthetics.

- Function in an effective manner, alone or as part of a team, in an engineering capacity.
- Appreciate the importance of keeping up with the engineering field.

The first year of the B.S.E.E. and B.S.Cp.E. curricula includes courses in mathematics, basic sciences, composition, social sciences/humanities, computer programming, and engineering problem solving methods.

In the B.S.E.E. curriculum, the second year continues with additional courses in these areas and presents courses in electrical engineering science. The last two years of the B.S.E.E. curriculum build on the first two with additional required courses and electives aimed at providing technical breadth and depth and a background in design.

In the B.S.Cp.E. curriculum, the second year continues with additional courses in mathematics and presents courses in electrical engineering and computer science, which form the computer engineering degree lower division core. The last two years of the B.S.Cp.E. curriculum presents additional required courses in electrical engineering and computer science, and allows students to adjust their curriculum by selecting from a large offering of hardware and software courses, primarily in more advanced aspects of computer engineering.

In the senior year, participation in a design project and a design seminar is required of all E.E. and Cp.E. majors.

The ECE department has state-of-the-art laboratories for digital logic and microcomputer systems, circuits, electromagnetics, electronics, VLSI circuit design, microelectronics, analog and digital control systems, integrated circuit design, communications, and signal processing systems. During the course of studies for the B.S.E.E. degree, students will take at least 8 semester hours of E.E. laboratories, and for the B.S.Cp.E. degree, students will take at least 3 semester hours of E.E. laboratories, in addition to being able to select laboratories from several other areas such as computer-aided design, communications, controls, electromagnetics, microelectronics, and signal processing. Laboratories are used extensively in the curriculum to reinforce the student's understanding of theoretical concepts, but more importantly, to provide an opportunity

for the student to participate in the design and synthesis of new circuits and systems. For the B.S.Cp.E. degree, courses in computer science require extensive use of computing facilities available in the Computer Science Department. Please see the section on Laboratory Facilities for laboratories and facilities available to computer engineering students.

In addition, each senior student must complete three semester hours of a senior design project and present oral reports on their work in a senior design seminar. The purpose of this design experience is to give the student an opportunity to apply knowledge gained in basic sciences, mathematics, and engineering and computer science in producing a feasible solution to an open-ended problem, accounting for such factors as state of technology, economics, safety, reliability, ethics, social impact, and aesthetics. Also required as part of the design experience is teamwork in establishing objectives and criteria, synthesis, analysis, construction, testing, and evaluation for a proposed solution.

Although the programs are integrated, it is possible for a transfer student with the proper background to obtain a degree after four semesters. Such a student would need to have completed the mathematics and basic sciences of the freshman and sophomore years and to have a total of approximately 64 credit hours acceptable to the department.

## **Accreditation**

The B.S.E.E. and B.S.Cp.E. degrees at UCCS is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

## ***Bachelor of Science – Electrical Engineering***

### **Degree Requirements**

The degree requirements for the Bachelor of Science degree in Electrical Engineering require completion of at least 128 hours, participation in the Exit Interview, a minimum 2.0 average in all ECE and CU courses taken, and a minimum 2.0 in ECE 1411, ECE 2210, and ECE 2411. Course requirements are as follows:

**Mathematics (18 semester hours)**  
MATH 135. Calculus I .....4

MATH 136. Calculus II .....	4
MATH 235. Calculus III .....	4
MATH 340. Intro to Differential Equations .....	3
Mathematics Elective (310 or above) .....	3

**Basic Science (16 semester hours)**

PES 111. General Physics I .....	4
PES 112. General Physics II .....	4
PES 213. General Physics III .....	3
Science (see below) .....	5

Select 5 hours from the following list; a lab must be included: CHEM103-5, CHEM106-5, BIOL110-3, BIOL111-1, BIOL115-3, BIOL116-1, GEOL101-4, GEOL102-4 or any other PES course that has a prerequisite of PES111.

**Computer Background****(6 semester hours)**

ECE 1001. Introduction to Robotics .....	3
ECE 1021. Computer-Based Modeling & Methods of Engineering .....	3

**Social Sciences and Humanities****(15 semester hours)**

(See Social Sciences/Humanities Requirements below) .....

15  
Studies in the humanities and social sciences serve not only to meet the objectives of a broad education, but also to meet the objectives of the engineering profession. E.E. students are required to take at least 15 credits of social sciences and humanities so they are more aware of their social responsibilities and better able to consider related factors in the decision making process. To ensure this, a minimum of nine hours in social sciences and six hours in humanities, or vice versa, must be taken; at least six of these hours must be beyond the introductory level (200 level or higher courses). Breakouts by area are as follows:

**Social Science Departments:** Anthropology, Communications, Economics, Geography and Environmental Studies, Gerontology, Political Science, Psychology Sociology, and Women's Studies

**Humanities Departments:** Art History, Ethnic Studies, English (150 or higher classes), History, Humanities, Music (except choir or lessons), and Philosophy

**Communication Skills****(6 semester hours)**

ENGL 131. Rhetoric & Writing I or ENGL 141. Rhetoric & Writing II .....	3
ENGL 309. Technical Writing & Presentation .....	3

**Core ECE Courses (44 semester hours)**

ECE 1411, 2411. Logic Circuits I, II .....	4
ECE 2050. Introduction to Physical Electronics .....	3
ECE 2205, 3205. Circuit and Systems I, II .....	8
ECE 2610 Introduction to Signals and Systems .....	4
ECE 3020. Semiconductor Devices I .....	3
ECE 3110. Electromagnetic Fields I .....	3
ECE 3210, 3220. Electronics I, II .....	6

ECE 3230, 3240. Electronics Laboratory I, II .....	2
ECE 3420. Microprocessor Systems Laboratory .....	1

ECE 3430. Intro to Microcomputer Systems .....	3
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ECE 3610. Engineering Probability & Statistics .....	3
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ECE 4890. Senior Seminar .....	1
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ECE 4899. Design Project .....	3
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**Electrical Engineering Technical Elective Requirements (14 semester hours)**

Select any four from the following eight three-credit hour courses: (Students must meet course prerequisites)

ECE 3120. Electromagnetic Fields II	
ECE 4020. Semiconductor Devices II	
ECE 4242. Advanced Digital Design Methodology	

ECE 4340. VLSI Circuit Design I	
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ECE 4480. Computer Architecture and Design	
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ECE 4510. Feedback Control Systems	
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ECE 4625. Communication Systems I	
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ECE 4650 Modern Digital Signal Processing	
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Total Specified Technical Electives .....	12
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And, select any two of the following one-credit hour specialty labs: (Students must meet course prerequisites)

ECE 3440. Microcomputer Systems Laboratory	
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ECE 4040. Introductory VLSI Fabrication Laboratory	
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ECE 4150. Microwave Measurements Laboratory	
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ECE 4200. Advanced Digital Design Laboratory	
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ECE 4530. Control Systems Laboratory	
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ECE 4560. Digital Control Laboratory	
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ECE 4670. Communications Laboratory	
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ECE 4680. Signal Processing Laboratory	
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Total Specialty Labs .....	3
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Technical Electives (9 hours)

Technical electives may be chosen from this list: ECE courses at 4xxx level, BIOL300-3, BIOL302-3, BIOL310-3, BIOL314-3, BIOL321-3, BIOL322-3, BIOL330-3, BIOL333-3, BIOL360-3, BIOL361-3, BIOL370-3, BIOL383-3, BIOL391-3, CHEM301-3, CHEM330-3, CHEM331-3, CHEM332-3, CHEM333-3, CHEM334-3, CHEM337-2, CHEM338-2, CHEM340-2, CHEM341-3, PES306-3, PES313-3, PES321-3, PES341-3, PES365-3, PES367-3, CS301-3, CS306-3, CS316-3, CS330-3, MAE3130-3, MAE3135-3, MAE3201-3, MAE3310-3, MAE3401-3, MAE3560-3, MATH311-3, MATH313-3, MATH341-3, MATH350-3, MATH351-3. Other courses in BIOL, CHEM, CS, MAE, MATH and PES numbered 400/4000+ may be accepted with a petition completed prior to taking the course.

**Sample Schedule****Freshman Year****Fall Semester (16 semester hours)**

MATH 135. Calculus I .....	4
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ENGL 131. Rhetoric and Writing I .....	3
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PES 111. General Physics I .....	4
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ECE 1001. Introduction to Robotics .....	3
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ECE 1411. Logic Circuits I .....	2
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**Spring Semester (16 semester hours)**

MATH 136. Calculus II .....	4
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PES 112. General Physics II .....	4
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ECE 1021. Computer-Based Modeling & Methods of Engineering .....	3
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ECE 2411. Logic Circuits II .....	2
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Social Sciences/Humanities Elective .....	3
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**Sophomore Year****Fall Semester (16 semester hours)**

MATH 235. Calculus III .....	4
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Science Elective with Laboratory .....	5
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ECE 2610. Intro to Signals and Systems ...	4
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Social Sciences/Humanities Elective .....	3
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**Spring Semester (16 semester hours)**

MATH 340. Introduction to Differential Equations .....	3
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PES 213. General Physics III .....	3
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ECE 2050. Introduction to Physical Electronics .....	3
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ECE 2205. Circuit Analysis and Systems I .....	4
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ENGL 309. Technical Writing & Presentation .....	3
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**Junior Year****Fall Semester (15 semester hours)**

ECE 3110. Electromagnetic Fields I .....	3
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ECE 3210. Electronics I .....	3
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ECE 3230. Electronics Laboratory I .....	1
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ECE 3420. Microprocessor Systems Laboratory .....	1
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ECE 3430. Intro to Microcomputer Systems	3
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ECE 3205. Circuits and Systems II .....	4
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**Spring Semester (16 semester hours)**

ECE 3020. Semiconductor Devices I .....	3
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ECE 3220. Electronics II .....	3
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ECE 3240. Electronics Laboratory II .....	1
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ECE 3610. Engineering Probability & Statistics .....	3
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Social Sciences/Humanities Elective .....	3
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Technical Electives .....	3
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**Senior Year****Fall Semester (17 semester hours)**

Mathematics Elective .....	3
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Technical Electives .....	10
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ECE 4890. Senior Seminar .....	1
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Social Sciences/Humanities Elective .....	3
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**Spring Semester (16 semester hours)**

ECE 4899. Design Project .....	3
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Social Sciences/Humanities Elective .....	3
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Technical Electives .....	10
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Total Hours .....	128
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## Minor in Electrical Engineering

The minor in Electrical Engineering requires at least 22 credit hours of course work and every course in the minor must be completed with a grade of C or better. The student will be responsible for any prerequisites to required courses. At most, 9 credit hours of transfer work may be applied to the minor. Minor courses with associated areas are as follows:

### Required Core Courses (10 hours)

- ECE 1001. Introduction to Robotics
- ECE 1021. Computer Based Modeling & Methods in Engineering
- ECE 2210. Circuit Analysis I
- ECE 2230. Circuits Laboratory

### Choose one of the following areas:

#### Computers (12 hours)

- ECE 1411. Logic Circuits I
- ECE 2411. Logic Circuits II
- ECE 3420. Microprocessor Systems Laboratory
- ECE 3430. Introduction to Microcomputer Systems
- ECE 3440. Microcomputer Systems Laboratory
- ECE 4480. Computer Architecture and Design

#### Electronics (14 hours)

- ECE 2050. Introduction to Physical Electronics
- ECE 2220. Circuit Analysis II
- ECE 3210. Electronics I
- ECE 3220. Electronics II
- ECE 3230. Electronics Laboratory I
- ECE 3240. Electronics Laboratory II

#### Electromagnetics (12 hours)

- ECE 2220. Circuit Analysis II
- ECE 3110. Electromagnetic Fields I
- ECE 3120. Electromagnetic Fields II
- ECE 4110. Electromagnetic Theory and Applications

#### Systems (13 hours)

- ECE 2220. Circuit Analysis II
- ECE 3510. Linear Systems Theory
- ECE 3520. MATLAB Systems Analysis
- ECE 3610. Engineering Probability & Statistics

And one of the following:

- ECE 4510. Feedback Control Systems
- ECE 4610. Analysis of Random Signals
- ECE 4625. Communication Systems I

## Bachelor of Science – Computer Engineering

### Degree Requirements

The requirements for the Bachelor of Science Degree in Computer Engineering

require completion of at least 128 hours, participation in the Exit Interview, a minimum 2.0 average in all ECE, CS and CU courses taken and a minimum 2.0 in CS 115, CS 145, ECE 1411, ECE 2210 and ECE 2411. The courses for the degree are as follows:

### Mathematics (18 semester hours)

- Calculus I .....4
- Calculus II .....4
- Calculus III .....4
- MATH 340. Intro to Differential Equations .....3
- MATH 215. Discrete Mathematics .....3

### Basic Science (14 semester hours)

- PES 111. General Physics I .....4
- PES 112. General Physics II .....4
- Science .....6

### Select 6 hours from the following list;

(a lab must be included) CHEM103-5, CHEM106-5, BIOL110-3, BIOL111-1, BIOL115-3, BIOL116-1, GEOL101-4, GEOL102-4 or any other PES course that has a prerequisite of PES111.

### Computer Background (6 semester hours)

- ECE 1001. Introduction to Robotics .....3
- ECE 1021. Computer-Based Modeling & Methods of Engineering .....3

### Social Sciences and Humanities (15 semester hours)

(See Social Sciences/Humanities Requirements below) .....15  
 Studies in the humanities and social sciences serve not only to meet the objectives of a broad education, but also to meet the objectives of the engineering profession. E.E. students are required to take at least 15 credits of social sciences and humanities so they are more aware of their social responsibilities and better able to consider related factors in the decision making process. To ensure this, a minimum of nine hours in social sciences and six hours in humanities, or vice versa, must be taken; at least six of these hours must be beyond the introductory level (200 level or higher courses). Breakouts by area are as follows:

#### Social Science Departments:

Anthropology, Communications, Economics, Geography and Environmental Studies, Gerontology, Political Science, Psychology Sociology, and Women's Studies

#### Humanities Departments:

Art History, Ethnic Studies, English (150 or higher classes), History, Humanities, Music (except choir or lessons), and Philosophy

### Communication Skills (6 semester hours)

- ENGL 131. Rhetoric and Writing I or

- ENGL 141. Rhetoric and Writing II .....3
- ENGL 309. Technical Writing .....3

### Computer Engineering Core (Lower Division) (15 semester hours)

- ECE 1411. Logic Circuits I .....2
- ECE 2210. Circuit Analysis I .....3
- ECE 2411. Logic Circuits II .....2
- CS 115. Principles of Computer Science .....3
- CS 145. Data Structures & Algorithms .....3
- CS 202. Programming in UNIX .....2

### Computer Engineering Core (Upper Division) (36 semester hours)

- ECE 3210. Electronics I .....3
- ECE 3420. Microprocessor Laboratory .....1
- ECE 3430. Intro to Microcomputer Systems .....3
- ECE 3440. Microcomputer Systems Laboratory .....1
- ECE 3610. Engineering Probability & Statistics .....3
- ECE 4242. Advanced Digital Design Methodology .....3
- ECE 4330. Embedded Systems Design .....3
- ECE 4480. Computer Architecture and Design or
- CS 420. Computer Architecture I .....3
- CS 306. Object-Oriented Programming Using C++ .....3
- CS 330. Software Engineering .....3
- CS 450. Operating Systems I .....3
- CS 472. Design and Analysis of Algorithms .....3
- ECE 4890. Senior Seminar .....1
- ECE 4899. Design Project .....3

### Technical Electives (15 semester hours)

Select at least 15 hours from the following:

(Students must meet course prerequisites)

- ECE 2050. Introduction to Physical Electronics
- ECE 2220. Circuit Analysis II
- ECE 2230. Circuits Laboratory
- ECE 3020. Semiconductor Devices I
- ECE 3110. Electromagnetic Fields I
- ECE 3120. Electromagnetic Fields II
- ECE 3220. Electronics II
- ECE 3230. Electronics Laboratory I
- ECE 3240. Electronics Laboratory II
- ECE 3510. Linear System Theory
- ECE 3520. MATLAB Systems Analysis Laboratory
- ECE 4200. Advanced Digital Design Laboratory
- ECE 4211. Rapid Prototyping with FPGAs
- ECE 4220. Analog IC Design
- ECE 4320. Fault Detection & Design for Testability



ECE 4362. Synthesis with Verilog HDL  
 CS 301. Web Programming  
 CS 316. Concepts of Programming Languages  
 CS 410. Compiler Design I  
 CS 442. Data Base Systems I  
 CS 460. Numerical Computing  
 CS 470. Computability, Automata and Formal Languages  
 CS 480. Computer Graphics  
 CS 482. Artificial Intelligence I  
 MATH 313. Introduction to Linear Algebra  
 Other courses in CS, ECE, MAE, MATH, and PES numbered 300+ (except MATH301 and 302) may be accepted with a petition completed prior to taking the course.  
 Free Electives .....3

**Sample Schedule**

**Freshman Year**

**Fall Semester (16 semester hours)**  
 MATH 135. Calculus I .....4  
 ENGL 131. Rhetoric and Writing I .....3  
 ECE 1001. Introduction to Robotics .....3  
 CS 115. Principles of Computer Science .....3  
 Social Sciences/Humanities Elective .....3

**Spring Semester (17 semester hours)**  
 MATH 136. Calculus II .....4  
 PES 111. General Physics I .....4  
 ECE 1021. Computer-Based Modeling & Methods of Engineering .....3  
 CS 145. Data Structures & Algorithms .....3  
 Science Elective .....3

**Sophomore Year**

**Fall Semester (15 semester hours)**  
 MATH 235. Calculus III .....4  
 PES 112. General Physics II .....4  
 ECE 2210. Circuit Analysis I .....3  
 ECE 1411. Logic Circuits I .....2  
 CS 202. Programming in UNIX ..... 2

**Spring Semester (17 semester hours)**  
 MATH 215. Discrete Mathematics .....3  
 ECE 2411. Logic Circuits II .....2  
 CS 330. Software Engineering .....3  
 ENGL 309. Technical Writing .....3  
 Science Elective .....3  
 Social Sciences/Humanities Elective .....3

**Junior Year**

**Fall Semester (16 semester hours)**  
 ECE 3210. Electronics I .....3  
 ECE 3420. Microprocessor Systems Laboratory .....1  
 ECE 3430. Intro to Microcomputer Systems .....3  
 ECE 4242. Advanced Digital Design Methodology .....3  
 CS 306. Object-Oriented Programming Using C++ .....3  
 Social Sciences/Humanities Elective .....3

**Spring Semester (16 semester hours)**  
 MATH 340. Intro to Differential Equations .....3  
 ECE 3440. Microcomputer Systems Laboratory .....1  
 ECE 3610. Engineering Probability & Statistics .....3  
 ECE 4480. Computer Architecture and Design or  
 CS 420. Computer Architecture I .....3  
 CS 472. Design & Analysis of Algorithms ..3  
 Technical Elective .....3

**Senior Year**

**Fall Semester (16 semester hours)**  
 ECE 4330. Embedded Systems Design .....3  
 ECE 4890. Senior Seminar .....1  
 CS 450. Operating Systems I .....3  
 Technical Electives .....6  
 Social Sciences/Humanities Elective .....3

**Spring Semester (15 semester hours)**  
 ECE 4899. Design Project .....3  
 Technical Electives .....6  
 Social Sciences/Humanities Electives .....3  
 Free Elective .....3  
 Total Hours .....128

**Minor in Computer Engineering**

The minor in Computer Engineering requires at least 25 credit hours of course work. A 2.0 minimum is required on all coursework. The student will be responsible for any prerequisites to required courses. Minor courses are as follows:

- ECE 1001. Introduction to Robotics
- ECE 1021. Computer Based Modeling and Methods in Engineering
- ECE 1411. Logic Circuits I
- ECE 2411. Logic Circuits II
- ECE 3420. Microprocessor Systems Laboratory
- ECE 3430. Introduction to Microcomputer Systems
- CS 115. Principles of Computer Science
- CS 145. Data Structures & Algorithms
- CS 202. Programming in UNIX
- CS 330. Software Engineering

**Master of Science – Electrical Engineering**

The Department of Electrical and Computer Engineering offers coursework and thesis supervision leading to the degree Master of Science in Electrical Engineering (M.S.E.E.). Courses at the graduate level are ordinarily taught at 8:00 a.m. or after 4:30 p.m. to enable students from local industry to continue

their studies.

**Admission Requirements**  
**Guaranteed early admission**

A student who is in his or her final semester studying toward either a B.S.E.E. or B.S.Cp.E. at the UCCS is guaranteed admission to the M.S.E.E. program if he or she satisfies the following criteria:

1. The student must have completed a minimum of 45 semester hours at UCCS at the time of graduation with the B.S. degree.
2. The student must be registered in his or her final undergraduate semester (in either the B.S.E.E. or B.S.Cp.E. programs) at the time of application to the M.S.E.E. program.
3. The student must have a minimum undergraduate GPA of 3.25.
4. The student must submit a letter of recommendation from the current department chairperson.

Early admission is not available to students who are not residents of the United States of America.

**Fast-track admission**

The fast-track admission process is designed to offer a more efficient admission process to former undergraduate students who have graduated from UCCS no more than four years prior to the time of application to a graduate program. A student applying under the fast-track admission rules must submit the following to the Department:

1. The Fast-Track Admission application form, accurately and completely filled out.
2. A completed residency form (back of application form), if the student claims in-state-tuition eligibility.
3. A check or money order (for the appropriate amount) non-refundable application fee.
4. Official transcripts for any university level studies attempted after graduation from UCCS.
5. A statement giving permission to the ECE graduate program office to obtain an internal transcript from SIS for the applicant. These forms are available from the ECE office, and must be signed by the student.

6. A letter of recommendation (which may consist of a signed letter from the chairperson of the student's former undergraduate department). Any student with a record that will only allow provisional admission must provide a minimum of two letters of recommendation, using the forms available from the ECE office.
7. Fast-track admission only available to graduates of the College of EAS.

### Regular Admission

Regular admission to the M.S.E.E. program requires a 3.0 undergraduate grade-point-average (G.P.A.). The Graduate Record Examinations (G.R.E.) may be required of any student whose G.P.A. falls below this average or is not a graduate of an ABET accredited undergraduate program in electrical engineering. The verbal reasoning and quantitative reasoning portions of the G.R.E. are required of all foreign applicants. Graduates of foreign universities are required to take the TOEFL exam: A score of 550 - 600 on the paper-based exam or 213 - 250 on the computer-based exam is required.

If the student has an unacceptable undergraduate G.P.A., but has achieved a graduate G.P.A. of 3.25 or better on a minimum of 15 semester hours of relevant graduate work (e.g., taken as an unclassified student, or at another university), then the student may be accepted into the program. Note that units completed before admission may not all be transferable into a graduate degree program.

Students not admitted on a regular basis may be admitted on a provisional basis depending on their overall application file, including G.P.A., G.R.E., letters of recommendation, etc. Students admitted on a provisional basis are often required to take remedial courses (these are specified in the letter of acceptance). Registration for such remedial courses must commence with the first semester of a student's program with at least three credits completed per semester until all remedial requirements are satisfied.

Applications are reviewed on a continual basis, but need to be received by April 1 (fall admission) or October 1 (spring admission) for students who are applying for assistantships. It is recommended that international students apply at least 3 months prior to the start of the

semester to allow time to request a visa.

For more information about these programs, contact the Department of Electrical and Computer Engineering, Graduate Program, Engineering Bldg. Room 299, or call (719) 262-3351. Send email to [ecdept@eas.uccs.edu](mailto:ecdept@eas.uccs.edu) or see our webpage at [ecweb.uccs.edu](http://ecweb.uccs.edu).

### Duration of Program

The completion of the M.S.E.E. degree is normally accomplished in one to three years, and should be accomplished in six years, commencing with the beginning of course work.

A student who is not continuously enrolled (missing three consecutive semesters) becomes inactive and is subject to the rules governing Readmission of Former Students in the graduate school procedures.

### Degree Requirements

**Thesis option:** 30 semester hours total.  
24 semester hours of course work.

At least 18 semester hours must be ECE courses. The remaining 6 semester hours may be replaced by allied department courses (e.g., computer science, mathematics, physics, mechanical and aerospace engineering, etc.).

At most 6 semester hours may be independent study courses.

6 hours of thesis credit.

All course work must be numbered 5000 and above if ECE, or 400(0) and above if non-ECE. Up to nine semester hours of accepted course work may be transferred from another university or from course work taken as an unclassified student.

**Non-Thesis option:** 30 semester hours total

All 30 semester hours are course work.

At least 24 semester hours must be ECE courses. The remaining 6 semester hours may be replaced by allied department courses (e.g., computer science, mathematics, physics, mechanical and aerospace engineering, etc.).

At most 6 semester hours may be independent study courses.

All course work must be numbered 5000 and above if ECE, or 400(0) and above if non-ECE. Up to nine semester hours of accepted course work may be transferred from another university or from course work taken as an unclassified student.

The student must :

1. Choose an Advisory Committee with the same composition as a Thesis Committee.
2. Choose a subject for his/her Masters Report. This subject must be approved by his/her academic advisor.
3. Make an oral presentation and submit a written report to the advisory committee. Both must be approved by the advisory committee.

There are no additional requirements as to which specific courses a student must take. The student's selection of courses need only meet the above requirements and be approved by the student's academic advisor and the departmental graduate studies committee.

### Grades

The student must have an overall graduate G.P.A. of 3.0 in order to graduate. The student must have a grade of C or better in all courses applied toward the M.S.E.E. degree.

### Program Options

#### Defined Master's

The defined M.S.E.E. provides options leading toward a M.S.E.E. in two years by taking two courses per semester. This program has been designed for graduate students who work full-time. Most courses listed in the defined master's are offered in the evening and will generally be scheduled after 4:30 p.m. There are three different emphasis areas available: Circuit Design, Communications and Signal Processing, and Controls and Signal Processing. The courses shown in the following list will be offered at least once every two years. The actual schedules for each option are available on our web site at <http://ecweb.uccs.edu>

#### Circuit Design

- ECE 5242. Advanced Digital Design Methodology
- ECE 5340. VLSI Circuit Design I
- ECE 5270. CMOS RF Integrated Circuit Design
- ECE 5220. Analog IC Design
- ECE 5450. Advanced Computer Architecture
- ECE 5362. Synthesis with Verilog HDL
- ECE 5160. Electromagnetic Effects in IC Design Graduate Elective
- ECE 7000. Master's Thesis Research

#### Communications and Signal Processing

- ECE 5610. Analysis of Random Signals

ECE 5625. Communication Systems I  
 ECE 6650. Estimation Theory and Adaptive Filtering  
 ECE 5630. Communications Systems II  
 - or  
 ECE 5655. Real-Time Digital Signal Processing  
 ECE 5650. Modern Digital Signal Processing  
 ECE 5655. Real-Time Digital Signal Processing  
 - or  
 ECE 5635. Wireless Communication Systems  
 ECE 5620. Detection and Extraction of Signals from Noise  
 Graduate Elective

ECE 7000. Master's Thesis Research

### **Controls and Signal Processing**

ECE 5520. Multivariable Control Systems I  
 ECE 5530. Multivariable Control Systems II  
 ECE 5540. Digital Control Systems  
 ECE 5610. Analysis of Random Signals  
 ECE 6650. Estimation Theory and Adaptive Filtering  
 ECE 5650. Modern Digital Signal Processing  
 ECE 5620. Detection and Extraction of Signals from Noise  
 ECE 5655. Real-Time Digital Signal Processing  
 ECE 7000. Master's Thesis Research

The M.S.E.E. rules allow a student in the above programs to substitute any given course with other courses and/or choose the non-thesis option.

## **Ph.D. Program in Electrical Engineering**

The Department of Electrical and Computer Engineering supports a Ph.D. program in Electrical Engineering as part of the Ph.D. in Engineering degree. Students who are interested in research areas in electrical engineering, and would like to pursue the Ph.D. in Engineering degree should contact the ECE Department at 719-262-3351.

Regular admission to the Ph.D. program requires a 3.3 grade-point-average (G.P.A.) on all previous college work, including both graduate and undergraduate. The Graduate Record Examinations (G.R.E.) may be required if the applicant falls below this G.P.A. or is not a graduate of an ABET accredited undergraduate program in electrical engineering. The verbal reasoning and quantitative reasoning portions of the G.R.E. are required of all foreign applicants.

Graduates of foreign universities are required to take the TOEFL exam: A score of 550-600 on the paper-based exam, or of 213-250 on the computer-based

exam is required. Students not admitted on a regular basis may be admitted on a provisional basis depending on their over-all application file, including G.P.A., G.R.E., letters of recommendation, etc. Students admitted on a provisional basis are often required to take remedial courses (these are specified in the letter of acceptance). Registration for such remedial courses must commence with the first semester of a student's program with at least three credits completed per semester until all remedial requirements are satisfied.

### **Degree Requirements**

The Ph.D. degree is awarded to students who have satisfied the requirements of duration of program, who have submitted an acceptable dissertation, and who have passed all prescribed examinations.

For a student entering with a master's degree:

Complete 24 semester hours of course work.

At least 15 semester hours must be ECE courses.

At most 9 semester hours may be independent study courses.

All 24 semester hours must be numbered 5000 and above if ECE, or 500 and above if non-ECE.

For a student entering without a master's degree:

Must complete 60 semester hours of course work.

At least 30 semester hours must be ECE courses.

At most 15 semester hours may be independent study courses

All 60 semester hours must be numbered 5000 and above if ECE, or 500 and above if non-ECE.

In either case:

Cross-listed courses which are offered at the 500(0)/600(0) levels must be taken at the 600(0) level.

Complete 30 semester hours of dissertation research in addition to course work.

Have an overall graduate G.P.A. of 3.0 in order to graduate.

Have a grade of B- or better in all courses applied toward the Ph.D. degree.

Pass the Preliminary Examination, the Comprehensive Examination, and the final Defense of Dissertation.

No foreign language is required.

## **ECE Department Faculty and their Research Areas**

Dr. Carlos A. Paz de Araujo - Microelectronics

Dr. Michael D. Ciletti - Computer-Aided Design, Computer Engineering

Dr. Ramaswami Dandapani - Computer-Aided Design, Computer Engineering

Dr. T.S. Kalkur - Microelectronics, VLSI Circuit Design

Dr. Richard Y.C. Kwor - Microelectronics

Dr. Gerald M. Oleszek - Microelectronics

Dr. John D. Norgard - Electromagnetics

Dr. Gregory L. Plett - Adaptive Signal Processing and Control

Dr. Ronald M. Sega - Electromagnetics (on leave)

Dr. Chia-Jiu (Charlie) Wang - Computer Engineering

Dr. Mark A. Wickert - Communications, Signal Processing

Dr. Rodger E. Ziemer - Communications, Signal Processing

To apply, prospective students should contact the ECE Department.

Applications are reviewed on a continual basis, but need to be received by April 1 (fall admission) or October 1 (spring admission) for students who are applying for assistantships. It is recommended that international students apply at least 3 months prior to the start of the semester to allow time to request a visa. Limited fellowships and assistantships are available.

## **Department of Mechanical and Aerospace Engineering**

University Hall, Suite 309

(719) 262-3243 Fax: (719) 262-3042

<http://mae.uccs.edu/>

E-mail: [mae@uccs.edu](mailto:mae@uccs.edu)

### **Faculty**

Professor Schmidt; Associate Professors: Gorder, Saunders (Chair) and Stevens; Assistant Professors: Roney and Tragesser; Senior Instructor: Rappold; Instructor: Albertson.

### **Programs coordinated by the department:**

Minor in Aerospace Engineering  
 Bachelor of Science in Mechanical

Engineering

Master of Science in Mechanical Engineering

Master of Engineering in Engineering Management

Master of Engineering in Space Operations (distance only)

Doctor of Philosophy in Engineering

Mechanical Engineering is a core discipline, encompassing mechanics, materials science, thermal science, dynamics and controls, design, and manufacturing. Career opportunities are open to mechanical engineers in industry, government, and universities, as well as in other professions including business, law, and medicine. Mechanical engineers are employed in a wide range of industries including aerospace, automotive, chemical, computing, electronics, industrial machinery, manufacturing, mining, oceanography, petroleum, pharmaceuticals, power, printing, publishing, and textiles. Mechanical engineers usually engage in research, development, design, testing, manufacturing, operations and maintenance, marketing and sales, and administration.

The undergraduate curriculum incorporates mathematics, physics and chemistry, humanities/social sciences, business, engineering science, electrical theory, measurement science, mechanical engineering core courses (computer-aided drafting, dynamics and controls, solid and fluid mechanics, thermodynamics, materials science, and heat and mass transfer) and selected technical elective courses. Many of the technical elective courses are interdisciplinary in nature and are taught in other departments and colleges to provide a balanced education on the fundamentals of the profession. These electives are designed to meet the needs of the industrial, commercial, governmental, and military communities and to serve students' professional objectives.

Undergraduate students can participate in internship and cooperative educational programs with a variety of high-tech companies along the front-range, which may include Agilent Technologies, B.F. Goodrich, Boeing, Lockheed-Martin, Hewlett-Packard, Quantum, Sturman Industries, SuperFlow Corporation, Transportation Technology Center/AAR, and TRANE. Further, currently

enrolled undergraduate students with exceptional academic records may obtain guaranteed early enrollment in mechanical and aerospace engineering graduate programs. Undergraduate students also have many opportunities to become involved in discipline-related activities outside the classroom. The MAE Department has active chapters in the American Society of Mechanical Engineers (ASME) and the American Institute of Aeronautics and Astronautics (AIAA), and the Society of Automotive Engineers (SAE).

***Bachelor of Science – Mechanical Engineering***

**Degree Requirements**

The Department of Mechanical and Aerospace Engineering has established the following set of program educational objectives for the Bachelor of Science in Mechanical Engineering.

- a. To prepare students for successful careers and lifelong learning.
- b. To provide students with a strong foundation in engineering science (including the appropriate background in pure sciences and mathematics), along with the ability to apply this knowledge to solve engineering problems.
- c. To ensure that students are proficient in modern computational methods and in the use of current computational tools for engineering applications.
- d. To educate students in the methods, standards, and conventions that are followed in the practice of engineering.
- e. To equip students with the skills and knowledge required to formulate and solve large scale design problems; in addition to giving them a thorough understanding of the design process, this includes developing their creativity, general knowledge, engineering intuition, problem formulation skills, project management skills, leadership skills, communication/presentation skills, and teamwork skills.
- f. To train students in the theory and practice of experimental methods in engineering.
- g. To inculcate in the students a broad understanding of their social and cultural environment, particularly in the context of their professional

responsibilities and ethics.

These objectives are regularly reviewed by the constituents of the department's programs, including industrial representatives, students in the program, and the faculty of the department. These objectives are used to focus the undergraduate degree program and assure the best possible education to our students.

The requirements for the Bachelor of Science degree in Mechanical Engineering requires completion of at least 129 hours, complete an Exit Survey and Interview, a minimum 2.0 average in all CU courses taken and the courses outlined as follows:

**Communication Skills (6 semester hours)**

- ENGL 131 Rhetoric & Writing I .....3
- ENGL 309 Technical Writing and Presentation .....3

**Humanities and Social Sciences (9 semester hours)**

(Choose three courses, one must be 200-level or greater)

Courses must be socially and culturally broadening. Acceptable subject matter:

Literature, Language, History, Economics, Music, Psychology, Sociology, Political Science, Visual or Performing Arts, Ethnic Studies, Communications, Film Studies, Fine Art History, Music Appreciation, Philosophy, Women's Studies, Professional Writing, or Anthropology

**Basic Science (13 semester hours)**

- CHEM 103 General Chemistry.....5
- PES 111 General Physics I.....4
- PES 112 General Physics II.....4

**Business (9 semester hours)**

(Complete two courses from the following list)

- ACCT 201 Intro to Financial Accounting.....3
- BUAD 100 Survey of Contemp Bus Issues and Concerns .....3
- ORMG 330 Intro to Management and Organization .....3
- MKTG 300 Principles of Marketing.....3
- MAE 3342 Engineering Economy .....3

**Mathematics (21 semester hours)**

- MATH 135, 136, 235 Calculus I, II, III.....12
- MATH 313 Linear Algebra .....3
- MATH 340 Intro to Differential Equations ..3
- MATH 381 or ECE 3610 Statistics.....3

**Basic Engineering and Computer Background (9 semester hours)**

- CS 107 Introduction to Programming in Visual Basic

or



CS 115 Principles of Computer Science ....3  
 ECE 2210 Circuit Analysis I.....3  
 ECE 3210 Electronics I.....3

**Mechanical Engineering Core Courses (53 semester hours)**

MAE 1501 Introduction to Engineering Design.....2  
 MAE 1502 Principals of Engineering .....3  
 MAE 2101 Statics .....3  
 MAE 2102 Dynamics .....3  
 MAE 2301 Engineering Thermodynamics...3  
 CHEM 301 Materials Science (CHEM 106 prereq. waived) .....3  
 MAE 3005 Engineering Measurement Lab.3  
 MAE 3010 Mechanical Engineering Lab ....2  
 MAE 3130 Fluid Mechanics.....3  
 MAE 3201 Strength of Materials .....3  
 MAE 3302 Thermodynamics II.....3  
 MAE 3310 Heat and Mass Transfer .....3  
 MAE 3401 Modeling and Simulation of Dynamic Systems.....3  
 MAE 3501 Machine Design.....3  
 MAE 4120 Kinematics .....3  
 MAE 4402 Intermediate Dynamics .....3  
 MAE 4421 Feedback Control.....3  
 MAE 4510 Engineering Design I .....1  
 (Choose one of the two below)  
 MAE 4511 Engineering Device Design  
 or  
 MAE 4512 Engineering Systems Design....3

**Technical Electives (12 semester hours)**

At least 12 hours of technical courses, all 4 must be 300/3000 or above classes, with at least 2 being 400/4000 and above classes. Select from the following Departments: Computer Science, Electrical Engineering, Mathematics, Mechanical and Aerospace Engineering or Physics. Additional basic science classes may be allowed with a petition and if it is a prerequisite for an upper level Technical Elective classes, i.e. PES 213 to take upper level Physics classes.

**Sample Schedule**

**Freshman Year**

**Fall Semester (16 semester hours)**  
 MATH 135 Calculus I.....4  
 ENGL 131 English Composition I.....3  
 PES 111 General Physics I.....4  
 MAE 1501 Introduction to Engineering Design.....2  
 CS 107 Introduction to Programming in Visual Basic.....3  
**Spring Semester (17 semester hours)**  
 MATH 136. Calculus II. ....4  
 PES 112. General Physics II.....4  
 MAE 1502 Principals of Engineering .....3  
 Social Sciences/Humanities Electives .....6

**Sophomore Year**

**Fall Semester (18 semester hours)**

MAE 2101 Statics .....3  
 MATH 313 Introduction to Linear Algebra ..3  
 MATH 235 Calculus III .....4  
 ENGL 309 Tech Writing & Presentation .....3  
 CHEM 103 General Chemistry I .....5

**Spring Semester (15 semester hours)**

MAE 2102 Dynamics .....3  
 MATH 340 Intro to Diff. Eqns. ....3  
 CHEM 301 Materials Science.....3  
 ECE 2210 Circuit Analysis I .....3  
 MAE 2301 Engineering Thermodynamics...3

**Junior Year**

**Fall Semester (15 semester hours)**

MAE 3302 Thermodynamics II.....3  
 ECE 3210 Electronics I.....3  
 ECE 3610 or MATH 381.  
 Engineering Probability and Statistics .....3  
 MAE 3401 Modeling and Simulation .....3  
 MAE 3201 Strength of Materials .....3

**Spring Semester (15 semester hours)**

MAE 3130 Fluid Mechanics.....3  
 MAE 3310 Heat and Mass Transfer .....3  
 MAE 3005 Engineering  
 Measurement Lab .....3  
 MAE 3501 Machine Design.....3  
 Technical Elective.....3

**Senior Year**

**Fall Semester (18 semester hours)**

MAE 3010 Mechanical Engineering Lab ....2  
 MAE 4402 Intermediate Dynamics .....3  
 MAE 4510 Engineering Design I .....1  
 MAE 4120 Kinematics .....3  
 MAE 4421 Feedback Control.....3  
 Business Elective.....3  
 Technical Elective.....3

**Spring Semester (15 semester hours)**

SS/Humanities Elective .....3  
 Business Elective.....3  
 2 Technical Electives .....6  
 MAE 4511 Engineering Device Design II ...3  
 Total Hours .....129

**Minor in Aerospace Engineering**

The minor in Aerospace Engineering requires at least 22 credit hours of course work and a grade of C or better is required on each course. The student will be responsible for any prerequisites to required courses. Only 6 hours of transfer work may be applied to the minor. Minor courses are as follows:

MAE 3110 Fundamentals of Flight  
 MAE 3135 Aerodynamics or MAE 4410  
 Astrodynamics

MAE 3401 Modeling and Simulation of Dynamic Systems  
 MAE 4420 Feedback Control of Aerospace & Mechanical Systems  
 MAE 4415 Flight Dynamics  
 One class from the following list:  
 MAE 3120 Aerospace Structures  
 MAE 4316 Rocket Propulsion  
 MAE 4318 Airbreathing Propulsion  
 MAE 4455 Flight Mechanics  
 MAE 4510 Engineering Design I with focus on Aerospace Vehicle  
 MAE 4512 Engineering Design II with focus on Aerospace Vehicle

**Master of Science — Mechanical Engineering**

The Department of Mechanical and Aerospace Engineering offers a program leading to the Master of Science in Mechanical Engineering (M.S.M.E.). This research-oriented academic degree is appropriate either as a terminal degree or in preparation for doctoral studies in mechanical and aerospace engineering. Courses at the graduate level are offered in the late afternoon or evening to enable students from local industry to complete their studies. The graduate curriculum includes:

- Aerospace Engineering
- Automation, Controls and Robotics
- Dynamic Systems and Control
- Manufacturing
- Remote Sensing
- Space Systems
- Thermal Systems
- Fluid Mechanics

A cooperative interdisciplinary program in Bioengineering

Interdisciplinary research programs are available to graduate students. Graduate students can participate in ongoing research programs through independent study projects or as research assistants on sponsored research projects.

The M.S.M.E. program consists of coursework and research in advanced mechanical engineering, allowing emphasis in one or more of the following areas listed above.

**Master of Engineering**

The Master of Engineering degree is a practice-based graduate degree. The Master of Engineering program currently offers specialty options in Engineering Management and Space Operations

(distance only). In each option, a series of required courses are specified leading to a capstone course. The program provides an opportunity to combine electives from a variety of fields including business, electrical engineering, computer science, mathematics, and aerospace engineering.

## Graduate Admission Requirements

The minimum requirements for regular admission into the M.S.M.E. or Master of Engineering programs are:

1. Baccalaureate degree (B.S.) in engineering, applied mathematics, or physics from an accredited institution. Currently enrolled undergraduate engineering students with exceptional academic records may qualify for guaranteed early admission to the M.S.M.E. graduate program - please contact the MAE department for more information. Students wishing to pursue a Master of Engineering in Engineering Management should have a baccalaureate degree consistent with the desired specialization area.
2. An undergraduate grade point average of 3.0 or higher on a scale of 4.0 in all college level academic work attempted.
3. Evidence of mathematical maturity equivalent to the completion of the following university-level coursework:
 

Three semesters of calculus

  - At least one semester beyond calculus (advanced calculus or ordinary differential equations)
  - Linear algebra
  - Probability and statistics
  - Knowledge beyond the introductory level in mechanical engineering, either through prior undergraduate coursework and/or professional experience.
4. Official transcripts from all academic institutions attended, including UCCS itself if applicable.
5. Three letters of recommendation, mailed to the MAE Department Office.

Applicants who do not meet these requirements for regular admission may be admitted on a provisional basis subject to the recommendations of the MAE graduate committee.

For more information about these

programs, contact the Department of Mechanical and Aerospace Engineering, Graduate Programs, University Hall, Room 309, or call (719) 262-3243. Send email to [mae@uccs.edu](mailto:mae@uccs.edu) or see our webpage at [mae.uccs.edu](http://mae.uccs.edu).

## Application Forms

Application materials can be obtained from the Department of Mechanical and Aerospace Engineering (MAE) at the address below or by accessing the website <http://mae.uccs.edu>. Students are encouraged to submit program application materials promptly.

Also required are:

- a. Two copies of official transcripts, and
- b. Three references (with at least one from a former instructor)

## Transfer Credits

Course credit between the CU-Boulder, CU-Denver, and UCCS courses in mechanical or aerospace engineering will be fully transferable. A table of University of Colorado System course equivalencies is contained in the CU-Boulder Bulletin.

Up to nine hours of graduate work may be approved for transfer from other established graduate programs, subject to the following conditions:

- The course has not been used for any other degree.
- The grade earned for each course is B (3.0) or better.
- The course is equivalent in level and content to the course for which it is being substituted.

## Master of Science – Mechanical Engineering

### Degree Requirements

The curriculum for the degree will total thirty semester hours of graduate study, with a minimum of six hours of coursework in graduate-level pure or applied mathematics. Each M.S.M.E. student will select either the thesis option (Plan I) or the non-thesis option (Plan II), subject to their advisor's approval. Both options require a minimum of thirty hours of study to complete the master's program.

During the first semester of enrollment, each student will prepare a Plan of Study and choose either Plan I (thesis option) or Plan II (non-thesis option). The

choice of Plan I or Plan II will determine the nature of each student's program requirements. The Plan of Study, which must be approved by the student's graduate advisor and the MAE Graduate Affairs Committee, will specify the student's selected area of interest and list courses related to that area. Any subsequent changes to the Plan of Study must also be approved by the student's advisor and the MAE Graduate Affairs Committee.

The student and advisor will select an advisory committee, which will provide assistance in formulating and executing the student's graduate program. The committee shall consist of at least three full-time faculty members selected from the College of Engineering and Applied Science at UCCS; the advisor must be a tenured or tenure-track faculty member of the Department of Mechanical and Aerospace Engineering. Eligibility to serve on the graduate committee shall be determined by the policies and procedures of the Graduate School.

### Plan I (Thesis Option)

At least twenty-four hours of graduate coursework and up to six hours of thesis/research credit is necessary to satisfy the thirty credit hour requirement. The thesis/research credit will be provided for research and preparation of the student's thesis, and defense of the thesis is required for completion of the program. The thesis committee will review drafts of the M.S.M.E. thesis and conduct the comprehensive examination upon completion of the thesis. The thesis defense will be based on the thesis and related materials and will be open to the public. Any student who does not pass the thesis defense may attempt the examination a second time. The second failure of the defense will result in dismissal from the M.S.M.E. program.

### Plan II (Non-Thesis Option)

A student choosing the non-thesis option (Plan II) will be required to complete at least thirty hours of graduate coursework and pass a comprehensive examination to complete the program. The comprehensive examination, to be conducted by the advisory committee, must be taken after all other requirements have been satisfied or in the last semester of study. Any student who does not pass the comprehensive examination may attempt the examination a second time. The second failure of the examination will result in

dismissal from the M.S.M.E. program.

Please see the course descriptions for a complete list of graduate courses in mechanical and aerospace engineering.

## **Master of Engineering Degree**

### **Requirements**

The curriculum for the degree will total thirty semester hours of graduate course work and a creative investigation. A graduate advisor should be selected in the first semester of the program. The course work options are predefined, consisting both of required "core" courses and additional electives to be selected from the list approved for that specialization. Any deviations from the predefined curricula (including transfer credit) must be approved by a graduate faculty advisor in the MAE Department. Course work must be completed with a 3.0 G.P.A. or better, and all course work applied to the program (including any transfer credit) must have been completed no earlier than 6 years prior to degree completion.

### **Engineering Management**

The primary objective of this degree program is to integrate knowledge and skills from engineering and business disciplines to allow students to develop effective responses to rapidly changing technological and business environments. The program recognizes that many engineers evolve into management/supervisory roles and require a blend of technical advanced engineering and business/management education to succeed in today's technical marketplace.

The program prepares engineers for effective participation in management of technology, management of technology-based organizations, and management of technological change. This focus is achieved through a careful balance of graduate course work in business, management, and a technical area of the student's work/academic interests.

The degree program consists of 30 semester hours divided between core courses (15 hours) and a specialization area (15 hours). The required core courses provide the basics of effective business/management education necessary for engineers migrating into management or supervisory roles and the conceptual underpinning of

the systems engineering process. The specialization areas offer a student the opportunities for graduate course work in a technical area of his/her choosing. Degree requirements also include a written, investigative report that reflects course material from both required courses and a specialization area.

### **Program Prerequisites**

1. An accredited BS degree in an engineering or science discipline or:
2. Experience in a commercial, civil, or government engineering/science career field.

### **Program Requirements**

Core Courses (15 required hours)

Student must take the following three courses:

BCOM 550. Professional Business Communication

BUAD 560. Business, Government & Society

MAE 5093. Systems Engineering

Student must select any two courses from the following:

ACCT 600. Contemporary Issues in Accounting

MGMT 620. Managing Organization Development and Change

INFS 600. Information Systems

MKTG 600. Marketing Strategy

OPTM 600. Operations: Competing through Capabilities

### **Specialization Areas (15 elective hours)**

Select five courses from any one-specialization area. The courses should be consistent with the student's academic background and work environment. An academic advisor must approve the course selections.

1. Computer Science/Software Systems
2. Electrical and Computer Engineering
3. Manufacturing Engineering
4. Mathematics
5. Mechanical Engineering
6. Space Systems

### **Space Operations (Distance Only)**

The Master of Engineering degree with an option in Space Operations is ideally suited for working professionals involved in civil, military, or commercial space operations, payload and mission support, space systems analysis, space systems requirements and design specifications. The Master of Engineering in Space Operations is administered and taught as a distance program. The degree program

consists of 10 courses including a written, creative, investigative report.

### **Program Prerequisites**

Two semesters of calculus-based physics; a programming course in a higher order language; linear systems theory; engineering probability; linear algebra; and differential equations are required for admission to the program.

## **Ph.D. in Engineering**

The Department of Mechanical and Aerospace Engineering supports a Ph.D. program in Mechanical and Aerospace Engineering as part of the Ph.D. in Engineering degree. Students who are interested in research areas in mechanical and aerospace engineering, and would like to pursue the Ph.D. in Engineering degree should contact the Department at 719-262-3243.

Regular admission to the Ph.D. program requires a 3.3 grade-point-average (G.P.A.) on all previous college work, including both graduate and undergraduate. The Graduate Record Examinations (G.R.E.) may be required. The verbal reasoning and quantitative reasoning portions of the G.R.E. are required of all foreign applicants.

Graduates of foreign universities are required to take the TOEFL exam: A score of 550-600 on the paper-based exam, or of 213-250 on the computer-based exam is required. Students not admitted on a regular basis may be admitted on a provisional basis depending on their over-all application file, including G.P.A., G.R.E., letters of recommendation, etc. Students admitted on a provisional basis are often required to take remedial courses (these are specified in the letter of acceptance). Registration for such remedial courses must commence with the first semester of a student's program with at least three credits completed per semester until all remedial requirements are satisfied.

### **Degree Requirements**

The Ph.D. degree is awarded to students who have satisfied the requirements of duration of program, who have submitted an acceptable dissertation, and who have passed all prescribed examinations.

For a student entering with a master's degree:

- Complete 30 semester hours of course work.



- At least 15 semester hours must be MAE courses.
- At most 9 semester hours may be independent study courses.
- All 30 semester hours must be numbered 500(0) and above.
- Cross-listed courses which are offered at the 500(0)/600(0) levels must be taken at the 600(0) level.
- Complete 30 semester hours of dissertation research in addition to course work.
- Have an overall graduate G.P.A. of 3.0 in order to graduate.
- Have a grade of B- or better in all courses applied toward the Ph.D. degree.
- Pass Preliminary Examination, Comprehensive Examination
- No foreign language is required

### Department of Mathematics

Engineering Building, Room 274  
 (719) 262-3311 Fax: (719) 262-3605  
<http://mathweb.uccs.edu/>  
 E-mail: mathinfo@math.uccs.edu

### Faculty

Professors: Abrams, Carlson, Daly, Haefner, Henderson, Phillips, Rangaswamy, Schinazi and Zhang;  
 Associate Professors: Chakravarty, Morrow; Assistant Professors: Cascaval, Son; Instructor: Michaux; Director of MLC: Schumann.

### Programs coordinated by the department:

- Minor in Mathematics
- Minor in Statistics
- Bachelor of Arts in Mathematics
- Bachelor of Science in Mathematics
- Industrial Mathematics Certificate
- Applications in Technology in Mathematics Education Certificate
- Master of Science in Applied Mathematics
- Master of Basic Science with Mathematics Emphasis
- Ph.D. in Engineering - Applied Mathematics Track

The Department of Mathematics at UCCS offers a wide range of courses, degrees, and programs to meet the needs of a diverse constituency in the Pikes Peak

Region. The degree programs include a Bachelor of Arts in Mathematics, Bachelor of Science in Mathematics, and Master of Science in Applied Mathematics. A Mathematics option is also available through the Master of Basic Science degree offered through the College of Letters, Arts and Sciences. An Applied Mathematics track is available in the Engineering Ph.D. program.

The department offers minors in both Mathematics and Statistics. In addition, the department supports the Certificate Program in Industrial Mathematics, and the Certificate Program in CATME (Center for Applications and Technology in Mathematics Education).

### Mathematics Learning Center

The Mathematics Learning Center (MLC) is located in the EAS Building, Room 129. The MLC began operation in the fall of 1990 as part of a federally funded Title III initiative known as Project Excel. The Math Learning Center provides drop-in mathematics tutoring for students, supports the individualized mathematics courses offered through the Extended Studies program, and provides student support for the Hewlett-Packard Computer Laboratory which is used for mathematical endeavors. As the role of computer technology in the classroom continues to grow, so too does the importance of the MLC as a vital student resource.

### Academic Policies

#### Prerequisite Policy

For the courses, Math 104, 105, 111, 112, and 135, students must meet the entrance requirements for the course. For all other courses, listed prerequisites are advisory only. If a student has not achieved a passing grade in a listed prerequisite course, the student must demonstrate that he/she possesses an appropriate level of competence in the prerequisite topics before enrolling in the subsequent course. Such students must satisfactorily complete either the Algebra Diagnostic Exam or Calculus Readiness Exam as is warranted. Students enrolled in any one of the courses Math 104, 105, 111, 112, 135 who have not either met the course prerequisite or the exam prerequisite by the second week of the semester must disenroll from the course.

Students who are interested in enrolling in any of Math 104, 105, 111, 112, or 135 are strongly encouraged to take

the appropriate placement exam well before the start of the semester, for pedagogical, advising and administrative purposes. To make an appointment to take a placement exam, or for more information, contact the Testing Center at 262-3340.

### Calculator Policy

The Department of Mathematics Department Policy on Calculators: Calculator usage on exams is limited to a basic scientific calculator with a minimal number of storage registers and no graphing capability.

### Bachelor of Arts — Mathematics

The Bachelor of Arts Degree in Mathematics is a traditional degree in mathematics. Most students choose this degree in order to prepare for a career as a mathematics teacher or to prepare for a graduate program in pure mathematics. The Bachelor of Arts students follow the general education requirements of the College of Letters, Arts, and Sciences.

A Bachelor of Arts degree in Mathematics requires completion of at least 120 hours, a minimum 2.0 on each required mathematics course and a minimum CU cumulative GPA of 2.0. In addition, an Exit Interview with the Mathematics department is required prior to graduation. The degree requires the following courses:

#### Mathematics (43 semester hours)

MATH 135, 136, 235. Calculus I, II, III.....	12
MATH 215. Discrete Mathematics .....	3
MATH 310 or Math 381. Statistics for the Sciences or Intro to Probability and Statistics .....	3
MATH 313. Introduction to Linear Algebra.....	3
MATH 340. Intro to Differential Equations .....	3
MATH 414. Modern Algebra 1 .....	3
MATH 431. Modern Analysis I .....	3
MATH 448. Mathematical Modeling .....	3
MATH 495. Senior Seminar.....	1
Math 303 or above electives.....	9

#### Mathematics Secondary Teaching Option (43 semester hours)

There is an option for Mathematics Secondary Teaching. Students should contact an advisor in the College of Education as soon as possible to construct a schedule of their required education courses for this option.



MATH 135, 136, 235. Calculus I, II, III.....12  
 MATH 215 Discrete Math.....3  
 MATH 310 or Math 381.  
 Statistics for the Sciences or Intro to  
 Probability and Statistics .....3  
 MATH 311 Number Theory .....3  
 MATH 313 Intro to Linear Algebra .....3  
 MATH 340 Intro to Differential Equations ..3  
 MATH 421 Higher Geometry.....3  
 MATH 431 Modern Analysis I .....3  
 MATH 448 Mathematical Modeling .....3  
 Mathematics electives.....6  
 MATH 495 Senior Seminar .....1

**Humanities Area Requirement  
 (12 semester hours)**

Core Humanities (HUM prefix, numbered  
 300 and above) .....3  
 PHIL 344 Symbolic Logic or PHIL 443  
 Logical Theory.....3  
 Remaining hours from approved LAS  
 General Humanities list .....6  
 (Secondary Teaching Option Candidates need  
 to take PHIL 100 Intro to Philosophy or PHIL  
 102 Ethics as part of the 6 hours)

**Natural Science Area Requirement  
 (12 semester hours)**

From approved LAS Natural  
 Science list .....12

**Teachers need to take one of the  
 following:**

PES 111, 115, 112, 215 General Physics  
 I and II and Labs, plus 2 hours from the  
 approved LAS Natural Science list,  
 or  
 12 hours from the approved LAS Natural  
 Science list to include one lab

**Social Science Area Requirement  
 (12 semester hours)**

From approved LAS Social Science list ...12  
 Teachers need to take PSY 100. General  
 Psychology as part of the 12 hours.

**Composition Requirement  
 (6 semester hours)**

ENGL 131 Rhetoric & Writing I.....3  
 ENGL 141 Rhetoric & Writing II.....3  
 Free Electives ( minimum 35 semester hours  
 to complete 120 hour requirement)

Students should take a number of courses  
 in computer science to prepare them for  
 the various career options in mathematics.  
 Foreign languages are encouraged for  
 students interested in research. Teachers  
 will fill up all free electives with education  
 courses (students should contact the  
 College of Education for required education  
 courses)

**Bachelor of Science —  
 Mathematics**

The Department of Mathematics offers

a curriculum leading to the degree of  
 Bachelor of Science in Mathematics.  
 The Bachelor of Science Degree in  
 Mathematics is well-suited for those  
 students aiming toward a career in  
 applied mathematics or planning for  
 graduate school in applied mathematics.  
 This program is also appropriate for  
 those mathematics students who have  
 not yet decided between a teaching  
 career or a career in industry. The B.S.  
 students follow the general education  
 requirements of the College of  
 Engineering and Applied Science

Modern industrial and scientific  
 enterprises are so dependent on advanced  
 mathematical concepts that applied  
 mathematicians are needed today by  
 almost all concerns that are engaged in  
 such work. The undergraduate curriculum  
 is designed to give training in mathematics  
 and in engineering and science. The use  
 of numerical methods and computers is  
 included.

The student must have a secondary  
 emphasis area in a specific engineering,  
 computer science, or applied science  
 department. The choice of a secondary  
 area must be approved by the student's  
 faculty advisor. Foreign languages are  
 encouraged for students interested  
 in research. A maximum of 8 hours  
 of foreign languages may be taken  
 and applied to the approved electives  
 requirements. German, French and  
 Russian are the approved languages.

**Degree Requirements**

A Bachelor of Science degree in  
 Mathematics requires completion of  
 at least 120 hours, a minimum 2.0 on  
 each required mathematics course and  
 a CU minimum GPA of 2.0. In addition,  
 an Exit Interview with the Mathematics  
 department is required prior to  
 graduation. The degree requires the  
 following courses:

Mathematics (43 semester hours)  
 MATH 135, 136, 235. Calculus I, II, III.....12  
 MATH 215. Discrete Mathematics .....3  
 MATH 310 or Math 381. Statistics for  
 the Sciences or Intro to Probability and  
 Statistics.....3  
 MATH 313. Introduction to  
 Linear Algebra.....3  
 MATH 340. Introduction to Differential  
 Equations .....3  
 MATH 431. Modern Analysis I .....3  
 MATH 448. Mathematical Modeling .....3  
 MATH 495 Senior Seminar .....1  
 One of the following restricted mathematics  
 elective sequences .....6

(i) Analysis: (a) MATH 445. Complex Variables  
 and (b) MATH 443. Ordinary Differential  
 Equations, or MATH 447. Partial Differential  
 Equations,  
 (ii) Optimization and Numerical Analysis: (a)  
 MATH 442. Optimization and (b) MATH 465.  
 Numerical Analysis,  
 (iii) Statistics: two of from MATH 482.  
 Introduction to Mathematical Statistics, MATH  
 483. Linear Statistical Models, MATH 485.  
 Stochastic Modeling  
 Mathematics electives  
 (numbered 310 or higher).....6

**Basic Science and Technology  
 (22 semester hours)**

CS 115. Prin. of Computer Science\* .....3  
 CS 145. Data Structures & Algorithm .....3  
 CS 460 or MATH 465 Numerical Computing  
 or Numerical Analysis .....3  
 ECE 1010. Problem Solving in  
 Engineering\* .....2  
 ECE 1011. Computer Based Modeling\* ....2  
 PES 111. General Physics I .....4  
 PES 112. General Physics II .....4  
 PES 115. General Physics Lab I .....1

**Humanities and Social Sciences  
 (24 semester hours)**

Engl. 131 or 141 Rhetoric &  
 Writing I or II .....3  
 Comm 210 Platform Speech .....3  
 Engl 307 Business & Administrative  
 Writing.....3  
 Engl 309 Technical Writing &  
 Presentation .....3  
 Additional social science-  
 humanities electives .....15

**Secondary Area Requirement  
 (18 semester hours)**

Normally, a graduate of mathematics  
 who accepts a position in the private or  
 public sector will be working as part of a  
 team to solve applied problems outside  
 of mathematics. Seldom is this problem  
 purely one in mathematics. Because  
 of this, an applied mathematician  
 needs a working knowledge of another  
 discipline, and so each graduate of  
 the B.S. in Mathematics program must  
 complete a secondary area requirement.  
 A secondary area requires 18 hours  
 of which 9 hours must be 300 level or  
 higher. This may be done in any one of  
 the following ways:

**1. Departmental Coursework**

Select classes from one of the  
 following departments: Biology,  
 Chemistry, Computer Science,  
 Economics, Electrical and Computer  
 Engineering, Mechanical and  
 Aerospace Engineering, Physics, or  
 Psychology. Courses used for general  
 education requirements may be

counted towards this requirement.

**2. Interdisciplinary Secondary Areas**

Complete one of the interdisciplinary secondary area programs that have been approved by the department. At present, there are two such programs: System Science and Engineering and Actuarial Science (see Below).

**3. Personalized Secondary Program**

Design a personalized secondary area program that may include courses from departments other than those listed in (1) above, and/or may be interdisciplinary in nature. Such a program MUST have the approval of the faculty advisor from the Mathematics Department.

**Technical Electives**  
**(13 semester hours)**

Complete 13 hours of courses to broaden exposure to fields of science or engineering. Courses must be approved by the mathematic faculty advisor, of which 6 hours must be 300 level or higher courses.

Semester hours exceeding the required 18 in the secondary area may be applied to the technical elective requirement. Courses counted toward the basic science requirement do not apply, and at most 4 semester hours of computer languages may be used. A maximum of 8 semester hours of foreign languages may be applied to this requirement.

**Concentrations and Minors**

**Concentration in System Science and Engineering**

Systems science is an approach that views an entire system of components as an entity rather than simply an assembly of individual parts; each component is designed to fit properly with the other components rather than to function by itself. The engineering and mathematics of systems is a rapidly developing field. It is one of the most modern segments of applied mathematics, as well as an engineering discipline. It is concerned with the identification, modeling, analysis, design, and control of systems that are potentially as large and complex as the U.S. economy or as precise and vital as a space voyage. Its interests run from fundamental theoretical questions to the implementation of operational systems. In its mathematical aspects it draws on the most modern and advanced areas of mathematics. At the application end of the spectrum, the systems scientist is a scientist/engineer with a

unique and indispensable viewpoint. For example, in the aerospace industry, the systems engineer devises the control and guidance laws, navigational systems, trajectory tracking, and estimating algorithms - indeed the total coordinated structure of complex aerospace undertakings.

**Mathematics Requirement**

One from MATH 448, 485, 483  
AND  
One from MATH 442, 443, 447, 465, 467

**Secondary Area Requirements**

ECE 2210. Circuits 1  
MAE 2101. Statics  
MAE 2102. Dynamics  
ECE 3510. Linear Systems Theory  
ECE 4510. Feedback Controls  
ECE 4530. Control System Lab  
MAE 4506. Engineering Simulation or ECE. 4540 Digital Control  
MAE 3401. Modeling & Simulation of Dynamic Systems

**Concentration in Actuarial Science**

Actuarial Science is a professionally oriented program combining business, economics, and mathematics, and is designed to prepare students to begin careers as actuaries. Actuaries are experts in risk management. Graduates of this program are prepared for the first three professional actuary exams and have a solid base of preparation for further exams. See the Society of Actuaries web page, <http://www.soa.org>, for additional information concerning these exams and a career in Actuarial Science.

To provide a solid foundation for this career and prepare for these three exams, the student should complete the following program:

**Mathematics Requirement**

MATH 381. Introduction to Probability and Statistics  
MATH 482. Introduction to Mathematical Statistics  
MATH 483. Linear Statistical Models, OR  
MATH 485. Stochastic Modeling

**Secondary Area Requirements**

**Economics**  
ECON 101. Introduction to Microeconomics  
ECON 102. Introduction to Macroeconomics  
ECON 301. Intermediate Microeconomic Theory

**Business**

ACCT 201. Introduction to Financial Accounting  
BLAW 200. Business Law

FNCE 305, FNCE 420

**Minor in Mathematics**

A student wishing to complete a minor in mathematics must complete at least 24 hours of courses and every course in the minor must be completed with a grade of C or better. The student will be responsible for any prerequisites to required courses. The required courses for the minor are as follows:

MATH 135, 136, 235 ..... 12 hours  
One from MATH 215, 311, 341, 350, 351, 414, 421, or 431..... 3 hours  
At least 9 additional hours of math courses numbered above 303..... 9 hours

**Minor in Statistics**

A minor in statistics requires at least 21 hours of courses and every course must be completed with a grade of C or better. It is imperative that a student intending to minor in statistics plan her/his program and obtain the approval of a departmental advisor before the end of her/his sophomore year. Of these 21 hours, the following requirements must be met:

MATH 310 or its equivalent..... 3 hours  
MATH 381 or its equivalent..... 3 hours  
One of: MATH 482, 483, 485..... 3 hours

It is imperative that a student intending to minor in statistics plans her/his program and obtains the approval of a departmental advisor before the end of her/his sophomore year.

**Certificate Programs**

**Industrial Mathematics Certificate Program**

The College of Engineering and Applied Science offers a Certificate in Industrial Mathematics to qualified students. The program endeavors to prepare students for careers in the applications of Mathematics in Industry by emphasizing mathematical modeling, courses in traditional applied mathematics, and work on actual industrial problems with the cooperation of representatives from industry. The certificate is awarded at three levels. It is available for undergraduate students in both the colleges EAS and LAS and for graduate students in EAS. Please call or write the Department of Mathematics for more information.

**Applications and Technology in Mathematics Education Certificate Program (CATME)**

The College of Engineering and Applied Science offers a Certificate in Applications and Technology in



Mathematics Education to qualified students. The purpose of the program is to train teachers (and potential teachers) in the use and methodology of applications and technology in the mathematics classroom. The program emphasizes courses that train the instructor on the use of graphing calculators, computer algebra and geometry systems, as well as the applications of mathematics that use those technologies. It is available to all registered students at UCCS. Please visit the Department of Mathematics website <http://math.uccs.edu/programs> for more information.

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### **Master of Science – Applied Mathematics**

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The Department of Mathematics offers a strong graduate program leading to the Master of Science in Applied Mathematics. Specific areas of study currently available include astrodynamics, statistics, probability, differential equations, applied analysis, computer vision, algebra, and coding theory.

#### **Tracks**

To respond to the needs of both students and employers, the Department has organized this degree program into a system of four tracks, which are intended to help students develop their programs of study. The tracks are 1) K-14 education, 2) Ph.D. preparation, 3) applied and computational mathematics, and 4) business and management. Detailed information about the tracks may be found at the department web site, <http://math.uccs.edu>. Customized programs of study are also available.

#### **Admission Requirements**

Bachelor degree in mathematics (or a Bachelor degree in some other field, with extensive coursework in mathematics), including a course in real analysis comparable to the UCCS course Math 431. A minimum grade point average of 3.0. Under special circumstances students may be admitted with a lower grade point average (or without a course in real analysis) as provisional degree students. (Please refer to the Graduate School admissions requirements.)

#### **Degree Requirements**

1. A 3.0 grade point average in all course work applied towards the degree.
2. An advisor is appointed during the first

semester of graduate work; usually this initial advisor is the chairman of the mathematics department graduate committee. The advisor must approve the student's course of study.

3. At least 30 semester hours of approved graduate work. This must include Linear Algebra (Math 513) and Modern Analysis II (Math 532). All students must pass comprehensive examinations in these two subjects. Approved mathematics graduate courses must be at the 500-level or higher. Students completing one of the four tracks of study will automatically fulfill the requirements for the M.S. Applied Math degree. Students may select a thesis or non-thesis option. Students in the thesis option will replace up to 6 hours of courses with Master's thesis.
4. All students are required to make an oral presentation regarding some aspect of advanced mathematics. For students pursuing the thesis option, the thesis defense will qualify as such a presentation.
5. Courses will have graduate rank only if members of the graduate school faculty teach them and are at the 500 level or above. All courses intended to count for the degree must be part of an approved plan of study. This plan must be developed by the student and approved by the advisor within the first semester after being admitted to the program. This plan may be revised at any time with the approval of the advisor. The plan will require students to demonstrate some cohesiveness in the courses chosen, or to demonstrate a clear subject area of concentration.
6. A student may complete up to 12 hours of appropriate graduate coursework in departments other than the department of mathematics, as part of the "tracks" program. Such courses MUST be PRE-approved by the advisor.
7. Students must demonstrate basic competency in computing.
8. The department graduate committee must approve exceptions to these requirements.

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### **Master of Basic Science**

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The Department of Mathematics offers mathematics and mathematics teaching options under this interdisciplinary program administered by the College of Letters, Arts, and Sciences.

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### **Ph.D. in Engineering**

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The Department of Mathematics supports a Ph.D. in Engineering with a concentration in applied mathematics. Students who are interested in research areas with an emphasis in applied mathematics, and would like to pursue the Ph.D. in Engineering degree should contact the Department at 719-262-3311.

#### **Graduate Teaching Fellowships**

A limited number of teaching assistantships are available. For information contact the graduate advisor of the Department of Mathematics. Typically, students requesting assistantships should indicate this three months prior to the application deadline for the intended semester.

**Tom Huber, Dean**

**Main Hall, room 304**

**Telephone: (719) 262-3044**

**Fax: (719) 262-3045**

**web.uccs.edu/gradschl**

**Information about the School**

Graduate work at the University of Colorado began on a small scale in 1892. Following some years of development, in 1909 the Graduate School was organized as a University-wide body with a separate faculty. The Graduate School consisted of faculty resident on the several campuses who organized programs within the constituent colleges and schools. This body operated under the leadership of the Vice President for Academic Affairs and System Dean of the Graduate School in conjunction with a University-wide Executive Committee charged with developing and effecting University-wide academic policy.

Effective in 1999, each campus organized its graduate programs within an autonomous Graduate School. UCCS now has its own Graduate School with a Dean and a Graduate Executive Committee, who hold responsibility for the enforcement of Graduate School requirements and policies on this campus and for the development and approval of academic issues. The Graduate School provides oversight and coordination for all graduate programs on the campus.

Anyone wishing further information should contact the specific department, or the Graduate School, UCCS, Main Hall 304B, P.O. Box 7150, Colorado Springs, Colorado 80933-7150, (719) 262-3417, gradschl@uccs.edu

**Programs of Study**

The following programs at the graduate level are available for completion through the Graduate School:

- Applied Geography (M.A.) ..... LAS
- Applied Mathematics (M.S.) ..... EAS
- Basic Science (M.B.S.) ..... LAS
- Business Administration (M.B.A.) ..... BUS
- Communication (M.A.) ..... LAS
- Computer Science (M.S.) ..... EAS
- Counseling and Human Services (M.A.) ..ED

- Criminal Justice (M.C.J.) ..... GSPA
- Curriculum and Instruction (M.A.) .....ED
- Electrical Engineering (M.S.) ..... EAS
- Engineering (Master of Engineering) (PhD).....EAS
- Geropsychology (PhD)..... LAS
- History (M.A.)..... LAS
- Mechanical Engineering (M.S.) .....EAS
- Nursing (M.S.N.) .....BETH-EL
- Psychology (M.A.) ..... LAS
- Public Administration (M.P.A.)..... GSPA
- Sociology (M.A.) ..... LAS
- Special Education (M.A.).....ED

The Department of English offers coursework applicable to a Master of Arts degree in English.

The Master of Engineering degree offers options in Engineering Management, Manufacturing, Information Assurance, and Software Engineering

The newly restructured Ph.D. program in Engineering includes the previously offered specialization in Electrical Engineering, plus allows for new focus areas not previously available. These new areas include traditional specializations such as Mechanical Engineering, Computer Science, and Mathematics.

The Master of Basic Science is a multi-disciplinary advanced degree. Options within the Master of Basic Science degree include Anthropology, Biology, Biotechnology/Biochemistry, Chemistry, Exercise Science, Geography, Mathematics, Science and Mathematics Teaching, and Physics.

Descriptions of each of the graduate programs are found in the appropriate college, school, and departmental sections of this bulletin.

**Rules of the Graduate School**

The official policy of the Graduate School is contained in the Rules of the Graduate School. These rules are available in the office of the Graduate School, Vice Chancellor for Academic Affairs, on the UCCS web site, and in each graduate program office.

**Admission of Graduate Students**

**General Requirements**

Students may be admitted to the Graduate School in either of the two categories, described below. A student who is granted admission must reflect, in a moral and ethical sense, a personal background acceptable to the University. The University reserves the right to deny admission to applicants, or to cancel the enrolled status of current students, whose total credentials reflect an inability to assume those obligations of performance and behavior deemed essential by the University and relevant to any of its lawful missions, processes, and functions as an educational institution.

**Regular Admission Status**

An applicant for admission as a regular degree student must meet the following minimum requirements. Some programs may have additional requirements for regular admission, and requirements for Guaranteed Early Admission (described below) are also higher. Qualified students are recommended for admission to regular degree status by the appropriate department.

1. Hold a baccalaureate degree or a master's degree from an accredited college or university, or demonstrate completion of work equivalent to the baccalaureate or master's degree given at this University.
2. Have an undergraduate grade point average of 2.75 or better ("A" is equal to 4.0); or

Have a combined undergraduate grade point average and score on a national standardized admissions test that meet criteria determined by the program; or

Have completed 15 semester hours of relevant graduate course work at an accredited university with a grade point average of 3.25 or better. Note that units completed before admission may not all be transferable into a graduate degree program.

3. Have adequate preparation to enter graduate study in the chosen program, and meet the requirements for admission, as determined by the program faculty.



For students who do not meet the above criteria, program faculty may assign course work and/or examinations that must be taken in order to make up deficiencies.

Regular degree students must maintain at least a 3.0 cumulative grade point average on all work taken as a graduate student that is applied toward the advanced degree. Students who fail to maintain this standard of performance will be subject to probation or dismissal from the Graduate School.

**Guaranteed Early Admission**, a special guaranteed-admission option, is available to UCCS students currently enrolled in their final semester of undergraduate study. This option may also be exercised by UCCS undergraduate alumni within one year after their graduation. If the applicant meets all the admission requirements for this option, admission to the graduate program of interest is guaranteed. The special admission requirements for this option vary by graduate program, and applicants under this option must contact their graduate program of interest to determine that program's requirements.

### **Provisional Admission Status**

An applicant not meeting the criteria for admission as a regular degree student may be recommended by the faculty for admission as a provisional student. The recommendation must include a statement of the conditions which the student must meet in order to become a regular degree student. When the conditions for regular status are met, the program director has the responsibility to reclassify the student to regular status.

Provisional students are subject to the same standards of performance required of regular degree students, in addition to other requirements a program faculty may impose as conditions of admission.

### **Graduate Admission Examinations**

Graduate programs may require either the Graduate Record Examination (G.R.E.), Graduate Management Admission Test (GMAT), or the Miller Analogies Test (MAT). Applicants must check specific departmental testing requirements. Information regarding the tests, dates scheduled, and procedures for enrolling is available from the University Testing Services Office in the Student Success Help Center, 2nd floor Main Hall.

Admission to the Graduate School is not admission to candidacy for an advanced degree. A student who wishes to become a candidate for a degree must make special application at the time and in the manner prescribed by the requirements for the degree sought.

### **Application Procedures**

Regular Application Process - Applications for admission to an advanced degree program should be sent to the appropriate UCCS department or program office. The complete application must include:

1. Part I and Part II of the graduate application (including the Residency form).
2. Two official transcripts of all academic work completed to date, sent directly from the academic institutions attended.
3. A nonrefundable application processing fee.
4. Test scores, letters of reference, and other materials as required by specific programs.
5. For international applicants, a score on the Test of English as a Foreign Language (TOEFL).

All credentials presented for admission become the property of the University of Colorado.

Although students may apply at any time, for maximum consideration for financial support starting in the fall semester, all application material must be received by March 1. Complete applications (including all supporting documentation) submitted to the program office at least 60 days prior to the term for which admission is sought are normally assured full consideration for admission; some programs have established earlier deadlines.

Completed applications for foreign students must be on file in the Office of Admissions and Records prior to April 1 for the fall semester and October 1 for the spring. All foreign students interested in graduate admission must begin the process with the Foreign Student Adviser in the Office of Admissions and Records.

**Guaranteed Early Admission** – Under this option, the applicant completes only a special one-page application form available from their graduate program of interest, and submits it along with the

application fee to the program director. Also, in most cases other application requirements, such as letters of support and transcripts, are significantly less than for the regular admission process. The specific requirements are available from the respective graduate program. If the applicant meets all the admission requirements for this option, admission to the graduate program of interest is guaranteed.

**Fast-Track Admission** – This special admission-process option is available to any UCCS undergraduate alumnus, within the first four years after their graduation. This is not a guaranteed admission option, however, but rather an expedited admission process. Under this option, the applicant completes only a special one-page application form available from their graduate program of interest. This form, along with the application fee, is submitted to the program director. Also, in most cases other application requirements, such as letters of support and transcripts, are significantly less than for the regular admission process. The specific requirements for this option are also available from the respective graduate program.

### **Notification of Acceptance**

After the Office of Admissions and Records has received the Graduate School approved departmental recommendation and all required credentials, the applicant will be notified regarding eligibility for admission. If eligible, the applicant will receive a letter of acceptance from the Office of Admissions and Records.

### **Unclassified Students**

A student holding a baccalaureate degree who wishes to take graduate courses but does not wish to earn an advanced degree from the University of Colorado should apply to the Office of Admissions and Records for admission as an unclassified student. (See the Unclassified Student section.)

### **Readmission of Former Students**

A student who was previously admitted to a graduate program, who did not complete the degree, and has not been continuously registered at the University, but now wishes to return, must do the following:

1. Clarify status with the program to determine eligibility to return and pursue the same degree.

2. After receiving program approval to continue work on the degree, submit a new Part I of the application to the program office before deadlines have passed for the term of expected return.

A former student will not be charged an application fee unless any coursework to be applied to the degree was taken more than six years prior to the student's return.

A student admitted to the Graduate School for a master's program must reapply for admission for a doctoral program. A student applying to a doctoral program from a master's program in the same department, with no break in attendance, will not be charged an application fee.

A dismissed student is eligible to reapply for readmission after one year. Approval or rejection of this application rests with the student's major department.

Former students who wish to change from one major to another should consult with their department chairperson and complete the appropriate forms.

## Registration

New degree or unclassified students are notified of eligibility to register for course work through the Statement of Eligibility for Admission mailed from the Admissions and Records Office. If this notice has not been received in time for registration, an inquiry should be made to Admissions and Records. Degree and unclassified students who do not stay continuously enrolled (having missed a fall and/or spring semester registration) must check with Admissions and Records 60 days before the next intended registration period to make sure of eligibility to register during regular registration. Former students should follow the same procedure. Degree students changing departments or graduate degree programs should begin the change process with the new department.

### Limitation of Registration

**Full Load** — Graduate students will be considered to be carrying a full load during a regular semester for purposes of determining residence credit if they are registered for not fewer than 5 semester hours in courses numbered 500 (or 5000) or above, or at least 8 semester hours of other graduate work, or any number of thesis hours. A full load

for purposes of determining residence credit during the summer session is 3 semester hours of work in courses numbered 500 or above, or 6 semester hours of other graduate work, or any number of thesis hours.

**Maximum Load** - No graduate student may receive graduate credit toward a degree for more than 15 hours in a regular semester. The maximum number of graduate credits that may be applied toward a degree during a summer session is 6 hours per 4-week term and 9 hours per 8-week summer session.

## Courses applicable to a degree

### Transfer Courses

Work already applied toward a master's degree received at another institution cannot be accepted for transfer toward the master's degree at the University of Colorado; extension work completed at another institution cannot be transferred; and correspondence work, except to make up deficiencies, is not recognized.

Transfer credits may be applied to a graduate degree only with the approval of the program director. Each program will establish, with the concurrence of the Graduate School Executive Committee, the maximum number of semester hours that may be transferred from another accredited institution and applied toward its graduate degree, without special approval of the Graduate Dean. The following provisions will apply:

1. All transfer courses must have a grade of B minus or above.
2. Some programs may require that credit will not be accepted for transfer until the student has established a satisfactory academic record at this university.
3. For master's degree students, all work accepted for transfer must have been completed within the six-year time limit or be validated and approved by program faculty.
4. Courses applied towards one master's degree may not be used towards another master's degree.
5. Requests for transfer of credit must be made on the form specified for this purpose. Official transcripts of credit must accompany requests or be on record.
6. Master's degree students must

submit transfer requests to the program director by the beginning of the semester prior to the semester in which they will graduate.

7. Doctoral degree students must submit transfer requests to the Graduate School before making application for admission to candidacy.

### Courses taken during senior year

Seniors at UCCS may transfer up to nine semester hours of coursework, provided such work meets the following requirements:

- is completed with a grade of B minus or above in the senior year at this University.
- comes within the time limit for the completion of the graduate degree.
- has not been applied toward another degree.
- is approved by the program director.

Undergraduate credits from another institution may not be transferred to the Graduate School.

### Courses taken while in unclassified status

Credits earned as an unclassified student at UCCS may be applied to a graduate degree only with the approval of the program director. Each program will establish, with the concurrence of the Graduate School Executive Committee, the maximum number of semester hours taken in unclassified status that may be applied toward its graduate degree, without special approval of the Graduate Dean. Coursework in progress during the semester in which formal admission is granted does not apply to this unclassified total.

### Extended Studies Courses

Students may use the resources of the Division of Extended Studies in the pursuit of graduate study only if they obtain proper academic approval from the program director.

### Graduate Courses

A graduate level course is any course that bears the graduate number appropriate to the discipline (i.e., 500-900 or 5000-9000) and is taught by a member of the graduate faculty.

### Undergraduate Courses

No lower division course nor undergraduate courses designed to

improve basic skills may be used as credit towards a graduate degree.

A program may require a student to take undergraduate courses as a means of making up deficiencies, but the credits generated in these courses may not be counted in the minimum number required for the degree.

### ***Independent Study***

Independent study credit hours may not exceed 25% of the minimum number required for the degree.

### ***Requirements on quality of graduate work***

Although the work for advanced degrees is specified partly in terms of credit hours, an advanced degree will not be conferred merely for the completion of a specified period of residence and the passing of a given number of courses. A student should not expect to get from formal courses all the training, knowledge, and grasp of ideas necessary to meet the requirements for an advanced degree.

A student is expected to maintain at least a B average in all work attempted in Graduate School. Work receiving a grade of less than C may not be counted toward any graduate degree. An in-progress (IP) grade given for thesis will be valid and must remain unchanged until the thesis has been completed.

A student who receives a grade below B minus in a course may repeat that course once, upon approval of the program director, provided the course has not been previously applied toward a degree. The grade received in a repeated course will substitute for the original grade and only the latter grade will be used in calculating the Graduate Program grade point average required for graduation. However, all grades received will appear on the student's transcript and will be used in calculating the student's University grade point average.

A student who fails to do satisfactory work will be subject to probation or dismissal from the Graduate School by the Dean with the approval of the major department. Appeals may be made to the campus Graduate Executive Committee, whose decision is final.

A student regularly admitted to the Graduate School and later accepted as a candidate for a master's degree will be recommended for the degree only after the following requirements have been met.

In general, only graduates of an approved institution who have a thorough preparation for their proposed field of study and who do graduate work of high quality are able to attain the degree with the minimum amount of work specified below. Necessary additional work required to make up deficiencies or prerequisites may be partly or entirely undergraduate courses.

The requirements stated below are minimum requirements. Additional conditions set by the department will be found in the announcements of separate departments. Any department may make further regulations that are not inconsistent with the general rules.

### **Minimum Degree Requirements – Master's Degree**

The minimum requirements of graduate work for a master's degree may be fulfilled by following either Plan I or Plan II below.

#### **Plan I (thesis)**

30 semester hours, including 4-6 hours of thesis credit. At least 24 semester hours must be at the graduate level.

#### **Plan II (no thesis)**

30 semester hours. At least 24 semester hours must be at the graduate level. (Some interdisciplinary programs may require fewer graduate level units.)

A candidate for the master's degree may be allowed to select Plan I or Plan II only upon the recommendation of the department concerned.

#### **Master's Thesis**

Every candidate pursuing a master's degree under Plan I (thesis option) is required to write a thesis, which may be of a research, expository, critical or creative type. Each thesis presented in partial fulfillment of the requirements for a master's degree must satisfy the specifications of the UCCS Thesis and Dissertation Manual, and shall represent 4 - 6 semester credit hours of work. The student may register for any specific number of hours in any semester of residence. The final grade will be withheld until the thesis is completed. If the thesis is not completed at the end of the term in which the student is so registered, an in progress (IP) will be reported.

A thesis advisory committee must be established for each student pursuing a master's degree under Plan I (thesis option). This committee will consist of the thesis advisor, and at least two other members of the graduate faculty, possibly including a member from an allied program. Upon the recommendation of the thesis advisor, the committee is appointed by the program director with the approval of the Graduate Dean.

#### **Regulatory Compliance**

The student, in consultation with their advisor, is responsible for obtaining and documenting appropriate institutional committee approval for research involving human subjects, animals and/or biohazards. This approval must be received prior to the student undertaking their research.

The thesis must be signed by the student's thesis advisory committee. Two formally approved copies of the thesis must be filed in the Library by the published deadline date.

### **Master's Degree Examinations**

Most master's degree programs require a comprehensive examination or a thesis defense after the other requirements for the degree have been substantially completed. A student must be registered at the time in which the comprehensive examination or thesis defense is held.

#### ***Comprehensive Examination***

This examination is administered by a committee of at least three graduate faculty appointed by the program director. A majority of the examination committee must vote affirmatively for the student to pass. A student who fails the examination may not attempt it again until at least two months have elapsed. The student may retake the examination only once.

#### ***Thesis Defense***

After the thesis has been accepted by the student's thesis advisor, a thesis defense will be administered by the thesis advisory committee. A majority of the committee must vote affirmatively for the student to pass. A student who fails the thesis defense may not attempt it again until at least two months have elapsed. A student may have only one additional defense.



## **Minimum Degree Requirements – Doctoral Degree**

75 semester hours of graduate level credit, including dissertation credit. Each doctoral program shall determine how many credits from an earned Master's degree may be included in this total. Ph.D. programs will require 30 units of dissertation credit.

### **Doctoral Dissertation**

Every candidate pursuing a doctoral degree is required to write a dissertation based upon original investigation and showing mature scholarship and critical judgment, as well as familiarity with tools and methods of research. The subject must be approved by the student's program director. Each dissertation presented in partial fulfillment of the requirements for a doctoral degree must satisfy the specifications of the UCCS Thesis and Dissertation Manual. The dissertation shall represent 30 semester credit hours of work for Ph.D. candidates.

A dissertation advisory committee shall consist of five members of the graduate faculty, including one member of an allied department. One of the five members may be from another institution, provided the faculty member has been granted associate membership on the graduate faculty. Upon the recommendation of the dissertation advisor, the committee is appointed by the program director with the approval of the Graduate Dean.

The dissertation must be signed by the student's dissertation advisory committee. Two formally approved copies of the dissertation must be filed in the Library by the published deadline date.

### **Doctoral Degree Examinations**

Each doctoral program will require one or more of the following types of examinations. A student must be registered at the time any of these examinations are taken. Successful completion of either a comprehensive examination or a specialty examination must precede advancement to candidacy.

#### **Preliminary Examination**

An examination to ensure that a student is qualified for doctoral study.

#### **Comprehensive Examination**

An examination in the field of concentration and related fields. This examination may be written or oral or

both, and will test the student's mastery of a broad field of knowledge, not merely the formal coursework which has been completed. The comprehensive examination shall be conducted by an examining board of at least three members appointed by the program director.

#### **Specialty Examination**

An examination in a specific area of the general field of concentration. This examination may be written or oral or both, and will test the student's mastery of a single subject that may well go beyond formal coursework that has been completed. The specialty examination shall be conducted by an examining board of at least three members appointed by the program director.

#### **Dissertation Proposal**

An examination to determine the preparedness of the student and the appropriateness of the topic, prior to commencing work on the dissertation.

#### **Dissertation Defense**

After the dissertation has been accepted by the student's dissertation advisor, a final examination of the dissertation and related topics will be conducted by the Dissertation Advisory Committee. The examination is open to anyone who wishes to attend. A successful candidate must receive the affirmative vote of a majority of the members of the dissertation committee. In case of failure, the examination may be attempted once more after a period of time determined by the committee.

A student must be registered for at least 5 dissertation credit hours during the semester in which the dissertation defense is held. The Graduate School must be notified of the dissertation defense at least two weeks in advance of the scheduled date of the defense, which must be no later than 18 days before the final day of the semester of graduation.

#### **Doctoral Dissertation Credit Hour Requirements**

1. A doctoral student may take no more than one half of the total number of dissertation credit hours required for the degree prior to or during the semester in which the comprehensive examination is passed.
2. Following successful completion of the doctoral comprehensive examination, a student must register each fall

and spring semester for five to ten semester units of dissertation credit, until the requirements for the degree are completed. A student may register for no more than ten dissertation credit hours in any semester, and for no more than seven credit hours during a summer semester.

3. If, following the completion of the doctoral comprehensive examination, there is a semester during which a student will be using no university resources, the student may petition to register for a minimum of one unit of dissertation credit. Such a request must be approved by the program director.
4. A student must be registered for at least 5 dissertation hours during the semester (or summer session) in which the dissertation defense is held.

## **Admission to Candidacy**

### **Master's Degree**

For each student pursuing a master's degree, an Application for Admission to Candidacy should be filed in the office of the Graduate Dean during the first five weeks of the semester of intended graduation. This application will certify that all requirements for the degree have been met, or are in progress.

### **Doctoral Degree**

A doctoral student who wishes to become a candidate for a degree must file an Application for Admission to Candidacy in the Office of the Graduate Dean. Admission to candidacy will be granted only to students who have completed a significant fraction of the required course work, and have passed the comprehensive examination and language requirement (if any).

## **Time Limits**

### **Master's Degree**

Although students are normally expected to complete a master's degree in one to three years, master's degree students have six years, from the date of the start of course work, to complete all degree requirements (which includes filing the thesis with the Kraemer Family Library if Plan I is followed). A student who fails to complete the degree in this six-year period must file a petition for extension with the Graduate Dean. The petition, giving reasons why the student should be allowed to continue in the program, must be endorsed by the program director.

The program director must approve applying any course to the degree that was taken more than six years prior to the semester of graduation, and all such courses must be validated by special examination.

### ***Doctoral Degree***

Doctoral students are normally expected to complete all degree requirements within seven years from the date of the start of coursework in the doctoral program. A student who fails to complete the degree in this seven-year period must file a petition for extension with the Graduate Dean. The petition, giving reasons why the student should be allowed to continue in the program, must be endorsed by the program director or by three members of student's dissertation advisory committee. If the Graduate Dean approves, the student may continue studies for one additional year. If the Graduate Dean does not approve, with the concurrence of the program director, the student may be dismissed from the program. If the Graduate Dean and the program director do not agree on whether a student should continue, the Graduate School Executive Committee shall make the final decision.

### **Student Ethics**

Students are expected to adhere to the highest codes of personal and professional ethics, as set forth by the Honor Code of UCCS, which appears each semester in the Schedule of Courses. Students who do not meet these standards may be dismissed from the Graduate School by the Graduate Dean upon recommendation of the director of the student's graduate program. A student may appeal such action under the provisions described below.

### ***Graduate Student Appeals***

#### **Student Appeal Procedures**

The procedures for a student appeal to the Graduate Dean and the Graduate School Executive Committee are:

1. An appeal will be officially accepted from a student only after it has been determined that the student has exhausted the appeals process in effect in the department.
2. If a resolution to the problem identified in the student's appeal cannot be reached on the department or unit

level, the student may submit a written appeal to the Dean of the Graduate School. The written appeal must describe in detail the basis in fact for the opinion that the student has been treated unfairly and must describe actions taken to resolve the problem at the departmental level.

3. Upon receipt of a written appeal from a student, the Dean of the Graduate School will contact the appropriate departmental officer to get a response to the questions or objections raised by the student. In some cases, a written response from the department may be requested. The response and appeal is then sent to the Student Affairs Subcommittee of the Graduate School Executive Committee. This committee acts in an advisory capacity to the Graduate Dean and will forward their findings and recommendations to the Dean.
4. The Graduate Dean will make a decision in the case. This decision may be appealed by either party to the dispute to the full Graduate School Executive Committee, but only if the decision of the Dean is in disagreement with the recommendation of the Student Affairs Subcommittee.

#### **Final Responsibility**

All appeals regarding course grades shall follow the procedures established by the school or college in which the course was taken. Final authority on appeals submitted by graduate students concerning actions (other than grading) taken by faculty members, program directors, the Graduate Dean, or other administrative officials rests with the Graduate School Executive Committee.

## Graduate School of Public Affairs

**Kathleen M. Beatty, Dean**  
**Columbine Hall, room 1025**  
**Telephone: (719) 262-4182**  
**Fax: (719) 262-4183**  
**[www.cudenver.edu/gspa](http://www.cudenver.edu/gspa)**

Established in 1972, the Graduate School of Public Affairs (GSPA) provides graduate level, professional training for managers and policy-makers in public, nonprofit, and criminal justice organizations. Accredited by the National Association of Schools of Public Affairs and Administration, the School offers the Master of Public Administration (MPA) and the Master of Criminal Justice (MCJ) degrees. While all course work for the MCJ degree may be completed on the Colorado Springs campus, the degree is awarded through the University of Colorado at Denver. For the benefit of many public affairs professionals, GSPA is regionalizing the program. This revolutionary model calls for professors — instead of students — to commute between campuses, making a far wider range of course work accessible to students and practitioners. GSPA also offers students the opportunity to pursue a more limited course of study, earning Certificates in Public Management, Nonprofit Management, or Criminal Justice.

The Graduate School of Public Affairs is accredited by the National Association of Schools of Public Affairs and Administration's (NASPAA) Commission on Peer Review and Accreditation.

Inquiries about application procedures and degree requirements should be directed as follows:

Graduate School of Public Affairs  
UCCS  
P. O. Box 7150  
Colorado Springs, CO 80933-7150  
(719) 262-4182

**OR**  
(800) 990-8227 ext. 4182

### Mission

The mission of the Graduate School of Public Affairs is to improve the quality of public service in Colorado and the Rocky Mountain West. GSPA offers an excellent program of professional education and training that prepares public and nonprofit managers for leadership in a

rapidly changing environment. Resident GSPA faculty have earned doctorates in their fields of specialization and are nationally recognized scholars. They conduct research of interest to scholars and practitioners in the field, as well as research on issues of concern in Southern Colorado. GSPA also invites practitioners who are recognized leaders in their area of expertise to teach selected courses in GSPA's degree programs.

GSPA offers a select group of students the opportunity to enhance their potential for executive leadership and success in public service careers. The curriculum reflects the philosophy that management in public and nonprofit organizations presents unique challenges and opportunities because of our obligation to serve the public interest. All students take a common core of courses, then take electives focusing on public, nonprofit, or criminal justice management. Students graduate with a sophisticated understanding of the public and nonprofit sectors and their interdependence, and of contemporary principles of organizational development and management.

During their course of study, students learn to perform research, to utilize new technological resources, to manage organizational finances, and to fully utilize and manage human resources. Emphasis is placed on the theoretical foundations of public service and the special ethical considerations of work in the public and nonprofit sectors. Elective courses address specific student interests.

The Graduate School of Public Affairs is a place where the University meets and exchanges ideas and information with the local, state, and national communities. GSPA also sponsors conferences, training programs, and other opportunities for lifelong learning. These activities help to create a community of public servants, and they ensure that the University and the community share their rich resources.

### Faculty

Dean and Professor: Kathleen Beatty;  
Associate Dean: Terry Schwartz;  
Professors: Donald Klingner and Mark McConkie.

### Master of Public Administration Degree

The Master of Public Administration (MPA) program serves the needs of pre-service students who wish to begin a career in the management of public or nonprofit organizations, mid-career public or nonprofit sector professionals who wish to enhance their potential for career advancement, and people from the private sector who intend to move into the public or nonprofit sectors. The MPA is a broadly recognized credential for public service management at all levels of government and in many nonprofit organizations. It also serves as a foundation for doctoral work in the field of public administration.

The curriculum of the MPA program provides students with a range of theoretical and practice-based concepts in topical areas such as the field of public administration, leadership, ethics, public policy, methods of conducting research, and human resources and financial management. The curriculum also includes a variety of elective courses that allow students to tailor their programs to their particular career interests.

### Minimum Requirements for the MPA Degree

1. Completion of a minimum of 36 semester hours of graduate course work. A grade point average of B (3.0 on a 4-point scale) or better is required for degree candidacy, and students must earn grades of B- or better in all required courses. Credit will not be counted for any course in which a student earns a grade of C- or lower.
2. Completion of six core courses or approved equivalents: PAD 5001 Governance and Institutions; PAD 5002 Organizational Management and Change; PAD 5003 Research and Analytic Methods; PAD 5004 Economics and Public Finance; PAD 5005 The Policy Process and Democracy; PAD 5006 Ethics and Leadership. **Students are expected to complete PAD 5001 within their first two semesters of enrollment.**
3. Completion of fifteen semester hours of electives. Elective courses include a mixture of specialized courses,

workshops, and other formats. Students may choose to use these elective hours to build an area of concentration designed to meet individual needs. Where appropriate, students may include specialized courses offered by other departments and schools of the University, with prior written approval of the faculty advisor or dean.

4. Completion of the Advanced Seminar/Professional Practicum. This course presents students with the opportunity to apply knowledge gained in course work to a question of interest drawn from their current or future careers in public or nonprofit organizations. The Advanced Seminar/Professional Practicum is taken in the final semester of the student's program. It allows the student to apply the knowledge and skills gained in his or her course work through in-class discussions and individual or group projects. **All core courses must be completed before a student enrolls in the advanced seminar.**
5. Field study in public administration. Students who have limited experience (generally defined as less than one year of experience) in public or nonprofit organizations must complete an internship. Students register for PAD 6910 for three credit hours while completing the internship, which includes a minimum of 300 hours of supervised work and study. **This requirement raises the total semester hours needed to earn the MPA degree to 39.** Applicants to the program will be reviewed, and those who must complete internships will be notified. Students ordinarily begin an internship following completion of the core and related elective courses.
6. Additional internship opportunities. Students who are not required to complete an internship as part of their degree program may nevertheless opt to participate in a field experience as an independent study and may earn credit for doing so. Those who wish to pursue this opportunity should contact the GSPA Internship Coordinator.

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### **Master of Criminal Justice Degree**

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The Master of Criminal Justice (MCJ) program is designed for students interested in comprehensive professional

graduate education in the field of criminal justice. It is intended to develop in the student a fundamental understanding of the basic fields within criminal justice and of background material from supporting disciplines which would enable the student to adapt to many operational specializations. As an academic and professional field of study, this program is dedicated to preparing men and women not only to administer the system as it presently exists but also to evaluate, to analyze and to change — to become pioneers in accelerating the shaping of a rational and responsive criminal justice system.

To deal with this system effectively, research design capability must be developed along with the skills required for the ordering and analysis of empirical data. This course of study will also prepare the student to be an innovator in crime control and prevention through course work dealing with strategies and skills for promoting individual, organizational, and social change.

#### **Minimum Requirements for the MCJ Degree**

1. The program leading to the MCJ degree requires a minimum of 36 semester credit hours of appropriate graduate study. A grade point average of B (3.0 on a 4-point scale) or better is required for degree candidacy, and students must earn grades of B- or better in all required courses. Credit will not be counted for any course in which a student earns a grade of C- or lower. No more than six credit hours of independent study can be applied toward the degree.
2. Completion of the following core courses is required: CJ 5000 Law and Social Control; CJ 5100 Administration of Criminal Justice; CJ 5120 Nature and Causes of Crime; CJ 5321 Research Methods in Criminal Justice.
3. Completion of 21 semester hours of electives. Elective courses include a mixture of specialized courses, workshops, and other formats. Students may choose to use these elective hours to build an area of concentration designed to meet individual needs. Where appropriate, students may include specialized courses offered by other departments and schools of the University, with prior written approval of the faculty advisor.
4. Students must complete a minimum of 27 semester credit hours of course work in criminal justice. The remaining courses for the degree may be under the criminal justice heading or under another discipline, with prior written approval of the faculty advisor.
5. Field study in criminal justice. Students who have not had experience in a criminal justice organization are required to complete CJ 6910 Field Study in Criminal Justice. A minimum of 240 hours of supervised work is required to earn three hours of credit. All required core courses must be completed before enrolling in CJ 6910.
6. Completion of the Advanced Seminar/Professional Practicum. This course presents students with the opportunity to apply knowledge gained in course work to a question of interest drawn from their current or future careers in criminal justice. The Advanced Seminar/Professional Practicum is taken in the final semester of the student's program. It allows the student to apply the knowledge and skills gained in his or her course work through in-class discussions and individual or group projects. **All core courses must be completed before a student enrolls in the advanced seminar.**

#### **Admission Requirements**

1. Applicants must have completed a bachelor's degree from a college or university of accredited standing, with grades sufficiently high to indicate ability to pursue graduate work. The applicant may have majored in any field for the undergraduate degree. Two sets of official transcripts are required from all higher education institutions.
2. Applicants for admission must submit three recommendations by qualified references that establish the applicants' personal qualifications for graduate work. Recommendations may be from professors, employers, and/or others who are acquainted with the prospective student's professional and/or academic work.
3. Applicants are required to take the Graduate Record Examination (GRE), the Graduate Management Aptitude Test (GMAT), or the Law School Admissions Test (LSAT) unless they meet the requirements for waiver as stated below. Standard graduate

admission test scores are normally waived when the candidate already has a master's degree in another field. MPA applicants may have test scores waived if: 1) they have an undergraduate grade point average of 3.0 or better **and** 2) they can demonstrate *significant* professional accomplishment.

4. Applicants should submit all admissions materials by July 1 for the fall semester, December 1 for the spring semester, and May 1 for the summer term.
5. Students who have missed the deadline for the upcoming semester may register as nondegree students. Up to twelve credit hours of public administration or criminal justice course work taken as a nondegree student may be applied to the MPA or MCJ degree program. Nondegree student application forms are available in the Office of Admissions.

**Academic Policies**

**Transfer of Credit**

Up to nine semester hours of appropriate graduate work from an accredited college or university may be credited toward the Master of Public Administration or Master of Criminal Justice degree. Courses to be transferred should have been taken within five years of the request for transfer of credit. All transfer work must be approved in writing by the dean.

**Standards of Performance**

To be in good standing, students must have an overall grade point average of not less than a 3.0 in all course work. The academic performance of each student will be reviewed at the end of each semester. A student who has a grade point average less than 3.0 will, at the dean's discretion, be placed on probation or suspended from the program. Nondegree students who do not maintain a 3.0 grade point average may not be allowed to enroll in any additional GSPA courses. Any student receiving a grade of F in any course is automatically placed on probation.

After a student has been placed on probation, he or she has a maximum of two semesters (fall and spring) to raise his or her grade point average to 3.0. Courses taken to raise the cumulative grade point average must be applicable to the degree and must be taken in the two semesters (fall and spring)

immediately following the semester in which the cumulative grade point average fell below 3.0. Failure to raise the cumulative grade point average to 3.0 in the time period outlined will result in immediate suspension from the program.

**Time Limit**

Master's degree students must complete all course work and degree requirements within six years of registration in their first course. Exceptions must be approved in writing by the dean.

**Certificate Programs**

Students who wish to sharpen their knowledge and skills without committing to the full MPA or MCJ degree programs may earn a certificate in one of three areas by completing four designated courses. Students who complete a certificate and later enter the MPA or MCJ program may count all credits toward the respective degree.

**The Certificate in Public Management**

This certificate, awarded to students interested in public sector management, focuses on the key areas of expertise required of public administrators. Required courses include the following:

- PAD 5001 Governance and Institutions
- PAD 5002 Organizational Management and Change
- PAD 5220 Human Resources Management
- PAD 5502 Public Sector Financial Management

**The Certificate in Nonprofit Management**

This certificate program provides present and potential nonprofit managers with the opportunity to improve their managerial skills as well as their knowledge of nonprofit administration. The following courses are required:

- PAD 5001 Governance and Institutions
- PAD 5110 Seminar in Nonprofit Management
- PAD 5140 Nonprofit Financial Management
- PAD 5220 Human Resources Management OR
- PAD 5350 Program Evaluation

**The Certificate in Criminal Justice**

This certificate focuses on the development of managerial skills for law enforcement, corrections, and other professionals in the field of criminal justice. Required courses include:

- CJ 5100 Administration of Criminal Justice
- CJ 5120 Nature and Causes of Crime

Plus 2 of the following courses:

- CJ 5000 Law and Social Control
- CJ 5320 Seminar in Police Administration
- CJ 5520 Seminar in Corrections
- CJ 5551 Judicial Administration

**Certificate Eligibility Requirements**

Any person with a bachelor's degree from an accredited institution may apply to the certificate program by submitting to the Graduate School of Public Affairs official college transcripts from each institution attended and one letter of recommendation written by a supervisor or co-worker. Before enrolling for courses, students must submit an application for unclassified student status and pay the required \$25 unclassified student application fee. Nondegree student application forms are available in the Office of Admissions. Students who have been admitted to the MPA or MCJ program may also earn a certificate by completing the course requirements listed above.

**Rocky Mountain MPA (The Online MPA)**

The Rocky Mountain MPA provides a unique opportunity for students with complicated and busy schedules, or those who live at a distance from the University, to obtain a Master of Public Administration (MPA) degree. Online courses are web-based versions of the same classes offered on campus, and they usually follow the regular semester schedule. Consult the Schedule of Courses each semester for more information.

**Doctor of Philosophy in Public Affairs**

The Graduate School of Public Affairs offers a program of advanced graduate study leading to the Doctor of Philosophy (Ph.D.) in Public Affairs. The program, based on the Denver campus, permits work to be taken on any campus of the University if it is part of the approved program of study or degree plan. Application deadline is February 1. For further information or application materials, write or call:

Graduate School of Public Affairs  
 University of Colorado at Denver  
 1380 Lawrence Street, Suite 500  
 Denver, Colorado 80204  
 (303) 556-5970





## College of Letters, Arts and Sciences

**Tom Christensen, Dean**

**Columbine Hall, room 2025**

**Telephone: (719) 262-4550**

**Fax: (719) 262-4200**

**[web.uccs.edu/lasdean/](http://web.uccs.edu/lasdean/)**

The College of Letters, Arts, and Sciences at UCCS is a community of teaching scholars whose mission is to advance an understanding of the human condition and the natural world and communicate this understanding to the people of Colorado and the world at large.

The college affirms and accepts the ideal purposes and traditional goals of all great universities: the creation, interpretation, dissemination, and application of knowledge. The college strives to maintain these goals while formulating and forging innovative and creative programs. The college provides collaborative programs that enrich the community, promote the creation of a vibrant and creative cultural life, strengthen and sustain a productive and responsible economic sector, facilitate the solution of community and regional problems, increase the safety, health and welfare of individuals and groups, sustain scientific and technological innovation, and enhance the understanding and practice of civic duty and responsibility.

The College of Letters, Arts, and Sciences provides breadth of instruction for all students of the UCCS campus, including those in professional schools and colleges. This breadth exposes all students to the challenge, excitement and demands of clear self-expression, analysis, reasoning, comparison, experimentation, and awareness of alternative perspectives. The college also provides depth in specific academic disciplines for majors within the college. This specialization is important not only for skills, perspectives, and knowledge gained, but is also the key to success in subsequent education and careers.

The college offers bachelor's degrees in a full range of traditional liberal arts majors and minors, and selected graduate programs. We also offer a certificate program in gerontology and cooperative degree options for students seeking licensure in elementary teaching, secondary teaching or special education (with the College of Education).

### Center Programs and Facilities

#### Center for Colorado Policy Studies

The Center for Colorado Policy Studies, founded in 1999, encourages faculty and students to apply economic analysis to questions such as:

1. Is growth paying for itself in Colorado?
2. Does tax policy affect our ability to practice "smart growth"?
3. How do communities use indicators to measure quality of life and sustainability?
4. Do Colorado children receive equal funding in their schools?
5. Are there better ways to deal with our local water shortage?
6. How has TABOR affected our ability to fund needed services?

You can find publications on these and other questions at <http://web.uccs.edu/ccps>.

The center also brings together research faculty from across Colorado with state legislators, county commissioners and city council members at the Colorado's Future conferences. For notification of future conferences, community meetings and publications, contact Professor Daphne Greenwood in Columbine 1059 at 262-4031 or [dgreenwo@uccs.edu](mailto:dgreenwo@uccs.edu).

#### Center for Economic Education

This center, established in 1978, is sponsored by and affiliated with the National Council on Economic Education (New York City) and the statewide Colorado Council on Economic Education (Denver).

The center engages in programs and activities designed to raise the general level of economic understanding, with special emphasis given to K-12 school teachers and school districts in Colorado, including international economics study tour travel opportunities for teachers. The center also conducts additional economic education programs that involve the community.

The National Council on Economic Education is an independent, nonprofit, nonpartisan, educational organization

incorporated in 1949 to encourage, improve, coordinate and service the economic education efforts in the U.S. and many other countries around the world. There are approximately 47 state councils and 250 Centers for Economic Education in the U.S.

The center is located in Columbine Hall Room 1055. For more information, contact 262-4033 or [jbrock@uccs.edu](mailto:jbrock@uccs.edu).

#### Center for the Study of Government and the Individual

The Center for the Study of Government and the Individual was established in 2000. Its purpose is two-fold: to provide a vehicle for the candid, open, diverse and multi-faceted exploration of all the issues in this topic area in all of their dimensions: and to stimulate the confrontation of perspectives in regard to the role of government in American social and economic systems. The general public and any of the faculty and students of the schools and colleges at UCCS interested in research and teaching activities related to government and the individual may participate in its activities. Dr. James A. Null is the Executive Director and is administratively responsible for the oversight of the Center. Among its activities are:

1. Public Forums-designed to bring the academic and public community together
2. Seminars- by specialists in the subject areas
3. Publications-of the proceedings of public forums, papers, books
4. Research- funded to provide in-depth analysis of Center's areas of interest
5. Faculty Fellows- participate in the Center Roundtable, act as editors for publications, serve as mentors to students and take on special roles in the Center's program development
6. Funded development courses- focused on the role of government and the individual
7. Student Fellows- attached to the Center who will receive scholarships; will be in a field relevant to the topic of the Center; will work with faculty mentor; participate in Center activities
8. Student Interns- will work with faculty mentors on projects in the community directly related to the Center

### **Center for Women's Studies**

The Center for Women's Studies was founded in 1991 as an interdisciplinary center that coordinates the women's studies minor, sponsors colloquia and lectures, fosters curriculum and faculty development, and encourages students to fully explore their potential.

Students may earn a minor in women's studies or include women's studies as part of a distributed studies degree. Courses in this program are concerned with the new scholarship on gender that reflects the growing influence of women in all aspects of our society and examines issues such as the state of women's public and private lives; women and the law; gender, race, and class; women's ethnic and cultural diversity; women's historical contributions; women's art and literature; women's scholarship in the humanities and the natural and social sciences; and gender and men's lives.

The center, through the women's studies minor, promotes areas of knowledge that are central to women's studies and encourages the study of women and gender across the curriculum. For information about the women's studies minor and academic programs, please see "Women's Studies Program."

### **Extended Studies Program**

The Extended Studies Program for the College of Letters, Arts, and Sciences (LAS/ES) provides a variety of accessible educational opportunities in traditional and nontraditional formats with a focus on career preparation and advancement, enhancement of personal knowledge and experience, and the acquisition of additional university credit or Continuing Education Units (CEUs) for licensure and certification purposes. Most LAS/ES credit classes are transferable to UCCS degree programs.

LAS/ES serves as an educational outreach arm to the community, with on-campus credit courses, professional test preparation courses (including LSAT and GRE), video and cable credit courses, online credit courses, certificate programs and individualized study programs. Students benefit from outstanding instruction and the experience of participating in a university environment, whatever their educational background or experience.

LAS/ES is a self-funded program and part of the Colorado Statewide Extended

Campus. Contact by phone at (719) 262-4071 or by email at [lases@uccs.edu](mailto:lases@uccs.edu). Additional program information and a list of current courses may be found at <http://www.uccs.edu/~lases/>.

### **Gallery of Contemporary Art**

The Gallery of Contemporary Art, located in the Science Building on the campus of UCCS, was created in 1981 as a service to the university and the Pikes Peak region. The major goal of the Gallery of Contemporary Art is to provide quality art exhibitions and related programs which would otherwise be unavailable to the university community and state populace. Utilizing the expertise of a full-time professional staff and university faculty, special emphasis is given to the educational interpretation of each exhibition. Gallery exhibitions and programs are offered both as a community service and as adjuncts to the instructional function of the university.

The gallery displays approximately six exhibitions a year that contain works by artists of regional, national and international reputation. More than 28,000 people visit the Gallery of Contemporary Art each year to view the exhibitions and participate in the gallery's programs, which include lectures, workshops, and tours for both children and adults. The gallery is also available on a rental basis for community and campus events.

A nonprofit organization, the gallery receives its funding through the university, memberships, corporate and private donations, and state and federal grants. Volunteers and students participate in gallery activities as docents and as members of the Gallery of Contemporary Art Advisory Council.

Gerald Riggs, assistant professor attendant rank, offers two consecutive three credit courses (GM 404 and 405) in gallery management, and internships are available by special arrangement, leading toward a gallery management minor.

For further information contact the Gallery: UCCS, P.O. Box 7150, Colorado Springs, CO 80933-7150; 262-3567.

### **Gerontology Center**

Older adults comprise a growing segment of the population, and estimates are that the percentage of older adults will rise to 18 to 20 percent by the year 2020.

Increasing national awareness of this trend is changing the scope of social planning and policy-making. Despite the public's increased awareness of the aging of our population, much myth and mystery still surround the aging process.

The Gerontology Center (formerly Center on Aging) has a three-fold purpose:

1. to foster research in gerontology and about the aging process,
2. to provide students an opportunity to study the processes of aging and the problems of the aged, and
3. to be a community resource for dealing with social policy issues and programs for the aged.

Students may earn a minor or certificate in gerontology or take courses as a way of understanding both their own future and that of an aging society. The study of Gerontology is also a way of preparing for careers in working for or with the elderly. Students gain an understanding about aging as a process, about problems of the elderly, and about ways to address these problems in meaningful and effective ways. Studies include classroom-based instruction in a variety of academic disciplines and work in the field with the elderly. Students will become informed about the network of social agencies providing services to older persons and will also become familiar with basic research in the field of aging. Continuing education offerings are also available through the Gerontology Center, including the Professional Advancement Certificate in Gerontology and training for administrators of assisted living facilities.

The center is located in Columbine Hall, Room 4028. We can be reached at 262-4179 or [geron@uccs.edu](mailto:geron@uccs.edu). See our website at <http://web.uccs.edu/geron/> for more information.

### **The Heller Center for Arts and Humanities**

The Heller Center for Arts and Humanities was founded in 2003 as an interdisciplinary center combining educational, research, and creative activities in the fields of anthropology, fine arts, history, literature, philosophy, sociology, environmental science, botany, and the study of human culture. As a place where artists gathered for weekend retreats throughout the nineteen thirties, forties and fifties to establish



a reputation for artistic excellence, the center preserves and extends an important part of the cultural history of Colorado Springs.

The Heller Center will, upon renovation, provide an opportunity for the university to host events for members of the community at a spectacular and secluded location three minutes from the main campus. The ranch itself — 34 beautifully secluded acres, surrounded by an additional 900 acres of open space—provides an open-air studio for photography, painting, and design, not to mention an outdoor laboratory for environmental studies. The ranch's art facilities—including studios, workshops, and a foundry—will provide spaces for working artists, small meetings, classes, exhibitions and performances. The extensive hiking and biking trails provide outstanding recreational opportunities with unsurpassed views of the Pikes Peak region.

Given the nature of the facility and its historical importance, The Heller Center offers an outstanding venue for programs that engage significant constituencies of the Pikes Peak region. The center provides an ideal opportunity to combine arts and humanities programming with areas of expertise in geropsychology, bioenergetics, geographic information systems, and the health professions in community outreach programs in Colorado.

The Heller Center is designed as a self-sustaining enterprise.

For further information, contact Perrin Cunningham, The Heller Center Director, at The Heller Center for Arts and Humanities, UCCS, PO Box 7150, Colorado Springs, CO 80933-7150; 262-3964 or pcunning@uccs.edu.

### **Theatreworks**

THEATREWORKS is the regional producing theatre sponsored by UCCS. Founded in 1975, it has produced more than 175 different plays over the last 30 years, winning a Governor's Award for Excellence in the Arts in 1994. THEATREWORKS normally produces 6-8 professional productions each year, including the nationally-recognized summer Shakespeare festival.

THEATREWORKS productions are often directly linked to the university curriculum, and students may attend productions at the new Dusty Loo Bon Vivant Theater free of charge. In addition,

university students regularly participate in THEATREWORKS productions either backstage or in the cast and have the opportunity to work with national guest artists. THEATREWORKS works directly with the academic theatre program by providing artistic and technical support and frequently mounts co-productions either in the Dusty Loo Bon Vivant or the new Osborne Studio. For further information, call Amanda Mountain, Sales & Marketing Director, at 262-3114.

### **Trauma Center**

The UCCS Trauma Studies and Resource Center is a comprehensive center focusing on research, intervention, and education around trauma. The center will achieve its mission through multidisciplinary efforts that support the three primary responsibilities of the university: research, teaching, and community service.

To contact the CU Trauma Center, please e-mail us at [cutrauma@mail.uccs.edu](mailto:cutrauma@mail.uccs.edu).

### **Academic Programs**

The College of Letters, Arts, and Sciences offers the bachelor of arts degree in the following fields: anthropology, art history, biology, chemistry, communication, economics, English, geography and environmental studies, history, philosophy, political science, psychology, sociology, Spanish and visual arts. The college offers bachelor of science degrees in chemistry and physics.

The college also offers course work, but not degrees, in the following areas: ethnic studies, energy science, film studies, French, gallery management, German, professional writing, leadership studies, theatre, and women's studies. Courses in some of these areas can be used for formal academic minors, and in some cases they can provide the core for a distributed studies major (see distributed studies section in this bulletin).

A student who holds a bachelor of science (BS) degree may earn, in addition, a bachelor of arts (BA) degree. All college degree requirements must be met. Transferable courses from the BS degree may count toward satisfaction of all such requirements except the 30-hour residency requirement. A student who is taking a second major must take all 30 hours in residence as a degree student in the College of Letters, Arts, and Sciences. The student will be required

to take at least 30 resident hours in the major of the second degree.

A student who holds a bachelor of arts degree may earn a second BA or a BS degree. In addition to satisfying all college and departmental degree requirements with either transferable courses or coursework taken in the college, the student will be required to take 30 resident hours in the major of the second degree. Required major courses that were taken for the first BA need not be repeated but may not count toward these 30 required hours.

Students working toward a second degree must be registered with the Office of Admissions and Records as degree students. Questions regarding the requirements for a second bachelor's degree should be addressed to the academic advisors in the Student Success Center.

Students may also enroll in the College of Letters, Arts, and Sciences for varying periods of time to prepare themselves for admission to one of the professional schools of the university.

### **Requirements for Admission**

The bulletin that governs a student's graduation requirements is the one in effect at the time of a student's most recent admission into the college of the student's degree program.

Candidates for regular admission to the College of Letters, Arts, and Sciences are expected to meet the general requirements for admission to the university.

#### **Freshmen**

Freshmen must rank in the upper 40 percent of their high school graduating class, must have 15 units of acceptable high school work (referred to as the Minimum Academic Preparation Standards, or MAPS), and have the following minimum test scores: American College Test (ACT) 24 or Scholastic Aptitude Test (SAT) 1,080

Acceptable high school courses in each academic field are as follows:

**English:** courses in the history and appreciation of literature, composition (including all composition given as part of a basic English course), grammar, speech, and journalism are acceptable as English units.

**Mathematics:** courses in algebra, plane and solid geometry, trigonometry,

analytic geometry, calculus, and other courses designed for college preparation and emphasizing basic concepts and principles of deductive reasoning are acceptable as mathematical units. Courses designed for other purposes (e.g., consumer mathematics, business mathematics, many courses entitled general mathematics) are not acceptable as mathematics units.

**Natural Science:** courses in physics, chemistry, biology, zoology, anatomy, physiology, general science, astronomy, and geology are acceptable as natural science units.

**Social Science:** courses in American government, civics, economics, general sociology, geography, history, problems of democracy, psychology, social science, and social problems are acceptable units.

Freshman applicants for admission will normally be required to present the following high school units:

English (2 units of the 4 must be composition).....	4
Foreign language (in one language) .....	2
Natural science.....	3
Mathematics.....	3
Social science .....	2
Academic electives .....	1

**15**

Students seeking admission who do not meet the normal admission requirements may receive consideration for admission by the dean of the College of Letters, Arts, and Sciences. Inquiries concerning such admissions should be made to the Office of Admissions and Records.

**Transfer and Former Students**

Students who have attended another college or university are expected to meet the general requirements for admission of transfer students to the University of Colorado. (Students should refer to the general information section.)

A grade of C- or better is required in any course for which credit may be granted in transfer from another institution to the university. HOWEVER, grades received at another institution will not be used in computing the student's grade point average at the University of Colorado, except for the averaging of all college work attempted by the time of graduation for possible special recognition, such as graduation with distinction and Latin honors.

Transfer students who graduated from high school in 1988 and later are subject to the Minimum Academic Preparation Standards (MAPS) previously described. Transfer coursework will be applied to meet MAPS deficiencies as outlined in the college policy and in accordance with existing transfer agreements.

Former students who have attended another college or university where they have completed 12 or more semester hours must reapply as transfer students and must present a 2.0 cumulative grade point average on all college work attempted to be eligible for readmission. Once readmitted, these students must fulfill the college requirements that are in effect at the time of readmission. This policy also applies to students in the College of Letters, Arts, and Sciences who transfer into another college on the UCCS campus and then transfer back into LAS to complete their undergraduate degrees.

**Community/Junior College Transfer Students**

Effective for students who enter in the fall 2003 semester, Colorado public four-year higher education institutions will honor the transfer of an associate of science (AS) degree and the associate of arts (AA) degree earned at a Colorado community college. A student who earns an AA or AS degree at a Colorado public community college, with a C or better in each course, and completes the state guaranteed general education courses will transfer with junior standing into any arts and science degree program offered by a Colorado public four-year college. The credits earned in the associate degree program will apply at minimum to 35 credit hours of lower division general education and 25 credit hours elective credit graduation requirements. This two-plus-two agreement ensures that the transfer student will be able to complete a baccalaureate degree in no more than 60 additional credit hours unless there are additional degree requirements recognized by the Colorado Commission on Higher Education.

For students who have not completed an AS or AA degree, or students who transfer from outside of Colorado, transfer work will be evaluated on a course-by-course basis. Transfer students from two-year institutions must also meet additional graduation requirements, such as English and reasoning skills competency testing.

**Transfer Credit**

A maximum of 72 semester hours taken at community/junior colleges and/or a maximum of 90 semester hours taken at four-year institutions may be applied toward the baccalaureate degree in the College of Letters, Arts, and Sciences.

Students should consult the general information section of this bulletin for the guidelines according to which transfer credits are evaluated. Because the initial evaluation of transfer credits is completed by the Office of Admissions, transfer students are encouraged to apply early and to have their transcripts sent to the Office of Admissions as soon as possible. Academic advisors will not be able to assess transfer credit applicability to graduation requirements until the admissions evaluation is complete. Students receive a completed evaluation of their transfer work when they attend the mandatory orientation session, prior to their first registration.

**Unclassified Students**

Students admitted to the university in unclassified student status may enroll in courses offered by the College of Letters, Arts, and Sciences. Application for this status should be submitted to the Office of Admissions and Records. A student may change from unclassified to degree status and apply appropriate coursework taken as an unclassified student toward a degree.

A maximum of 12 semester hours completed as an unclassified student may apply toward a degree in the College of Letters, Arts, and Sciences. No student may change from degree status to unclassified status. Students possessing a bachelor's degree who wish to register for classes are designated as unclassified students unless they have been accepted in the college for a second bachelor's degree or have been admitted to a graduate program.

**Academic Policies**

**Course Load**

The minimum full-time course load is 12 hours. The normal maximum is 18 hours. If a student wishes to take more than 18 hours per semester, special permission must be obtained from the dean of the college, through the Student Success Center. These totals include all courses taken for credit at any of the university's three campuses but do

not include correspondence courses, noncredit courses, or courses taken at other institutions. To receive credit, the student must be officially registered for each course.

Students who hold or expect to hold full- or part-time employment while enrolled in the college must register for course loads they can expect to complete without unusual difficulty. Recommended course loads are given below, but students must weigh their own abilities and assess the demands of each course in determining an appropriate schedule.

Employed	Semester Hours
40 hrs. per week.....	6-9
30 hrs. per week.....	8-11
20 hrs. per week.....	10-13

**Special Sources of Credit**

Advanced Placement (AP), College Level Examination Program (CLEP) and International Baccalaureate (IB): See the General Information section of this Bulletin for placement score requirements, course equivalencies and credit hour values. See your academic advisor for information on how these exams might apply to your major.

**Electives in Professional Schools**

Students may apply a maximum of 30 credits toward the bachelor’s degree from coursework taken outside the College of Letters, Arts, and Sciences. Coursework taken from the professional schools at UCCS and transfer coursework labeled “non-LAS electives” will be included in the 30 hour maximum.

**Independent Study**

Students who have completed a considerable portion of their undergraduate studies with distinction may register for independent study with the approval of the appropriate department. The amount of credit to be given for an independent study project shall be arranged with the instructor.

Not more than eight hours of independent study may be credited toward the major, and not more than 16 hours toward the bachelor’s degree. No student may register for more than eight hours of independent study in any one term (summer, fall, or spring).

**Correspondence Study Division of Extended Studies**

A maximum of 30 semester hours may be taken through the Colorado

Consortium for Independent Study via correspondence. Those courses indicated as CU-Boulder and CU-Denver carry resident credit.

No more than nine semester hours of regular coursework may be taken from the Division of Extended Studies and applied toward the degree. ENGL 099 (formerly ENGL 121), 125 and courses numbered below 100 will not count toward the required 120 hours for graduation, nor will they count in the College of Letters, Arts, and Sciences grade point average.

**Military Science/ROTC Credit**

Students may apply a maximum of 21 semester hours of ROTC credit toward elective requirements and toward the 120 semester hour total degree requirements for the BA degree in the College of Letters, Arts, and Sciences.

**Grading Policies**

Students should familiarize themselves with the general information section of this bulletin, as well as with the introductory pages of each semester’s official Schedule of Courses, for information about the university grading system, current procedures for registering on a pass/fail basis, for dropping and adding classes, and for withdrawing from the university.

**Repetition of Course**

When a student takes a credit course more than once, all grades are used in determining the grade point average. However, if a student has passed the same course more than one time, the college will count that course only once when calculating the student’s credit hours earned toward graduation. The only exception to this rule will be in cases where a course is designated in this bulletin as “may be repeated for credit.”

**Pass/Fail**

Students in the College of Letters, Arts, and Sciences may not use the pass/fail option for courses taken to fulfill the area requirements, the composition requirement, the quantitative and qualitative reasoning requirement, or the major requirements.

Students may take up to 15 hours of elective credit on a pass/fail basis. Transfer students may take one hour of pass/fail credit for every eight hours of credit attempted at the University of Colorado. For full-time students,

maximum pass/fail hours per semester are as follows:

- Fall - 6 credit hours
- Spring - 6 credit hours
- Summer - 3 credit hours
- Winterim - no classes may be taken for pass/fail credit.

For part-time students, no more than 50 percent of total credit hours may be taken pass/fail in a given semester. If only one course is taken in a semester, it may be taken pass/fail. The P grade is not included in the student’s grade point average; the F grade is included.

A pass/fail designation may not be reversed.

For further information concerning the pass/fail option, see the general information section of this bulletin.

**Academic Probation**

Students who have attempted at least 12 hours at UCCS and whose University of Colorado cumulative grade point averages fall below 2.0 will be placed on academic probation. While on probation, students will be required to achieve a minimum acceptable grade point average each term (determined by the individual academic record) or be subject to academic suspension. Students placed on probation will be informed in writing concerning their academic status and the conditions of continued attendance.

A more comprehensive statement on the academic probation policy is available in the Student Success Center in Main Hall.

**Scholastic Suspension**

The normal suspension period in the College of Letters, Arts, and Sciences is one academic year, excluding the summer semester. Students suspended for the first time will be reinstated after the normal suspension period has been served upon reapplying for admission to the university.

Students suspended for the first time may be reinstated before the end of the normal suspension period by:

1. Achieving a 2.5 grade point average on all summer, extended studies, or correspondence work attempted at the University of Colorado since suspension. Six hours minimum must be completed.
2. Raising the cumulative University of Colorado grade point average to at least 2.0 by completing summer, correspondence, or extended studies



coursework at the University of Colorado.

3. Achieving a cumulative grade point average of at least 2.0 by attending another institution. The cumulative grade point average in this instance is the grade point average at the University of Colorado combined with coursework taken at all other institutions.
4. Appealing the suspension in writing to the dean.
5. Being recommended for reinstatement by the coordinator of academic probation and suspension for the College of Letters, Arts, and Sciences in the Student Success Center, Main Hall.

Students eligible for reinstatement before serving the normal suspension period must notify the Student Success Center. Reinstated students absent for either fall or spring semesters or who complete 12 or more hours at another institution must reapply for admission to the university.

Students suspended for the first time will be reinstated on probation and will be informed in writing of their academic status and the conditions of continued attendance. Students not meeting conditions of continued attendance will again be subject to academic suspension. Reinstatement after a second suspension requires approval of the dean of Letters, Arts and Sciences. Requests for reinstatement must be made in writing.

A more comprehensive statement on the academic suspension policy is available in the Student Success Center, Main Hall.

### **Committee on Academic Progress**

The Committee on Academic Progress (CAP) is a review board that handles student petitions for exceptions to the academic policies and requirements of the college. The committee is made up of faculty of the college and makes recommendations to the dean. The committee evaluates, for example, petitions for exceptions to the residency requirement, acceptance of more than the maximum number of major hours, and substitution of courses fulfilling the area requirement. It also considers certain requests for reinstatement from suspension and matters of academic honesty. Petition forms may be obtained from the Student Success Center in Main Hall.

### **President's and Dean's List Criteria**

The criteria for the president's and dean's lists are as follows:

1. President's list: 4.0 grade point average.
2. Dean's list: 3.75- 3.99 grade point average.
3. Students must be enrolled in a minimum of 12 graded hours during a regular semester (fall or spring).

The dean notifies eligible students by letter.

### **Latin Honors**

In order to graduate with Latin honors, a student must complete a minimum of 45 semester hours on this campus and achieve a cumulative grade point average of: 3.5 for cum laude; 3.7 for magna cum laude; 3.9 for summa cum laude.

ALL post-secondary work (including transfer work) is included in this cumulative grade point average.

### **Academic Advising**

Students are expected to assume responsibility for planning their academic programs in accordance with college rules, policies and major requirements. Advisors in the Student Success Center can answer questions about college policies and graduation requirements, and will assist students in course selection. Students expecting to graduate within one or two semesters should schedule a senior advising appointment by calling 262-3260 or by going to the Student Success Center. Although the advisors provide summary sheets of major requirements, it is the faculty who are responsible for major advising. It is the student's responsibility to arrange such faculty consultation for questions involving major requirements and graduate school applications. Students should schedule appointments to discuss their questions well in advance of registration.

### **General Education Requirements**

The College of Letters, Arts, and Sciences will accept transfer courses from the community college "general education core" and substitute these credits for credits required within the 120 hours needed for the BA or BS degree in whatever manner is most advantageous

to the student. The College will also accept non-core academic courses in transfer, i.e., courses that are not considered to be vocational or technical in nature.

The college requires all students to complete an English composition requirement, a reasoning proficiency requirement, area requirements, and cultural diversity, oral communications, and global awareness requirements. Assuming that a student does not test out of the writing and reasoning requirements, the total number of credit hours needed to complete the college general education requirements is 45.

### **English Composition and Writing Competency Requirements**

To qualify for a bachelor's degree from the College of Letters, Arts, and Sciences, a student must complete course requirements and demonstrate competency by successfully passing the writing portfolio assessment. Students may meet these requirements in the following ways:

1. Successfully complete ENGL 131 and 141 at UCCS and then pass the portfolio assessment.
  - a. To be admitted to ENGL 131, the student must complete one of the following requirements:
    - score 19-28 on the English ACT.
    - score 450-640 on the English SAT.
    - Complete ENGL 099, Components of Writing, offered through LAS Extended Studies or an equivalent course completed elsewhere. (Does not count toward graduation.)
    - For placement purposes, students without ACT or SAT scores must submit a writing sample to the writing program in Columbine 1041.
  - b. To be admitted to ENGL 141, students must meet one of the following requirements:
    - Complete ENGL 131 at UCCS.
    - score 29+ on the English ACT.
    - score 650+ on the English SAT.
    - score 4 on the CEEB Advanced Placement English Language and Composition Exam.
    - score 4 on the CEEB Advanced Placement Language and Literature Exam.
    - score 5 on the IB English exam.
    - Successfully complete a first-semester composition course (equivalent to ENGL 131) at an accredited college or university with a C- or better.
    - Score 67% and receive a pass on the essay portion of the CLEP Freshman

College Composition with essay examination to earn credit for ENGL 131.

•Score 67% on the multiple choice section and receive a pass on the essay portion of the CLEP English Composition with essay exam to earn ENGL 141 placement, without credit for ENGL 131.

- c. To demonstrate writing competency after course completion, students must pass the writing portfolio assessment administered by the writing program. Students who choose not to demonstrate competency by earning a pass on their writing portfolio may meet the competency requirement by successfully completing a 300-level, advanced composition course at UCCS with a C- or better, a course beyond those stipulated within their degree plan. The "final" composition course for each undergraduate program is listed below:
- For LAS and nursing students: ENGL 141  
For BUS students: ENGL 307 or COMM 324  
For EAS students: ENGL 307 or 309
2. Students may transfer equivalent coursework in written communication taken elsewhere at an accredited college or university with a C- or better. Students must also demonstrate competency by passing the writing portfolio assessment after completing their final composition course at UCCS, or upon transfer of their complete composition requirements from an accredited college or university. Students must demonstrate competency within 30 hours of completion or transfer of their final composition course. Students who do not pass the portfolio assessment within 30 hours of completion of their final composition course must complete an additional writing course at the 300-level, a course beyond those stipulated within their degree plan.
3. Qualify for a waiver of composition coursework through the CEEB Advanced Placement Examination.
- a.Score 4 on the AP English Language and Composition to receive credit for ENGL 131, successfully complete ENGL 141 and then pass the portfolio assessment.
- b.Score 5 on the AP English Language and Composition to receive credit for both ENGL 131 and ENGL 141 and then pass the portfolio assessment.
- c.Score 4 on the AP English Composition and Literature to receive credit for ENGL131, successfully complete ENGL 141 and then pass the portfolio assessment.
- d.Score 5 on the AP English Composition and Literature and then pass the portfolio assessment.
4. Qualify for a waiver of composition coursework through the International Baccalaureate higher level English exam.
- a.Score 5 to receive credit for ENGL 131, successfully complete ENGL 141 and then pass the portfolio assessment.
- b.Score 6 or 7 to receive credit for both

ENGL 131 and 141 and then pass the portfolio assessment.

To take the writing portfolio assessment, contact the Writing Program in Columbine 1045, phone 262-4038. Students who would like to take the CLEP English Composition Exam to earn credit for ENGL 131 should contact the testing office at 262-3255.

### **Quantitative and Qualitative Reasoning Proficiency Requirement**

Well-educated people should be able to think at a certain level of abstraction and to manipulate symbols. The quantitative and qualitative reasoning proficiency requirement has two principal objectives. The first is to provide students with the analytical tools used in core curriculum courses and in their major areas of study. The second is to help students acquire the reasoning skills necessary to assess adequately the problems that confront them in their daily lives. Students completing this requirement should be able to: construct a logical argument based on the rules of inference; analyze and interpret numerical data; obtain exact results when appropriate; and apply mathematical methods to solve problems in their university work and in their daily lives.

There are four ways in which students can fulfill this requirement:

1. Pass the UCCS Qualitative and Quantitative Reasoning Exam. This exam is offered by the testing office. A \$20.00 test fee must be paid in advance. Credit hours are not awarded to those who meet the requirement by passing the proficiency examination.
2. Successfully complete I D 105 Quantitative and Qualitative Reasoning Skills OR I D 200 Mathematics: A Human Endeavor.
3. Successfully complete College Algebra (MATH 104) or a mathematics course that has college algebra as a prerequisite or score a 17 or above on the Algebra Diagnostic Exam and a course in statistics or a course in symbolic logic.

### **Statistics Courses**

ANTH 300 - Quantitative Methods in Anthropology

CHEM 417 - Analytical Chemistry I

COMM 250 - Problems in Communication - Research

### **Methods**

ECON 381 - Economic Statistics & Quantitative Methods

GES 400 - Introduction to Probability and Statistics

MATH 310 - Statistics for the Sciences

MATH 381 - Probability Theory

PES 315 - Modern Physics Laboratory

PSC 250 - Introduction to Political Inquiry

PSY 210 - Introduction to Psychological Statistics

SOC 317 - Social Statistics

### **Logic Courses**

PHIL 112 - Critical Thinking

PHIL 344 - Symbolic Logic

PHIL 443 - Logical Theory

4. Successfully complete MATH 301 and MATH 302.

### **Area Requirements**

Each prospective graduate is expected to have completed 12 semester hours in each of three areas — humanities, social sciences, and natural sciences. The total requirement is 36 hours, and, with the exception of the core humanities course, can be satisfied entirely by lower division (freshman/ sophomore) courses.

### **Specific Limitations:**

No more than two courses from any one discipline may be applied to the area requirements.

With the exception of distributed studies, courses in a student's primary major may not be applied to the area requirements.

Courses may not be taken pass/fail.

**Humanities:** The 12 hour humanities requirement must be satisfied in part by successful completion of one UCCS 300 level humanities courses. The remaining nine hours may be selected from the list below or may be satisfied by community college humanities courses that are equivalent or similar in content to those listed below.

### **ART HISTORY**

100-3 Languages of Art

280-3 Survey: Ancient Art

281-3 Survey: Medieval Art

282-3 Survey: Renaissance, Baroque & Rococo Art

285-3 Survey: American Art

286-3 Survey: Modern Art I

287-3 Survey: Modern Art II

289-3 Survey: Nineteenth Century

### **COMMUNICATION**

400-3 Rhetorical Dimensions

### **ENGLISH**

150-3 Introduction to Literature for Non-majors

260-3 Literature: The Global Perspective  
 261-3 Literature: The Global Perspective II  
 290-3 Born in the USA  
 332-3 Masterpieces of American Literature  
 390-3 Topics in Literature

**ETHNIC STUDIES**

200-3 Introduction to Ethnic Studies  
 310-3 Women of Color: Image & Voice

**FILM STUDIES**

100-3 Introduction to Film Studies  
 200-3 Narrative Film

**HISTORY**

103-3 The Rise of Modern Europe, 1500-1815  
 111-3 Asian History: Southeast Asia  
 112-3 Asian History: The Indian Subcontinent  
 113-3 Asian History: China  
 114-3 Asian History: Japan  
 140-3 Latin American History to 1810  
 141-3 Latin American History Since 1810  
 153-3 US: Emergence of Modern America, 1865-1920

**LANGUAGES AND CULTURES**

FCS 318-3 German & Austrian Civilization & Culture 1700-1918  
 FCS 319-3 20th Century German/Austrian Civilization and Culture  
 FCS 324-3 Modern French Culture & Civilization  
 FCS 369-3 Topics in Hispanic Film  
 FCS 389 1-6 Fields Studies in Language and Culture  
 FCS 421-3 Hispanic Heritage of Colorado

**MUSIC**

100-3 Introduction to Music  
 205-3 Jazz History

**PHILOSOPHY**

100-3 Introduction To Philosophy  
 102-3 Ethics  
 105-3 Philosophy and Religion  
 112-3 Critical Thinking  
 309-3 Philosophies of Asia  
 310-3 Comparative Religions

**THEATRE**

100-3 Introduction to Theatre  
 320-3 History of Theatre I  
 321-3 History of Theatre II

**VISUAL ARTS**

101-3 Beginning Studio - 2D  
 102-3 Beginning Studio - 3D

**WOMEN'S STUDIES**

200-3 Introduction to Women's Studies  
 310-3 Women of Color: Image & Voice

**Social Science:** The 12-hour social science area requirement may be met by the lower

and upper division courses that are listed below. Students who transfer to UCCS from community colleges may fulfill this area requirement by substituting courses that are equivalent or similar in content to those listed below.

**ANTHROPOLOGY**

104-3 Introduction To Cultural Anthropology  
 220-4 Survey of Prehistory  
 240-3 Survey of Cultural Anthropology  
 280-3 The Nature of Language  
 304-3 Women Around the World  
 307-3 Darwinism  
 326-3 Agricultural Origins  
 327-3 Historical Archaeology

**COMMUNICATION**

102-3 Interpersonal Communication  
 215-3 Male/Female Communication  
 328-3 Intercultural Communication  
 344-3 Leadership Communication  
 420-3 Persuasion  
 422-3 Creative Communication  
 425-3 Advanced Interpersonal Communication: Conflict Management

**ECONOMICS**

100-3 The Economics of Social Issues  
 101-3 Introduction To Microeconomics  
 202-3 Introduction To Macroeconomics  
 315-3 Great Books of Economics  
 371-3 Comparative Economic Systems

**ETHNIC STUDIES**

201-3 Introduction to Race & Gender  
 300-3 Race & Gender at the Movies

**GEOGRAPHY AND ENVIRONMENTAL STUDIES**

198-3 World Regional Geography  
 199-4 Introduction To Human Geography

**GERONTOLOGY**

300-3 Introduction To Gerontology

**PHILOSOPHY**

320-3 Politics and the Law  
 322-3 Philosophy of Law

**POLITICAL SCIENCE**

101-3 Introduction To Global Politics  
 110-3 The American Political System  
 210-3 Politics and Policy in State & Local Government  
 330-3 The Bureaucrats  
 421-3 International Politics  
 447-3 Introduction To Constitutional Law

**PSYCHOLOGY**

100-4 General Psychology

**SOCIOLOGY**

111-4 Introduction To Sociology  
 212-4 Introduction To Social Research  
 220-3 Introduction To Racial & Ethnic Groups  
 222-3 Communities in a Global Environment  
 250-3 Social Problems  
 361-3 Gender & Society

**WOMEN'S STUDIES**

201-3 Introduction to Race & Gender  
 225-3 Images of Women in Society  
 300-3 Race & Gender at the Movies  
 304-3 Women Around the World  
 361-3 Gender & Social Behavior

**Natural Science:** The 12-hour natural science area requirement must include at least one laboratory science course and may be satisfied by the lower and upper division courses listed below. (Laboratory science courses are indicated by an asterisk.) Community college students transferring to UCCS may fulfill this requirement by substituting courses that are equivalent or similar in content to those listed below.

**ANTHROPOLOGY**

103-3 Introduction To Human Origins  
 230-3 Survey of Biological Anthropology  
 332-3 Primatology  
 334-3 Human Evolution  
 337-3 Human Biology & Ecology

**BIOLOGY**

\* 100-3 Biology in the Modern World; Lab (BIOL 106-1)  
 105-3 Personal Nutrition

114-3 Introduction To Health and Exercise Science

\* 151-3 Environmental Science I; Lab (BIOL 153-1)

**CHEMISTRY**

\* 100-3 Chemistry in the Modern World; Lab (CHEM 110-1)

\* 101-4 Introduction To Chemistry

\* 103-5 General Chemistry I

\* 106-5 General Chemistry II

121-3 Introduction To Physical Science; Lab (CHEM 124-1)

151-3 Environmental Science; Lab (CHEM 153-1)

**ENERGY SCIENCE**

150-3 Introduction To Energy Science I  
 151-3 Introduction To Energy Science II

\* 160-3 Solar Energy & Lab (ENSC 162-1)

**GEOGRAPHY AND ENVIRONMENTAL STUDIES**

100-4 Environmental Systems: Climate, Vegetation and Soils

101-4 Environmental Systems: Landforms

\*105-4 Map & Compass

320-4 Practical Meteorology

325-3 Geography of Climate Change

**GEOLOGY**

\* 101-4 Physical Geology

102-4 Historical Geology

\* 153-4 Geological Development in Colorado and the West

317-3 Geology of Our National Parks

370-4 Environmental Geology

466 1-3 Field Study in Geology

**INTERDEPARTMENTAL STUDIES**

205-3 Beyond the Finite

**PHYSICS AND ENERGY SCIENCE**

\* 100-3 Physics in Everyday Life; Lab (PES 114-1)

104-3 Physics in Science Fiction

\* 105-3 General Astronomy I & Lab (PES 109-1)

\* 106-3 General Astronomy II & Lab (PES 110-1)

108-3 Science on the Nanoscale

131-3 Science and Women

**PSYCHOLOGY**

327-3 Biopsychology

**Cultural Diversity Requirement**

While fulfilling their general education requirements, students are required to take a course which increases their awareness of cultural diversity. Approved courses are as follows:

ANTH 104 Introduction to Cultural Anthropology

ANTH 240 Survey of Cultural Anthropology

COMM 328 Intercultural Communication

EST 200 Introduction to Ethnic Minority Studies

ENGL 261 Literature: The Global Perspective II

ENGL 290 Topics in Literature

ENGL 332 Born in the USA: Masterpieces of American Literature

ENGL 390 Topics in Literature

FCS 421 Hispanic Heritage of Colorado

GES 198 World Regional Geography

HIST 111 Asian History: Southeast Asia

HIST 112 Asian History: The Indian Subcontinent

HIST 113 Asian History: China

HIST 114 Asian History: Japan

HIST 140 Latin American History to 1810

HIST 141 Latin American History since 1810

SOC 220 Introduction to Racial and Ethnic Groups

WMST 200 Introduction to Women's Studies

WMST 225 Images of Women in Society

Please check with the college or the Student Success Center for additional approved courses.

**Oral Communications Requirement**

Students are required to take a course with a substantial component involving oral communication. This course may be within a student's major department, an elective, or an approved general education (area requirements) course. Approved courses are as follows:

CHEM 495 Chemistry Seminar I

CHEM 496 Chemistry Seminar II

COMM 201 Oral Communications in the Workplace

COMM 210 Public Speaking

COMM 324 Business and Professional Communication

COMM 410 Advanced Public Speaking

ENGL 420 The Eighteenth Century British Novel: Defoe to Austin

ENGL 421 The Nineteenth Century British Novel

ENGL 423 Development of the American Novel I

ENGL 424 Development of the American Novel II

ENGL 425 Contemporary Novel

ENGL 430 Studies in American Literature and Culture

ENGL 440 Genre Studies

ENGL 450 Studies in Anglo-Saxon and Medieval Literature

ENGL 483 Rhetoric and Writing

ENGL 495 Seminar in Literary Topics

ENGL 498 Seminar in Major Author

FR 301 French Conversation & Composition I

FR 302 French Conversation & Composition II

FR 303 Advanced French Conversation and Composition

FR 304 Advanced Pronunciation and Phonetics

GER 301 German Conversation and Composition I

GER 302 German Conversation and Composition II

PES 481 Senior Physics Seminar

PHIL 100 Introduction to Philosophy

PHIL 104 Philosophy and Society

SPAN 301 Spanish Conversation and Composition I

SPAN 302 Spanish Conversation and Composition II

SPAN 391 Spanish Theatre Workshop

SPAN 403 Advanced Conversation and Composition

SPED 407 Language Arts Instruction

T ED 460 School Experience-Elementary

T ED 470 School Experience-Secondary

THTR 202 Acting Workshop I

THTR 203 Acting Workshop II

THTR 204 Voice and Articulation I

THTR 310 On Camera Performance

Please check with the college or the Student Success Center for additional approved courses.

**Global Awareness Requirement**

While fulfilling their general education requirements, students are required to take a course which increases their awareness of global issues. Approved courses are as follows:

ANTH 104 Introduction to Cultural Anthropology

ANTH 240 Survey of Cultural Anthropology

ECON 371 Comparative Economic Systems

ENGL 260 Literature: The Global Perspective I

ENGL 261 Literature: The Global Perspective II

FCS 318 German and Austrian Civilization & Culture 1700-1918

FCS 319 20th Century German and Austrian Civilization and Culture

FCS 324 Modern French Culture and Civilization

FCS 389 Field Studies in Language and Culture

GES 198 World Regional Geography

GES 199 Human Geography

HIST 111 Asian History: Southeast Asia

HIST 112 Asian History: The Indian Subcontinent

HIST 113 Asian History: China

HIST 114 Asian History: Japan

HIST 140 Latin American History to 1810

HIST 141 Latin American History since 1810

PHIL 310 Comparative Religions

P SC 101 Global Politics

P SC 421 International Politics

SOC 222 Communities in a Global Environment

Please check with the college or the Student Success Center for additional approved courses.



### **Major Requirements**

Note: Individual departments may require more than these minimum standards.

1. A total of 30-54 hours in major courses.
2. A total of 30 hours of C grade or better in major courses.
3. A 2.0 grade point average in all required major courses.
4. A minimum of 16 hours of upper-division major courses.
5. Special requirements as stipulated by the department.

Note: Not more than 54 hours in one discipline and not more than 30 hours outside the College of Letters, Arts, and Sciences may be counted toward graduation requirements.

Students may also complete a second major concurrently or at a later time. To do so, the student will be required to take at least an additional 30 hours, of which a minimum of 16 hours must be upper-division. All other major requirements apply.

### **Minor Opportunities and Requirements**

The College of Letters, Arts, and Sciences has approved the opportunity for students to take optional minors in various disciplines, including business administration. Additional information is available from the academic advisors in either the College of Letters, Arts, and Sciences or in the College of Business. For information about optional minors, please refer to the appropriate program sections in this bulletin.

The following college guidelines have been established for minor programs:

1. A minimum of 18 credit hours of C-grade or better must be taken in a minor area, including a minimum of nine upper-division credit hours.
2. Minor requirements may not be taken pass/fail.
3. Students will be allowed no more than nine credit hours, including six upper-division credit hours, of transfer work toward a minor.
4. Coursework applied toward a minor may also be applied toward general education requirements.
5. Students may double count up to nine credit hours between a major

and a stand-alone minor. Such double counting is permitted for at most one major and one stand-alone minor pair.

Program requirements other than those above may be established by departments and program directors. Departments will ensure that minor requirements are consistent with their major requirements.

### **Upper-Division Requirement**

Students must complete at least 45 hours of upper-division work (courses numbered 300 and above) to be eligible for the bachelor's degree. Students may register for upper-division courses if they have met prerequisites or obtained departmental approval. Courses transferred from a junior/community college carry lower-division credit.

### **Foreign Language Requirement**

As of January 1, 1993, the College of Letters, Arts, and Sciences no longer has a foreign language requirement. However, a variety of language classes will continue to be offered for students who wish to study a foreign language. Students contemplating graduate school should be aware that many graduate schools require proficiency in a foreign language.

Newly admitted freshmen are still required to have completed two units of foreign language at the high school level. Freshmen admitted who are deficient in this requirement may make up the deficiency as outlined in the beginning of the College of Letters, Arts, and Sciences section of this Bulletin. The foreign language placement examination will continue to be administered for those students wishing to determine their level of placement in a foreign language course. Contact the Language Technology Center in Dwire Hall 311 at 262-3691.

Students are urged to continue language study in a timely manner, as proficiency declines rapidly without application of skills.

Note: If coursework in foreign language taken at other institutions is repeated at the same level at UCCS, academic credit for any hours duplicated will not be counted toward graduation.

### **Senior Requirements**

Early in the first semester of the senior year or, preferably, toward the end of the junior year, each student must schedule a senior audit with the academic advisors

or the college to determine status with respect to the above requirements.

No fewer than 90 days prior to the date of commencement, seniors are required to file a diploma card with the academic advisors in the Student Success Center that gives notice of intention to complete graduation requirements. Failure to complete the diploma card in time may delay a student's graduation.

### **Residence Requirements**

A candidate for a degree from the College of Letters, Arts, and Sciences must earn the last 30 hours in residence in the College. During these 30 hours, the student must be registered in Letters, Arts and Sciences. All 30 hours must be taken on the Colorado Springs campus. Students wishing to attend another university or college simultaneously with UCCS during the last 30 hours must have prior approval of the dean of Letters, Arts and Sciences in order to count these transfer hours as part of the last 30 hours.

### **Special Study Programs**

#### **Freshman Seminar**

Freshman Seminar (I D 101) at UCCS helps prepare entering students for an exciting and successful college experience. I D 101 is an innovative, three credit, multidisciplinary course that helps students succeed in college by refining their speaking, writing, and technology skills, building relationships with faculty and other students, and integrating into academic life. Students may elect one of nine compelling topics to pursue in I D 101, including "The Mating Game;" "The New American Dream;" "Driven;" "Street Beat;" "Unreality; Life and Death;" "Crime and Punishment;" or "ColoradoLiving.com." (Topics may rotate.) All entering freshmen are encouraged to enroll in freshman seminar. For more information, please call Dr. Constance Staley, Program Director, at 262-4123 or the Student Success Center at 262-3260.

#### **Transition Seminar**

(for transfer students)

ID 301 is specifically designed for new transfer students. While focusing on a critical topic, the course helps students integrate into the UCCS community, polish academic skills through project-based learning, and cultivate technology-based research competence. ID101 and ID 301 students may continue to work



toward a Certificate in Academic and Career Professionalism. See the CAP program website at [web.uccs.edu/cap/cap.htm](http://web.uccs.edu/cap/cap.htm) for more information.

### **Academic Fitness**

ID 111 is a one-credit course required for second semester freshmen on academic probation, but also open to other students who wish to refine their academic skills and improve their GPAs. Students will meet with an academic coach on a weekly basis.

### **Study Abroad Programs**

Opportunities for study abroad are offered for selected students in the college, usually in formal programs in foreign universities under the direction of faculty members from this university or institutions cooperating with the University of Colorado. Normally, these programs accept students for the junior year. They carry full credit toward graduation from the University of Colorado. Inquiries may be addressed to the university's Language Technology Center in Dwire Hall 311.

## **Department Programs, Requirements, and Course Descriptions**

Course numbers are an approximate reflection of academic level. Freshman courses are indicated as 100-199, sophomore courses as 200-299, etc. Students are strongly urged to consult with the department prior to registration before signing up for any upper-division course (300 or 400 level) in a field in which they have not had lower-division (100 or 200 level) preparation.

### **Anthropology**

Professor: Tom Wynn; Associate Professors: Gerald Broce, Forrest Tierson and Linda Watts (Chair); Assistant Professor: Minette Church; Instructor: Glenda Carne; Instructor and Curator: Seyhan Dwellis; Research Instructor: William Arbogast.

## **Anthropology – Bachelor of Arts**

Anthropology Professors; Professor: Tom Wynn; Associate Professors: Gerald Broce, Forrest Tierson, and Linda Watts (Chair); Assistant Professor: Minette Church; Senior Instructor: Glenda Carne; Instructor and Curator: Seyhan Dwellis;

Research Instructor: William Arbogast

### **Major Requirements**

The bachelor of arts in anthropology requires 36-54 credit hours of course work in anthropology. In order to expose majors to the variety of perspectives incorporated in the discipline, the following department courses are required for graduation: Survey of Prehistory (ANTH 220), Survey of Biological Anthropology (ANTH 230), Survey of Cultural Anthropology (ANTH 240), and Nature of Language (ANTH 280). Majors must also take History of Anthropology (ANTH 397) and Senior Seminar (ANTH 498). Students must take ANTH 397 before they take ANTH 498.

Students interested in specializing in archaeology should consider taking the following courses offered by other departments: Environmental Systems: Landforms (GES 101), Introduction to Cartography (GES 305), Introduction to Geographic Information Systems (GES 405), Introduction to Remote Sensing (GES 406), Principles of Geomorphology (GES 431), and Soils (GES 434). Indeed, students interested in pursuing a career in archaeology are urged to consider completing a minor in geography and environmental studies.

### **Minor Requirements**

Students interested in a minor in anthropology are required to complete three of the following four 200 level courses: ANTH 220, ANTH 230, ANTH 240, and ANTH 280. They must also meet the college's minimum requirements for minor programs (18 hours, with 9 hours in the upper division).

### **Honors Program**

In addition to the regular undergraduate curriculum in anthropology, the department offers students an honors program. Before or during the first semester of the junior year, interested students should contact any anthropology faculty member about this program.

### **Bibliography**

Senior Instructors: Christina Martinez and Judith Rice-Jones.

### **Biology**

Professors Emeritus: James Mattoon and Douglas Swartzendruber; Associate Professors: Jackie Berning, Sandy Berry-

Lowe, Robert Melamede (Chair) and Karen Newell; Assistant Professors: Jeff Broker, Dan Guerra and Tom Wolkow; Senior Instructor: Jon Pigage; Instructor: Kathleen Malueg.

## **Biology – Bachelor of Arts**

### **Major Requirements**

1. The student must complete at least 30 hours of coursework in biology including a minimum of 16 hours in upper-division (300- or 400-level) courses. A grade of C or above must be attained in all required courses. NOTE: 54 hours in the major is the maximum towards fulfilling the 120-hour graduation requirement.
2. The three-semester sequence required in chemistry is General Chemistry (CHEM 103 and 106) and Organic Chemistry (CHEM 330/340). It is strongly advised that general chemistry be taken in the first year and organic chemistry in the second year. The two semester sequence of organic chemistry (CHEM 331/333 and 332/334) is required for students planning to enter medical or graduate school.
3. A two-semester sequence is required in physics - Physics for Life Sciences (PES 101-115/102-215) or General Physics (111-115/112-215) is acceptable.
4. Competency in Calculus I (MATH 135) is required. It can be met by scoring 4 or 5 in the AP Math-Calculus test or a 3, 4, or 5 in the AP Math-Calculus BC test. The one-semester course Research Methods in Biology (BIOL 300) is also required.
5. The major in biology recognizes that required departmental courses (Biology I and II, Cell Biology, Genetics, Biochemistry and Biology Seminar) and certain biology area requirements are needed for the development of competence in the biological sciences. The major must take all required courses and at least one course from each of the three biology area requirements (listed below).
6. A maximum of 8 hours of credit taken in BIOL 940-949 (Independent Studies) and Externship in BIOL 471-474 count toward the major.

### **GENERAL REQUIREMENTS**

(NOTE: Failure to take courses in the

recommended sequence will result in future course conflicts.)

### Biology I

(Introduction to Cell Biology) .....	BIOL 110-3
Introduction to Cell Biology Lab ....	BIOL 111-1
Biology II (Organismic Biology) .....	BIOL 115-3
Organismic Biology Lab .....	BIOL 116-1
Research Methods in Biology .....	BIOL 300-3
Cell Biology .....	BIOL 302-3
Genetics .....	BIOL 383-3
Biology Seminar .....	BIOL 401-1
Biochemistry BIOL 481-3 and 482-4, or 483-3	
One year of General Chemistry .....	CHEM 103/106
One semester of Organic Chemistry.....	CHEM 330/340
One year of Physics .PES 101/102, 115/215	
One semester of Calculus .....	MATH 135

**AREA REQUIREMENTS** (at least one course from each area is required)

### Human Biology

Human Anatomy and Physiology	201-4, 202-4
Biomedical Aspects of Aging .....	204-3
Nutrition for Health Sciences .....	205-3
Human Physiology .....	321-3
Exercise Physiology .....	330-3
Histology and Lab .....	360-3, 365-1
Vertebrate Embryology .....	361-4
Health and Fitness .....	403-3
Advanced Nutrition .....	430-3
Biomechanics/Kinesiology .....	455-3
Human Metabolism .....	477-3
Pathobiology .....	490-4
Biomechanics of Musculo-skeletal Injury .....	460-3

### Molecular, Cellular and Developmental Biology

Microbiology .....	203-4
Microbiology: Bacteriology/Mycology and Lab .....	310-3, 311-1
Microbiology: Virology and Lab .....	314-3, 315-1
Histology and Lab .....	360-4
Vertebrate Embryology .....	361-4
Genetics Laboratory .....	384-2
Immunology .....	391-3
Molecular Genetics .....	484-3
Molecular Biology Laboratory .....	485-3
Biochemistry Laboratory.....	486-3
Principles of Flow Cytometry.....	488-3
Advanced Flow Cytometry .....	489-3
Biotechnology I .....	491-4
Biotechnology II .....	492-4

### Organismic and Environmental Biology

Plants of Colorado.....	313-3
Animal Physiology.....	322-3
General Ecology .....	370-3
Conservation Biology.....	375-4
Field Botany.....	415
Economic Botany.....	420
Evolution .....	425-3
Biogeography .....	426-4
Mammalogy .....	428-4
Plant Communities of Colorado .....	429-4
Plant Physiology .....	440-4
Animal Ecology .....	443-4
Winter Ecology .....	444-2

### GRADUATE COURSES

Seminar in Biology .....	501-1
Health and Fitness .....	503-3
Scientific Basis of Athletic Performance .....	510-3
Field Botany.....	515
Injury Prevention and Treatment .....	523-3
Advanced Exercise Physiology .....	530-3
Biomechanics/Kinesiology .....	555-3
Biomechanics of Musculo-skeletal Injury.....	560-3
Conservation Biology.....	570
Externship in Biology .....	571-1 to 12
Human Metabolism .....	577-3
Basic Laboratory Methods in Sports Physiology .....	579-3
Analytical Methods in Sports Physiology .....	580-3
Biochemistry .....	581-3, 582-4
Molecular Biology .....	584-3
Molecular Biology Laboratory .....	585-4
Biochemistry Laboratory.....	586-3
Biochemistry and Molecular Biology of Lipids and Membranes .....	587-3
Principles of Flow Cytometry.....	588-3
Advanced Flow Cytometry .....	589-3
Pathobiology .....	590-4
Biotechnology I .....	591-4
Biotechnology II.....	592-4
Advanced Biomechanics .....	636-2

### Suggested Four-year Curriculum for a BA in Biology

The following is a suggested four-year curriculum for a student wishing to obtain a degree in biology. The department also offers three areas of emphasis: Biotechnology/Biochemistry, Organismic Biology and Exercise Science. A degree option is available for elementary, secondary and special education

teachers. Please contact the Student Success Center or the College of Education for further information.

### Freshman Year

BIOL 110, 111 and 115, 116 General Biology and Labs .....	8
CHEM 103, 106 General Chemistry and Labs .....	10
MATH 135, Calculus I .....	4
College/Department Requirements/ Electives .....	8
	<b>30</b>

### Sophomore Year

BIOL 302 Cell Biology .....	3
BIOL 300 Research Methods in Biology .....	3
CHEM 330/340 Organic Chemistry (or 331/333) .....	5
PES 101, 102, 115, 215 .....	10
College/Department Requirements/ Electives .....	11
	<b>32</b>

### Junior Year

BIOL 383 Genetics .....	3
College/Department Requirements/ Electives .....	25
	<b>28</b>

### Senior Year

BIOL 401 Seminar .....	1
BIOL 481 Biochemistry .....	3
College/Department Requirements/ Electives .....	26
	<b>30</b>

**Total Hours .....** 120

### Course Suggestions for Biology Majors with Various Interests

#### Biotechnology/Biochemistry Course Suggestions

Advisors: Berry-Lowe and Melamede

### Freshman Year

BIOL 110, 111 and 115, 116 General Biology and Labs .....	8
CHEM 103, 106 General Chemistry and Labs .....	10
MATH 135, Calculus I .....	4
College/Department Requirements/ Electives .....	8
	<b>30</b>

### Sophomore Year

BIOL 302 Cell Biology .....	3
CHEM 331-334 Organic Chemistry .....	10
PES 101, 102 Physics for Life Science .....	8
PES 115,215 Physics for Life Science Labs .....	2
BIOL 300 Research Methods in Biology .....	3
College/Departmental Requirements/ Electives .....	6
	<b>32</b>

**Junior Year**

BIOL 383 Genetics ..... 3

BIOL 384 Genetics Lab..... 2

BIOL 481 and 482 Biochemistry ..... 7

BIOL 486 Biochemistry and Molecular Biology Laboratory..... 3

College/Departmental Requirements/ Electives..... 13

**28**

**Senior Year**

BIOL 391 Immunology ..... 3

BIOL 401 Biology Seminar ..... 1

BIOL 484 Molecular Genetics ..... 3

BIOL 384 Genetics Laboratory ..... 2

BIOL 485 Molecular Biology Laboratory ..... 4

CHEM 451 Physical Chemistry ..... 4

College/Departmental Requirements/ Electives..... 13

**30**

**Total Hours ..... 120**

**Recommended But Not Required.**

- Microbiology
- Analytical Chemistry
- General Ecology
- Computer Science
- Biotechnology I, II

**Organismic Biology Course Suggestions**

Adviser: Pigage

**Freshman Year**

BIOL 110, 111 and 115, 116 General Biology and Labs ..... 8

CHEM 103, 106 General Chemistry and Labs ..... 10

MATH 135 Calculus I ..... 4

College/Departmental Requirements/ Electives..... 8

**30**

**Sophomore Year**

BIOL 302 Cell Biology ..... 3

BIOL 300 Research Methods in Biology ..... 3

CHEM 331-334 Organic Chemistry ..... 10

PES 101, 102, 115, 215 Physics for Life Sciences and Lab..... 10

College/Departmental Requirements/ Electives ..... 6

**32**

**Junior Year**

BIOL 383 Genetics ..... 3

College/Departmental Requirements/ Electives..... 25

**28**

**Senior Year**

BIOL 401 Seminar ..... 1

BIOL 483 Biochemistry ..... 3

(BIOL 481 and 482 may replace 483)

College/Departmental Requirements/ Electives..... 26

**30**

**Total Hours..... 120**

**Exercise Science Course Suggestions**

Advisors: Berning and Broker

**Freshman Year**

BIOL 110, 111 and 115, 116 General Biology and Labs ..... 8

CHEM 103, 106 General Chemistry and Labs ..... 10

MATH 135 Calculus I ..... 4

College/Departmental Requirements/ Electives..... 10

**32**

**Sophomore Year**

BIOL 201, 202 Human Anatomy and Physiology ..... 8

BIOL 302 Cell Biology ..... 3

BIOL 300 Research Methods in Biology ..... 3

CHEM 330/340 Organic Chemistry ..... 5

PES 101, 102, 115, 215 Physics for Life Sciences and Lab..... 10

College/Departmental Requirements/ Electives ..... 3

**32**

**Junior Year**

BIOL 383 Genetics ..... 3

BIOL 455 Kinesiology/Biomechanics ..... 3

BIOL 483 Biochemistry..... 7

(BIOL 481 and 482 may replace 483)

College/Departmental Requirements/ Electives..... 13

**26**

**Senior Year**

BIOL 330 Exercise Physiology ..... 3

BIOL 401 Seminar ..... 1

BIOL 403 Health and Fitness ..... 3

BIOL 423 Injury Prevention & Treatment ..... 3

BIOL 477 Human Metabolism ..... 3

College/Departmental Requirements/ Electives..... 17

**30**

**Total Hours ..... 120**

**Recommended But Not Required:**

- Biomedical Aspects of Aging
- Nutrition for Health Sciences
- Laboratory Methods in Sports Science
- Pathobiology

**Pre-Allied Health Advisory Program (PAHAP)**

**Administered by the Department of Biology**

Adviser: Jon Pigage

**Choice of Profession**

A student should make an appointment with the PAHAP adviser and provide a transcript of any previous college work. The PAHAP adviser will introduce the student to the various professions

which are available and appropriate for each individual student. The adviser will discuss, in detail, the programs in which the student has an interest. The student may be asked to read and study material from a number of sources before committing himself or herself to a given profession.

**Establishment of a Curriculum**

Once a student has chosen a profession, the student and the PAHAP adviser will prepare a tentative academic program with the following considerations:

1. Major field.
2. Core curriculum for the major.
3. Electives within the major.
4. Lower- and upper-division requirements for the degree.
5. Lower- and upper-division electives for the degree.
6. Courses and units needed for admission into allied health programs at other institutions where the student will further his or her training.

**Special Considerations**

The variation in preparation for the large number of allied health programs may dictate that a student fulfill requirements other than those of the regular university curriculum. These requirements may include practical experience through externships, previous certification, or technical training. In such cases, the student will be advised and such special considerations will be included in the student's overall pre-allied health career program.

**Note:** A laboratory fee is charged for all biology courses with formal laboratories and/or field work.

**Note:** All 300-level courses and above presume having general biology, general chemistry, organic chemistry and general physics.

**Honors Program**

The Department of Biology offers a program for honors in biology to outstanding senior students at UC-Colorado Springs. Individuals wishing to take advantage of this program should contact the department no later than the beginning of their final semester.

Qualifications for admission to the departmental honors program shall consist of a minimum grade point average of 3.5 in biology and a minimum



of 3.0 overall. The qualified student must complete BIOL 949 to be eligible for the honors program. Through the recommendation of the faculty of the Department of Biology, the successful honor student's degree diploma will bear the citation "With Distinction (High Distinction, Highest Distinction) in Biology"

Students are encouraged to consult a faculty adviser in the department for help in planning their individual programs.

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### **Biology – Master of Basic Science**

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The Department of Biology is part of the Masters of Basic Science (MBS) program. For applications and initial advising contact the biology graduate coordinator. The Department of Biology offers four areas of emphasis within the MBS program.

The exercise science program is the only one of its kind in the country organized by cooperative efforts between a university and amateur sports. The exercise science option is offered in conjunction with the U.S. governing bodies for USOC. Advisors for this option are Drs. Berning and Broker.

The biochemistry and molecular programs offers the opportunity for students to carry out research with faculty active in the fields of molecular biology, immunology, biotechnology, and biochemistry. The advisor for this option is Dr. Sandra Berry-Lowe.

An option in organismic biology is also offered for students interested in whole organisms, ecology, and evolution. The advisors for this option are Drs. Pigage and Malueg.

See the description of the MBS degree program at the end of the Letters, Arts and Sciences section in this bulletin.

### **Chemistry**

Professors: James Eberhart, Ronald Ruminski and Allen Schoffstall (Chair); Associate Professors: David Anderson and Radha Pyati; Assistant Professor: David Weiss. Professor Adjunct: Kresheck; Professor Adjoint: Askill; Instructors: Cynthia Applegate, Larry Augenstein, Chester Dymek, David Hill, Cris Johnson, Celeste McDaniels and Mary Bethé Neely.

Two programs of study (BS and BA)

are open to students wishing to major in chemistry. The program leading to the degree of bachelor of science in chemistry is intended for those who plan to choose chemistry as a profession. This program should also be elected by students who plan to go on to graduate school in chemistry. This program is certified by the American Chemical Society (ACS). The Department of Chemistry at UCCS is one of 600 in the United States that is approved by the ACS. Many BS graduates gain employment as chemists upon completion of their BS degree program. Others go on to graduate studies.

Students wishing a less comprehensive program in chemistry, such as premedical students, should elect the bachelor of arts degree with a major in chemistry. Judicious selection of additional courses permits the BA major to satisfy prerequisites for admission to graduate study in chemistry or related fields of study. There are five options for the BA: a general option, an environmental chemistry option, a biochemistry option, a pre-health professional option and a teacher education option.

Students who are planning to complete a BA in biology may complete a biology/chemistry double major. This chemistry program is available only to those who also complete the biology major.

Several chemistry courses are offered as a service to students majoring in other science fields and in social sciences and arts and humanities fields. CHEM 151 Environmental Science is a beginning level course that has no chemistry prerequisites. CHEM 100 Chemistry in the Modern World is offered for non-science majors. CHEM 121 Introduction to Physical Science is an integrated science course with a focus on chemistry for non-science majors. CHEM 301 Materials Science, and CHEM 488 Forensic Chemistry are offered as elective courses for science majors. A degree option is available for secondary education teachers. Please contact the Student Success Center or the College of Education for further information concerning the education requirements for this option.

#### **Advising and Additional Departmental Rules**

Students majoring in chemistry should keep a copy of the Department of Chemistry Advising Brochure that is in

effect when they declare a major. This brochure will be referred to throughout the student's career. Students are bound to the rules in effect when they first declare. This is important because the rules and course requirements may change somewhat from year to year. Chemistry majors should consult regularly with departmental faculty advisors, and in particular with the department chair, as outlined in the advising brochure. Academic advising is a very important aspect of one's education. Decisions on application to medical schools and graduate schools and on employment are also critical. Students should consult faculty advisors when making these decisions.

Students who complete a chemistry degree may count 10 semester hours of PES 111, 112, 115, and 215 as part of their natural science area requirement. Since PES 111, 112, 115, and 215 are not on the approved list of courses, students not completing a chemistry degree cannot count these courses toward their area requirement for a non-chemistry College of Letters, Arts, and Sciences degree. For chemistry majors, chemistry electives must be chosen from upper division chemistry courses.

All students intending to elect CHEM 103 will complete a diagnostic examination to cover math skills. Students in many chemistry courses will be examined using standardized ACS subject exams. Students who have not taken chemistry in high school should take CHEM 115.

Chemistry majors must achieve grades of C or better in all chemistry courses required for the major. Grades of C or higher are also required for all required physics and math courses.

The BS in chemistry is a professional degree program accredited by the American Chemical Society, designed to prepare the student for a career in chemistry, including those anticipating admission to graduate study in chemistry. The program is not intended as a preparation for the study of medicine. Premedical students who wish to major in chemistry should elect the BA degree with a major in chemistry.

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### **Chemistry – Bachelor of Science**

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The BS in chemistry requires more breadth and depth in chemistry, mathematics, and physics than the BA

students desiring a BS in chemistry are typically planning graduate studies in chemistry and/or careers as professional chemists in industry, private laboratories, and government agencies.

The program features courses from each of the main areas of chemistry: analytical, inorganic, organic, physical and biochemistry. Aspects of analytical and biological chemistry are introduced in general chemistry and organic chemistry. They are then treated in detail in advanced courses in analytical chemistry. Inorganic chemistry is introduced in general chemistry. A two-semester lecture-laboratory sequence in inorganic chemistry is taken by seniors after they have had physical chemistry. The inorganic courses are founded upon modern theories of bonding and orbital symmetry.

Organic chemistry is covered in a one-year sequence featuring a rigorous laboratory program where synthetic and spectroscopic methods are introduced. A comprehensive treatment of the principles of thermodynamics, quantum mechanics, kinetics, and spectroscopy is encompassed in the two-semester physical chemistry sequence.

The BS in chemistry program requires a strong preparation in mathematics through calculus and three semesters of physics.

Students wishing to pursue graduate study in chemistry should select independent study projects involving laboratory work by their junior year.

Suggested four-year sequences of courses are shown below. The courses required for the BS degree are implicit in this sequence. Students who have started their programs by taking CHEM 100 or 101, and who decide to major in chemistry or another science, should take the CHEM 103-106 sequence. Students electing the BS degree who have taken CHEM 331, 332, 333, 334 before deciding to major in chemistry should take two hours of credit in CHEM 940 (Independent Study) in organic chemistry or CHEM 338.

Students are required to select three upper-division electives in chemistry. One may be CHEM 940-3

**BS in Chemistry**

**Freshman Year**

CHEM 103, 106 (108 also recommended).....	10
MATH 135, 136 .....	8

ENGL 131, 141.....	6
C S 105, 106 or 107 (recommended).....	(3)
BIOL 110, 111.....	4
Elective .....	3
	<b>31</b>

**Sophomore Year**

CHEM 331, 332.....	6
CHEM 337, 338.....	4
PES 111, 112, 115, 215.....	10
MATH 235, (340 recommended) .....	4 (7)
Electives.....	6
	<b>30</b>

**Junior Year**

CHEM 451, 452, 455.....	8
CHEM 417, 418, 420.....	9
PES 213.....	3
CHEM 483.....	3
Electives.....	6
	<b>29</b>

**Senior Year**

CHEM 401, 402.....	7
CHEM 495, 496.....	2
Chemistry electives (upper-division).....	9
Electives.....	12
	<b>30</b>

**Total Hours ..... 120**

All chemistry core courses are offered every year. Not all chemistry elective courses are offered each year. Consult the schedule of courses for offerings available each semester.

**Chemistry – Bachelor of Arts**

This degree program is suitable for students wishing a major in chemistry and is limited to fewer credit hours in chemistry, physics, and mathematics than the BS major. BA graduates may be students interested in a more general degree and others such as premedical or pre dental students, students having an interest in both biology and chemistry or chemistry and some other discipline, students who switch over to a chemistry major during their third or fourth year of college careers, and students who are unsure of their goals early in college. Many BA students do choose to go on to graduate school in chemistry and prepare themselves by taking sufficient courses in chemistry and related disciplines in order to qualify for acceptance.

Additional elective courses for BA chemistry majors are CHEM 940-3 or other upper-division electives.

The year-by-year curriculum for the general option is shown here.

**Degree Options**

**General Option**

**Freshman Year**

CHEM 103, 106 (108 also recommended) .....	10
MATH 135, 136 .....	8
ENGL 131, 141.....	6
Electives.....	6
	<b>30</b>

**Sophomore Year**

CHEM 331, 332.....	6
CHEM 337, 338.....	4
PES 111, 112.....	8
PES 115, 215.....	2
BIOL 110, 111.....	4
Electives.....	6
	<b>30</b>

**Junior Year**

CHEM 417, 418, 420.....	9
CHEM 451, 452, 454.....	7
CHEM 483.....	3
Electives.....	12
	<b>31</b>

**Senior Year**

CHEM 401.....	3
CHEM 495, 496.....	2
Chemistry electives (upper-division).....	6
Electives.....	18
	<b>29</b>

**Total Hours ..... 120**

**Environmental Chemistry Option**

This BA program is designed for those students having an interest in environmental processes and problem solving from a chemical perspective. Many environmental issues are multi-dimensional and require the application of chemical principles, processes, and techniques within other disciplines. The strength of this program option is the combination of chemical principles with those of other earth systems. This degree program will give the student a solid foundation in chemistry while pursuing a multi-disciplinary approach that includes coursework in biology, ecology, geography, and economics.

**Freshman Year**

CHEM 103, 106 (108 also recommended).....	10
MATH 135, 136 .....	8
ENGL 131, 141.....	6
BIOL 110, 111.....	4
LAS area requirement.....	3

**31**



**Sophomore Year**

CHEM 331, 332.....	6
CHEM 337, 338.....	4
PES 111, 112.....	8
PES 115, 215.....	2
BIOL 370.....	3
GES 100.....	4
Elective.....	3
<b>30</b>	

**Junior Year**

CHEM 341.....	3
CHEM 417.....	4
CHEM 451, 452, 454.....	7
CHEM 483.....	3
ECON 101.....	3
GES 441.....	3
Electives.....	6
<b>29</b>	

**Senior Year**

CHEM 495, 496.....	2
CHEM 401.....	3
CHEM 418.....	3
CHEM 420.....	2
GES 450 or GES 451.....	3
Chemistry Elective.....	3
Electives (Upper Division).....	14
<b>30</b>	

**Total Hours ..... 120****Biochemistry Option**

This BA program has been established particularly for those students having an interest in biological chemistry and biochemistry. Biochemistry students really need a large part of two majors, one in chemistry and one in biology. The biochemistry option was designed to include as requirements those courses that are fundamental to the field of biochemistry.

The most important feature of the program is that two semesters of biochemistry are required as well as a biochemistry laboratory course. Genetics and molecular genetics are also required. The program requires two semesters of physical chemistry.

**Freshman Year**

CHEM 103, 106 (108 also recommended).....	10
MATH 135, 136.....	8
BIOL 110, 111.....	4
ENGL 131, 141.....	6
Elective.....	3
<b>31</b>	

**Sophomore Year**

CHEM 331, 333.....	5
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CHEM 332, 334.....	5
BIOL 302.....	3
PES 111, 112.....	8
PES 115, 215.....	2
Electives.....	6
<b>29</b>	

**Junior Year**

CHEM 417.....	4
CHEM 451, 452,.....	7
CHEM 481, 482.....	7
CHEM 455 or 486.....	2 or 3
Electives.....	9
<b>30</b>	

**Senior Year**

CHEM 495, 496.....	2
BIOL 383.....	3
Electives.....	19
Chemistry Electives (Upper Division).....	6
<b>30</b>	

**Total Hours ..... 120****Pre-Health Professional Option**

The BA degree in chemistry with pre-health option is designed for students who are interested in chemistry and who plan a career in a health-oriented profession such as medicine or dentistry. This option requires courses similar to those required by medical and dental schools. It requires 36 credit hours of chemistry. The degree program allows for 36 elective credit hours.

**Freshman Year**

CHEM 103, 106 (108 also recommended).....	10 (11)
MATH 135, 136.....	8
BIOL 110, 111, 115, 116.....	8
ENGL 131, 141.....	6
<b>32</b>	

**Sophomore Year**

CHEM 331, 332 and 333, 334, or 337, 338.....	10
ENGL 150.....	3
PES 101, 102, 115 or 111, 112, 115, 215.....	10
Elective or area requirements.....	6
<b>29</b>	

**Junior Year**

CHEM 417, 451, 452*, 483.....	13
Electives or area requirements.....	18
<b>31</b>	

**Senior Year**

CHEM 401.....	3
Electives or area requirements.....	25
<b>28</b>	

**Total Hours..... 120**

\*CHEM 454, 495, &amp; 496 may be taken in lieu

of CHEM 452.

It is recommended that students take one or two chemistry elective courses or independent study in addition to the required courses, e.g., CHEM 418 and 420 or a chemistry elective course such as CHEM 301, 341 or 531, etc.

Students who wish to work as chemists or to pursue graduate studies in chemistry should elect one of the other program options (either BS or BA in chemistry).

**Teacher Education Option**

The BA degree in chemistry with teacher education option is designed for students wishing to be high school chemistry teachers. This program has very specific requirements and no room for elective courses that will count towards graduation. It is important to consult with advisors for the Department of Chemistry and the College of Education.

**Freshman Year**

CHEM 103, 106 (108 also recommended).....	10 (11)
MATH 135.....	4
ENGL 131, 141.....	6
PHIL 100 or 102.....	3
Electives or area requirements.....	9
<b>32</b>	

**Sophomore Year**

CHEM 331, 332 and 333, 334 or 337, 338.....	10
BIOL 110, 151.....	6
PES 101, 102 or 111, 112 and 115 and 105 or 106.....	12
PSY 100.....	4
<b>32</b>	

**Junior Year**

CHEM 401, 417, 451, 454, 483, 495, 496.....	16
PES 215.....	1
GEOL 101.....	4
Humanities 300 level course.....	3
Electives or area requirements and an Education course.....	8
<b>32</b>	

**Senior Year**

Required education courses (Consult with the College of Education).....31

**31****Total Hours..... 127**

This curriculum allows for little flexibility for completion in 127 credit hours. However, it is recommended that students take one or two chemistry elective courses or independent study

in addition to the required courses. Be aware that taking these additional courses will require more hours for graduation than 127 credit hours.

Students who wish to work as chemists or to pursue graduate studies in chemistry should elect one of the other program options (either BS or BA) in chemistry.

**Biology/Chemistry Double Major**

This option provides for a major in chemistry for students who fulfill requirements for a BA in biology. A student who completes all requirements for the BA in biology at UCCS may also complete a BA in chemistry by finishing the following coursework with grades of C or better. Cross-listed courses may not be double counted towards both majors. Cross-listed courses to be used for the chemistry major must be selected as CHEM courses. Physical chemistry courses require MATH 136.

**List of courses:**

General Chemistry: Chem 103 and 106 .....10

Organic Chemistry: Chem 331, 332 and 333, 334 or 337, and 338 .....10

Additional 400- 500- level Chemistry Courses (*Select four from the following list.*) ...12-14

Modern Inorganic Chemistry (Chem 401

Inorganic Chemistry Laboratory (Chem 402)

Analytical Chemistry I (Chem 417)

Physical Chemistry I (Chem 451)-Math 136 is a prerequisite for this course.

Physical Chemistry II (Chem 452)-Math 136 is a prerequisite for this course.

\*You may also choose from any 400- or 500-level Chemistry elective course.

\*Biochemistry Principles (Chem 483)

\*General Biochemistry I (Chem 481)

\*General Biochemistry II (Chem 482)

\*Molecular Genetics (Chem 484)

\*Biochemistry Laboratory (Chem 486)

Total chemistry credit hours ..... 32-34

\*These courses may be selected if the courses were not taken as Biology courses counting towards the major in Biology.

Note: Students electing the combination of Chem 417, 451 and 452 may select Physical Chemistry Laboratory (Chem 455-2) as a fourth course.

**Industrial and Engineering Chemistry**

Materials Science (CHEM 301) is offered each year.

**Honors Program**

In addition to the normal undergraduate

curriculum in chemistry, the department offers interested and qualified undergraduates an opportunity to increase further the breadth and depth of their chemical training through the Departmental Honors Program.

Qualified students are invited to participate in honors sections of CHEM 106 and CHEM 331-332. To participate fully in the chemistry honors program, invited students should also complete an independent study honors project in chemistry and submit an honors thesis to the department. Students completing an honors thesis will automatically be considered for graduation with departmental honors. Other students may also qualify for departmental honors based upon the grade point average in all chemistry, physics, math and biology courses taken at UCCS.

Prior to or during the first semester of the junior year, interested students should contact any chemistry faculty member regarding the prospect of graduation with departmental honors. Graduation with departmental honors requires students to have achieved at least a 3.4 grade point average, and to carry out an independent study project, which is to be reported in both written and verbal forms (seminar).

**Minor in Chemistry**

A student may complete a minor in chemistry by finishing the following coursework with grades of C or better: one year of General Chemistry (CHEM 103 and 106), one year of Organic Chemistry (the sequence CHEM 331, 332, 333, 334, or the sequence CHEM 335, 336, 337, 338), and two courses selected from Modern Inorganic Chemistry (CHEM 401), Analytical Chemistry I (CHEM 417), Physical Chemistry I (CHEM 451) and biochemistry. Chemistry 330 does not satisfy any portion of the required one year of the organic chemistry sequence. Students should familiarize themselves with the prerequisite requirements for these courses.

**Undergraduate Research**

All chemistry majors are strongly encouraged to enroll for independent study and to become engaged in one or more research experiences. Numerous opportunities for summer research with stipends exist at many neighboring universities and sometimes at UCCS. Many students start on their research

in the sophomore year and definitely in the junior year. Apply by seeing the department chair or another faculty member.

**Laboratory Fee**

There is a total charge of \$30 for each laboratory course: one course, \$30; two courses, \$60; etc. The policy for fee refunds for dropping or withdrawing is described in the general information section. Independent study courses are considered to be lab courses. Lab fees are charged for these courses.

**Chemistry – Master of Basic Science**

Students wishing to do most or all of their graduate work at UCCS, as well as those students wanting a general science master’s program, can choose to work toward the MBS degree, which is described at the end of the College of Letters, Arts, and Sciences section in this bulletin. Professor Schoffstall is the chemistry option advisor.

**Dual BS/MBS or BA/MBS**

A dual BS/MBS or BA/MBS program is available. Consult the department advisor concerning this program.

Several chemistry courses are not offered every year. Check the schedule of courses for offerings available each semester. Students applying to the MBS program with chemistry as a major focus must have at least 20 semester credit hours of chemistry (through two semesters of organic chemistry).

**Communication**

Professors: Michael Hackman (Chair), Donald Morley, Pam Shockley, Constance Staley, and Kim Walker; Associate Professors: Adelina Gomez and David Nelson; Assistant Professors: Kathy Ellis, Laura Quinn, and John Richardson; Senior Instructor: Marguerite Cantu; Instructors: Connie Blackmann, Laura Eurich, Shawn Morgan, and JaNae Stansbery; Oral Communication Center Director: William Huddy.

**Communication – Bachelor of Arts**

A Bachelor of Arts in Communication requires a minimum of 36 and a maximum of 54 hours in Communication: degree options include Organizational Communication, Media Management,



Recording Arts, and Applied Communication. The first three options are specialized areas of study. The Applied Communication option allows a student to prepare for a career in communication with courses tailored to the individual student's interests and career objectives.

Students pursuing a degree in Communication prepare themselves for a broad range of employment opportunities in both the public and private sectors. An internship for advanced students majoring in Organizational Communication, Media Management, or Recording Arts helps focus career objectives. Potential interns must have a minimum overall GPA of 3.0. Internships are competitive and all qualified students are not guaranteed an internship. Internships are not available for Applied Communication students or students minoring in Communication.

All graduating communication majors must take an exit exam which samples the student's understanding of the major concepts of his/her content area. Students will take the exam during their last semester. Graduating seniors will receive information regarding test times, dates, and locations.

### **General Requirements:**

The following degree requirements apply to all Communication majors:

1. Minimum of 36 (maximum 54) communication hours for all majors
2. Minimum Cumulative GPA of C (2.0) or better in all communication courses
3. At least half of required major coursework must be upper division (18 hours minimum)

In addition to these minimums and the specific degree requirements outlined below, all communication majors must demonstrate computer competency by passing one of the following courses. Other comparable courses may be approved by the departmental advisor.

C S 107 Introduction to Programming with Visual Basic

INFS 100 Information Technology & Business Problem Solving

PSY 384 SPSS and Other Statistical Packages

V A 210 Introduction to Computer Art

or V A 310 Advanced Computer Art

Further, all transfer students must complete a minimum of 12 credit hours of coursework in the UCCS department

of Communication.

### **Degree Options**

**Applied Communication** (36 hours must include 18 hours of upper division coursework)

Communication majors who do not specify a special area of interest must take a minimum of 36 hours of communication coursework, including the following core requirements which cannot be waived:

COMM 102 Interpersonal Communication

COMM 103 Principles of Communication

COMM 210 Public Speaking

COMM 250 Research Methods

COMM 400 Rhetorical Dimensions in Communication

**Organizational Communication** (42 hours)

Undergraduate students may apply for admission to the Organizational Communication track after completing COMM 250 and COMM 224 with a combined GPA of at least 3.0. Additionally, applicants must have met the Writing Competency Requirement for the College of Letters, Arts, and Sciences. The combined GPA for COMM 250, COMM 224, and any course(s) taken to meet the Writing Competency Requirement must be 3.0 or higher to be considered for admission to the Organizational Communication track.

Organizational communication majors must take a minimum of 42 hours of communication coursework, including the following requirements which cannot be waived:

### **Core Requirements**

COMM 224 Introduction to Organizational Communication

COMM 324 Business and Professional Communication

COMM 424 Advanced Organizational Communication (Spring only) Prerequisite: Admission to Organizational Communication Track, or consent of instructor.

COMM 469 Internship in Communication

Additional Course Requirements which cannot be waived:

COMM 102 Interpersonal Communication

COMM 103 Principles of Communication

COMM 210 Public Speaking

COMM 250 Research Methods

COMM 315 Communication Competency in Groups and Teams

COMM 328 Intercultural Communication

COMM 344 Leadership Communication

COMM 400 Rhetorical Dimensions in Communication

COMM 451 Quantitative Methods in Communication Research (Fall only)  
Prerequisite: Admission to Organizational Communication Track, or consent of instructor.

**Other Required Course** (one from among the following):

One College of Business course from either Marketing, Human Resources, or Organizational Management

OR

COMM 461 Principles and Practice of Public Relations

**Media Management** (42 hours)

Undergraduate students may apply for admission to the Media Management track after completing COMM 100, COMM 201, COM 227, COM/JOUR 290 and all courses fulfilling the Writing Competency Requirement for the College of Letters, Arts and Sciences.

Media Management majors must take a minimum of 42 hours of Communication coursework, including the following requirements (which cannot be waived):

### **Core Requirements**

COMM 100 Contemporary Mass Media

COMM 201 Oral Communication in the Workplace

COMM 227 Beginning Television Production

COMM 290 Writing for Media

COMM 365 Mass Media and Society

COMM 445 Advertising Media

COMM 450 Media Management

COMM 461 Principles and Practice of Public Relations

COMM 469 Internship in Communication

COMM 475 Communication and Law

Additional Course Requirements (any four courses from among the following):

COMM 250 Research Methods

COMM 315 Communication Competency in Groups and Teams

COMM 327 Intermediate Television Production

COMM 328 Intercultural Communication

COMM 344 Leadership Communication

COMM 345 The History of TV Programming

COMM 350 American Cinema

COMM 420 Persuasion

COMM 422 Creative Communication

COMM 425 Advanced Interpersonal Communication: Conflict Management

COMM 940 Independent Study

MKTG 300 Principles of Marketing



MKTG 330 Marketing Research

**Recording Arts (42 hours)**

Undergraduate students may apply for admission to the Recording Arts after completing COMM 100, COMM 225, COMM/JOUR290 and all courses fulfilling the Writing Competency Requirement for the College of Letters, Arts and Sciences.

Recording Arts majors must take a minimum of 42 hours of Communication coursework, including the following requirements (which cannot be waived):

**Core Requirements**

COMM 100 Contemporary Mass Media  
 COMM 201 Oral Communication in the Workplace  
 COMM 225 Introduction to Film and Video  
 COMM 227 Beginning Television Production  
 COMM 290 Writing for Media  
 COMM 327 Intermediate Television Production  
 COMM 330 Scriptwriting  
 COMM 350 American Cinema  
 COMM 427 Advanced Television Production  
 COMM 469 Internship in Communication  
 Additional Course Requirements (any four courses from among the following):  
 COMM 310 Directing Studio Performance  
 COMM 315 Communication Competency in Groups and Teams  
 COMM 328 Intercultural Communication  
 COMM 345 The History of TV Programming  
 COMM 365 Mass Media and Society  
 COMM 417 Documentary Film and Video  
 COMM 422 Creative Communication  
 COMM 445 Advertising Media  
 COMM 461 Principles and Practice of Public Relations  
 COMM 475 Communication Law  
 COMM 940 Independent Study  
 V A 103 Introduction to Photography  
 V A 210 Digital Imaging  
 V A 310 Advanced Digital Imaging

For more information contact:  
 Dr. Adelina Gomez  
 Director of Undergraduate Studies  
 Department of Communication  
 UCCS  
 P.O. Box 7150  
 Colorado Springs, CO 80933-7150

**Minors in Communication**

Students may elect to minor in Communication by using one of the following four options (each requires a

concentration of 18 hours; nine of which must be upper division):

**General Communication Minor**

COMM 102 Interpersonal Communication  
 COMM 103 Principles of Communication OR  
 COMM 365 Mass Media and Society (fall only)  
 COMM 210 Public Speaking  
 COMM 400 Rhetorical Dimensions of Communication  
 AND any two upper division Communication courses.

**Organizational Communication Minor**

COMM 102 Interpersonal Communication  
 COMM 224 Introduction to Organizational Communication  
 COMM 324 Business and Professional Communication  
 COMM 424 Advanced Organizational Communication (Spring only)

**And two of the following five courses:**

COMM 315 Communication Competency in Groups and Teams  
 COMM 328 Intercultural Communication  
 COMM 344 Leadership Communication  
 COMM 365 Mass Media and Society  
 COMM 425 Advanced Interpersonal Communication: Conflict Management

**Media Minor**

COMM 225 Intro to Film and Video  
 COMM 227 Beginning Television Production  
 COMM 290 Writing for the Media  
 COMM 365 Mass Media and Society

**And two of the following four courses:**

COMM 350 American Cinema  
 COMM 445 Advertising Media  
 COMM 450 Media Management  
 COMM 461 Principles and Practice of Public Relations

**Leadership Studies Minor**

Students may also pursue the minor option in Leadership Studies. The minor is designed to facilitate and enhance the transformation of students as they discover their full potential and become enlightened leaders within a democratic society. Core and elective faculty are drawn from the Colleges of Letters, Arts and Sciences; Business; and Education.

Requirements for Leadership Studies minor option:

- Completion of 18 credit hours
- 3 core courses in Leadership Studies

- 1 elective from each Leadership Content Area

All courses must be completed with a Cumulative GPA of C (2.0) or better.

Up to nine hours of courses taken as part of the Leadership Studies minor may also be counted toward a major in another LAS degree program.

**Leadership Studies Core Requirements:**

COMM 111 Introduction to Leadership  
 LEAD 211 Profiles of Leadership  
 COMM 495 Seminar in Leadership and Organizational Change

**Leadership Content Area Electives:**

**Understanding Diversity**

COMM/WMST 215 Male/Female Communication  
 COMM 328 Intercultural Communication  
 PSY/WMST 301 Women in Politics  
 PSY 345 Psychology of Diversity  
 PSY/WMST 355 Psychology of Women  
 SOC/EST 329 Race and Ethnic Relations  
 SOC/EST 220 Intro to Racial and Ethnic Groups

**Management & Organizational Leadership**

COMM 344 Leadership Communication  
 ORMG 335 Groups and Teams in Organizations  
 ORMG 437 Organizational Development & Change  
 PHIL 416 Business & Management Ethics  
 SOC 435 Formal Organization

**Social and Political Applications of Leadership**

ECON 330 Environmental Economics  
 ID/GES/EST 366 Community Service  
 LEAD 450 Student Leadership Seminar (only for students in CLC)  
 PHIL 414 Environmental Philosophy  
 P SC 439 The Presidency  
 SOC 222 Communities in a Global Environment  
 PSC 407 Urban Politics  
 COMM 577 Leadership Communication in a Global Environment

For more information on the minor option in Leadership Studies contact:

Dr. Michael Hackman  
 Department of Communication  
 UCCS  
 P .O. Box 7150  
 Colorado Springs, CO 80933-7150

## **Communication – Master of Arts**

The Master of Arts in Communication at UCCS offers students the opportunity to engage in advanced study in Communication. Students are required to complete a set of five core courses. These courses prepare students in both theoretical and applied concepts. Both thesis and non-thesis options are available.

### **Core course requirements:**

COMM 551 Introductory Quantitative Methods for Communication Research (Fall only)

COMM 560 Contemporary Theories of Human Communication (Spring only)

COMM 580 Qualitative Research Practices in Communication Studies (Spring only)

COMM 601 Introduction to Graduate Studies (Fall only)

COMM 651 Intermediate Quantitative Methods for Communication Research (Spring only)

Two plans lead to the degree. Plan I is with thesis. This plan involves 33 hours of coursework, among which up to six hours may be thesis credit. Plan II is without thesis and involves a minimum of 36 hours of coursework.

### **Coursework requirements**

#### **Plan I (THESIS)**

five core courses (15 credits)

minimum of three (maximum of five) graduate elective courses in communication (9-15 credits)

one graduate level course from outside the department (3 credits)

maximum of six hours of thesis credit (6 credits)

#### **Plan II (NON-THESIS)**

five core required courses (15 credits)

six graduate elective courses in communication (18 credits)

one graduate level course from outside the department (3 credits)

### **Elective Course Offerings**

COMM 510 Advanced Public Speaking

COMM 515 Communication for the Classroom Teacher

COMM 524 Seminar in Organizational Communication

COMM 529 Sustainability and Corporate Social Responsibility

COMM 569 Problems in Radio, Television, and Film

COMM 570 Instructional Media

COMM 577 Leadership Communication in a Global Environment

COMM 595 Leadership and Organizational Change

COMM 599 Multicultural Diversity and Communication

COMM 602 Research Practicum

COMM 625 Problems in Communication

COMM 626 Communication, Training and Development

COMM 699 Emerging Communication Technologies

### **Admission Requirements**

There are three types of admission to the M.A. program in Communication.

**Guaranteed Admission:** This program is designed to offer outstanding UCCS students enrolled in their final semester of undergraduate coursework guaranteed and expedited admission to the M.A. program in Communication. To qualify for guaranteed admission, a student must be a communication major with a minimum GPA of 3.7 in all Communication coursework taken at UCCS. A one-page admissions form available from the Communication Department and a \$60 non-refundable application fee are required.

**Fast-Track Admission:** This program is designed to offer a more efficient admission process to UCCS undergraduate students that have graduated no more than four years prior to application to the graduate program. Students applying under the fast-track program must submit the following:

The Fast-Track Admission application form, accurately and completely filled out

A completed residency form (back of application form), if the student claims in-state-tuition eligibility

A check or money order for the \$60 (\$75 for international students) non-refundable application fee

Official transcripts for any university level studies attempted after graduation from UCCS

A letter of recommendation from the Chairperson of the student's former undergraduate department (non-Communication majors only)

GRE exam results (for applicants with a cumulative undergraduate GPA below 3.0 only).

**Standard Admission:** This program is designed for students who are not eligible for either guaranteed or fast-track admission. To be considered for

standard admission to the M.A. program in Communication, a student must first meet the general requirements outlined by the Graduate School at UCCS. Applications are evaluated by the Graduate Committee of the Department of Communication. The committee bases its decision on the following: 1) transcripts from each college or university previously attended (an overall GPA of 3.0 is expected); 2) recent GRE scores (a combined score of at least 1000 on the verbal and quantitative components is expected); 3) a statement indicating educational objectives and professional goals; 4) four letters of recommendation from instructors or employers; and 5) a sample of scholarly writing. A \$60 (\$75 for international students) non-refundable application fee is also required. An application packet can be obtained from the Department of Communication.

Admission is not limited to those with communication-related undergraduate majors. Those who have taken little or no communication coursework in their undergraduate program will be asked upon acceptance to meet the following deficiency prerequisites:

COMM 210 (Public Speaking), an introductory public speaking course, or COMM 510 (Advanced Public Speaking) as an additional degree requirement.

COMM 250 (Research Methods) or a basic course in social scientific research methods  
COMM 400 (Rhetorical Dimensions in Communication) or a course focusing on classical traditions in communication theory

ONE OF THE FOLLOWING: COMM 324 (Business and Professional Communication), COMM 420 (Persuasion), COMM 424 (Advanced Organizational Communication), or COMM 425 (Advanced Interpersonal Communication), or an upper division Communication course with a theoretical emphasis

Under all plans, no more than six hours of graduate coursework may be transferred from other universities to fulfill the degree requirements for the M.A. in Communication.

For information and/or application for the master's program, write to:

Dr. Michael Hackman  
Director of Graduate Studies  
Department of Communication  
UCCS  
P. O. Box 7150  
Colorado Springs, CO 80933-7150

## **Distributed Studies Program**

Students who are working toward a BA degree may elect a major in a distributed studies program. Distributed studies is probably the most misunderstood degree at UCCS. It is not a "general studies" degree with assorted coursework in a variety of subjects. Instead, it is a large major, requiring 60 semester hours, with at least 30 hours in a primary area and the other 30 hours in one or two secondary subjects. Distributed studies was initiated before we offered minors at UCCS; it served the need of students who wanted a concentration of courses outside the major. Now that we offer minors, most students complete a major and minor rather than a distributed studies degree.

Distributed studies is a degree that is structured out of courses offered by two or more programs. There are two approaches to a distributed studies degree - structured programs and programs built from stand-alone minors. Courses taken as part of a distributed studies major can be counted toward the college area requirement.

### **Structured Interdisciplinary Program Options**

These include business economics and public administration. These programs include a standard set of courses and options. Students should check with department advisors before enrolling.

## **Business Economics**

The Department of Economics offers a distributed studies major in business economics.

### **Primary Area: Economics (30 Hours)**

#### **General Requirements:**

You must complete a minimum of 30 hours in economics courses; at least 18 hours must be for courses numbered 300 and above.

#### **Math Requirements**

MATH 111 Topics in Linear Algebra and either

MATH 112 Calculus for Business and Economics

OR

MATH 135 Calculus I.

These requirements should be completed before taking any upper division economics courses.

#### **Economics Requirements:**

ECON 101 Introduction to Microeconomics

ECON 102 Introduction to Macroeconomics

ECON 301 Intermediate Microeconomic

ECON 302 Introduction to Macroeconomic

ECON 281 Introduction to Economic Statistics & Quantitative Methods (Students may substitute Quan 201 Business Statistics for this requirement).

Each of these five required courses should be completed before the beginning of your senior year.

#### **Economics Electives:**

Any five additional upper division courses in Economics (not including ECON 100)

#### **Recommendations**

It is recommended that you take at least one 400 level economics course. Additionally, it is recommended that you take one of the following concentration areas:

International Economics (ECON 341  
International Economics and Econ 441  
International Economics)

OR

Economics of Government (ECON 321  
Economics of the Public Sector and ECON  
423 Public Expenditures Evaluation and Policy  
Analysis)

### **Secondary Area: Business (30 Hours)**

#### **Business Requirements:**

ACCT 201 Introduction to Financial Accounting

ACCT 202 Introduction to Managerial Accounting

FNCE 305 Basic Finance

FNCE 400 Advanced Corporate Finance

FNCE 410 Cases and Concepts in Finance

Choose five courses from the following:

FNCE 420 Investment and Portfolio Management

FNCE 430 Bank Management

FNCE 440 International Financial Management

FNCE 450 Money and Banking

MK 300 Principles of Marketing

MK 330 Marketing Research

MK 480 Marketing Policies and Strategies

ORMG 330 Introduction to Management and Organization

ORMG 335 Groups and Teams in Organizations

ACCT 301 Intermediate Accounting

B L 200 Business Law

Comments:

1. Economics is both a social science and a business field (or discipline). On many campuses students can

choose to major in economics in either the business school or in arts and sciences. However, here at UCCS a student interested in both business and economics must choose between these interests by majoring in economics (LAS) or majoring in business (COB). The distributed studies major in business economics is one way to give students a formal opportunity to pursue both interests. Note that the distributed studies major does not require the creation of any new courses.

2. The requirements for a distributed studies major involve a primary subject area with at least 30 semester hours of required course work of which at least 15 hours must be at the upper division level, and also a secondary subject area with at least 30 hours of course work of which at least 15 hours must be at the upper division level. The major requires at least 60 hours of course work total. The distributed studies major in business economics is consistent with this framework. The primary area is economics, and it requires at least 30 semester hours of economics courses. The secondary area is business and it requires 30 semester hours of business courses. In both primary and secondary areas, the minimum number of upper division hours will also be satisfied.
3. In choosing the requirements in the primary area of economics, this part of the distributed studies major in business economics is as close as possible to the regular major in economics, so the required courses and the math requirements are identical. The only change is from the minimum 36 hours for the regular major to a minimum of 30 hours in economics for the major in business economics.
4. In choosing the requirements in the secondary area of business, courses that fit with both students' interests in business economics as well as the nature of many of the employment opportunities for business economics majors, i.e., in the financial sectors of the economy, are emphasized.
5. The distributed studies major in business economics means that students would choose to enroll in the College of Letters, Arts, and Sciences. Of course, some students may be interested in the curriculum

found in the College of Business. The Department of Economics is also pursuing opportunities with the College of Business to make it possible.

### **Public Administration**

Students taking a distributed studies major in public administration must complete 45 semester hours of required courses (or suitable substitutes) and must choose, with advice and consent of the chair of the public administration Program, an additional 15 semester hours of coursework in a primary subject field so that a total of 30 semester hours is accumulated in one primary subject (either economics, political science or sociology).

ECON 101-3 Introduction to Microeconomics

ECON 421-3 Economics of the Public Sector and Fiscal Policy

ECON 422-3 Economics of Federalism

ECON 423-3 Public Expenditures Evaluation and Policy Analysis

ECON 425-3 Urban Economics

P SC 110-3 The American Political System

P SC 404-3 Political Interest Groups

P SC 407-3 Urban Politics

P SC 432-3 Public Administration

P SC 446-3 Administrative Law

SOC 111-4 Introduction to Sociology

SOC 212-3 Introduction to Social Research

SOC 317-3 Statistics

SOC 322-3 Urban Sociology

SOC 431-3 Social Inequalities

In addition to the above requirements, it is highly recommended that Public Administration students also take as many of the following courses as possible:

ACCT 200-3 Introduction to Financial Accounting

COMM 102-3 Interpersonal Communication

COMM 365-3 Mass Media and Society

COMM 424-3 Advanced Organizational Communication

MATH 104-3 College Algebra

PSY 100-4 General Psychology

PSY 340-3 Social Psychology

SOC 435-3 Formal Organization

### **Individualized Distributed Studies Built on Stand-alone Minors**

Students may design a distributed studies major around a core curriculum provided by the following stand-alone minors:

Energy Science    Leadership Studies

Ethnic Studies    Music

Film Studies    Professional Writing

French    Theatre

German    Women's Studies

In this option a stand-alone minor becomes the primary curriculum for the degree. Because a minor requires 18 credit hours, the student must negotiate the remaining 12 hours of primary subject with the director of the minor program. 30 hours of course work must carry grades of C or better, and at least 15 hours must be from upper division courses. No more than 8 credit hours of independent study can be applied to the primary area of concentration.

The student, in consultation with the director of the primary subject, then selects a secondary subject area in which he or she completes 30 credit hours (these cannot include credit hours taken to complete the primary subject requirement). The secondary concentration will consist of 30 credit hours in one discipline, or 30 credit hours divided between two (15 and 15, or 18 and 12).

The degree requires 60 total credit hours, and students must maintain a 2.0 grade point average in all course work included in the program.

Before embarking on such a program of study, a student must negotiate a distributed studies contract with the director of the stand-alone minor that will constitute the primary area of the program.

### **Economics**

Professors: A. Paul Ballantyne and Daphne Greenwood; Professor Emeritus: Timothy Tregarthen; Associate Professors: Dale DeBoer (Chair) and Larry Eubanks; Center Director: John Brock; Instructor: Patricia Shaffer

### **Economics – Bachelor of Arts**

#### **General Requirements**

Students majoring in economics must complete a minimum of 36 hours of economics courses; at least 18 hours must be for courses numbered 300 and above. All courses taken for the economics major must be completed with a grade of C or better. All graduating seniors must take the Department of

Economics Exit Exam during their final term.

#### **Math Requirements**

MATH 111 Topics in Linear Algebra and either MATH 112 Calculus for Business and Economics or MATH 135 Calculus I. These requirements should be completed before taking any upper division economics courses.

#### **Economics Requirements**

Econ 101: Introduction to Microeconomics

Econ 202: Introduction to Macroeconomics

Econ 281: Introduction to Economic Statistics and Quantitative Methods or Quan 201: Business Statistics or Math 310: Statistics for the Sciences or Math 381: Introduction to Probability and Statistics

Econ 301: Intermediate Microeconomics

Econ 302: Intermediate Macroeconomics

Each of these required courses should be completed prior to attaining senior class standing.

#### **Economics Electives**

Any seven additional courses in economics. Students may take FNCE 440 International Financial Management or FNCE 450 Money and Banking as economics electives.

#### **Recommendations**

It is recommended that students take at least one 400 level economics course.

#### **Major Options**

##### **Economics and Business**

Students interested in integrating the study of economics with a career in business are encouraged to explore the Distributed Studies Major in Business Economics. Requirements for this major are listed under the distributed studies section of this bulletin.

##### **Economics and Government**

Students interested in integrating economics with a career in the public sector should consider a double major with political science. Additionally they should complete the concentration in the Economics of Government ECON 321 and 423.

#### **The Economics Minor**

The minor in economics requires the completion of 18 hours in economics. This work must include ECON 101, ECON 202 either ECON 301 or 302. Nine additional units at the 300 level are required. Students in the business school are encouraged to minor in economics, which as part of the core

business curriculum includes ECON 101 and ECON 202.

**Advising and Curriculum Planning**

All new majors are required to meet with either the department chair (Prof. DeBoer) or the department advisor (Prof. Ballantyne) for general advising concerning economics requirements. Students interested in graduate study in economics should consult with faculty members about recommended courses. Further student information is available in the student resources section of the Department of Economics website (<http://web.uccs.edu/economics/>).

**Economics Courses**

There are no prerequisites for 100 level courses. Courses at the 200 and 300 level typically require at least one 100 level prerequisite. Courses at the 400 level typically require a 300 level prerequisite. Students who take courses outside of the College of Letters, Arts, and Sciences in partial fulfillment of department requirements must be aware that these units will count against the 30 allowed units from outside the College of Letters, Arts, and Sciences for graduation.

**Energy Science**

Professors: James Burkhart (Program Director), Eve Gruntfest and Tom Huber; Associate Professors: Tom Christensen and Paul Grogger. Senior Instructor: Daryl Prigmore

The energy science program is intended to be taken as a minor with various technical and non-technical degrees. Energy science courses are also intended to supplement degree programs including but not limited to physics, geography, geology, engineering and economics. Interested students are urged to discuss the program with their major advisors.

The energy science program is designed to prepare students for careers in energy fields. Specifically, courses are offered in energy science, solar energy, wind energy, nuclear energy, and related fields such as remote sensing and climatology.

Depending on a student’s background, a minor may be obtained which requires knowledge of calculus or courses may be selected to provide a less mathematical minor.

Students must take either ENSC 150/151 or ENSC 250.

Students must take ENSC 160 and 162.

Students must select additional courses from the following list of electives. The combination of required courses and electives must total a minimum of 18 credit hours, of which, at least nine credit hours must be upper division.

**Elective courses**

PES 213 General Physics III.....	3
PES 313 Modern Physics.....	3
PES 318 Instrumentation Lab II.....	2
PES 341 Thermodynamics and Statistical Mech.....	3
ENSC/PES 361 Solar Energy Design.....	3
ENSC/PES 365 Nuclear Physics and Energy	3
ENSC/PES 367 Alternative Energy Sources	3
ENSC/PES 460 Advanced Solar Energy.....	3
ENSC/GEOL 312 Structural Geology I.....	5
ENSC/GES 320 Practical Meteorology.....	4
ENSC/GES 406 Introduction to Remote Sensing.....	4
ENSC/GES 409 Advanced Remote Sensing	4

**English**

Professors: Andrea Herrera, Thomas J. Napierkowski, C. Kenneth Pellow, Joan Ray , Jeffrey Rubin-Dorsky; Associate Professors: Rebecca Laroche and Susan Taylor (Chair); Assistant Professors: Debra Dew (Director of Campus Writing Program) and Lesley Ginsberg; Senior Instructors: Carole Flint, Kathleen Johnson and Cecile Malek; Instructors: Jessica Anderson, Cassie Armstrong, Lorraine Coke-Clark, Susan Finger, Carey Harrington, Earlene Hunter, Janet Kenning, Peggy Lee, Sue Lowell, William Myers, Sharleen Pisciotta, Monique Schmidt, David Shults, Sarah Treschl, and Tamra Wilson. Director of Professional Writing and Technology: Harriet Napierkowski

**English – Bachelor of Arts**

The English major requires 39-54 hours of English courses, including the following specific requirements:

- ENGL 131 and 141 (These courses are not counted, however, toward the major requirement of 39 hours, minimum, of English courses.)
- ENGL 190, Intro to Literary Studies (prerequisite to all other literature courses).
- ENGL 251, ENGL 252, ENGL 253, and ENGL 254 (may be taken in any order / British literature)
- ENGL 338 and ENGL 339 (may be taken in

- any order/American literature)
- ENGL 300 (Literary Criticism)
- ENGL 395 (Chaucer)
- Either ENGL 397 or ENGL 398 (Shakespeare)
- One 400-level course in literature (excludes ENGL483, ENGL 485, or any other non-literature 400- level course)

All English majors are required to pass the senior comprehensive essay exam prior to graduating. No course will count toward the major if the grade is below C-. Finally, students who wish to apply a correspondence course towards their English major must secure written permission of the English department chair.

Students wishing to major in English to prepare for careers in elementary school teaching take a minimum of 30 hours of English, including the following specific requirements:

- ENGL 131 and 141 (These courses are not counted, however, toward the major requirement of 30 hours minimum, of English courses.)
- ENGL 190 Introduction to Literary Studies (designed for English majors and a prerequisite to all other literature courses offered by the department)
- Either ENGL 251 or ENGL 252 (British literature)
- Either ENGL 253 or ENGL 254 (British literature)
- Either ENGL 260 or ENGL 261 (World/Global literature)
- ENGL 301 (Advanced Composition)
- ENGL 311 (Advanced Grammar)
- ENGL 338 and ENGL 339 (may be taken in any order / American literature)
- Either ENGL 320, or ENGL 346 or ENGL 355, or ENGL 360, or ENGL 486 (Each of these courses deals with ethnicity and/or gender.)
- Either ENGL 395, or ENGL 397, or ENGL 398 (Chaucer / Shakespeare)

All English majors, including students in English elementary teaching, are required to pass the senior comprehensive essay exam prior to graduating. No course will count toward the major if the grade is below C-. Finally, students who wish to apply a correspondence course towards their English major must secure written permission of the English department chair.

Students wishing to major in English to prepare for careers as secondary school teachers of English must take a minimum of 39 hours of English, including the following specific requirements:

- ENGL 131 and 141 (These courses are not



counted, however, toward the major requirement of 39 hours, minimum, of English courses.)

ENGL 190 Introduction to Literary Studies (designed for English majors and a prerequisite to all other literature courses offered by the department)

Either ENGL 251 or ENGL 252 (British literature)

Either ENGL 253 or ENGL 254 (British literature)

Either ENGL 260 or ENGL 261 (World/Global literature)

ENGL 300 (Literary Criticism)

ENGL 338 and ENGL 339 (may be taken in any order / American literature)

Either ENGL 320, or ENGL 346, or ENGL 355, or ENGL 360 or ENGL 486 (Each of these courses deals with ethnicity and/or gender.)

Either ENGL 395, or ENGL 397, or ENGL 398 (Chaucer / Shakespeare)

ENGL 301 and ENGL 483 (advanced writing courses)

ENGL 311 and ENGL 485 (grammar and language courses)

All English majors, including students in English secondary school teaching, are required to pass the senior comprehensive essay exam prior to graduating. No course will count toward the major if the grade is below C-. Finally, students who wish to apply a correspondence course towards their English major must secure written permission of the English department chair.

### **Transfer Students**

Transfer students pursuing a major in English are required to complete a minimum of nine credit hours in the UCCS Department of English, three of which must be a 400 level seminar in literature.

### **The Minor in English**

To complete a minor in English, a total of 21 credit hours is required. A student must pass (with a grade of C- or better) each of the following courses: ENGL 190 Introduction to Literary Studies (a prerequisite to all other literature courses designed for English majors), ENGL 251 or 252 Survey of British Literature I or II, ENGL 253 or 254 Survey of British Literature III or IV, ENGL 338 or 339 Survey of American Literature I or II, either ENGL 395, 397, or 398 Chaucer, Shakespeare I or Shakespeare II, ENGL 300 Literary Criticism, and any 400 level Seminar in Literature.

## **The Professional Writing Program**

### **Minor/Emphasis/Certificate**

The Professional Writing Program, housed in the Department of English, is intended for those individuals who wish to pursue writing-related careers in business and industry. The program provides students with an excellent opportunity to enhance their credentials and career marketability. In addition, the program makes available to those already involved in writing for business and industry the opportunity to further develop professional skills important to their careers.

English majors may select an emphasis in professional writing. Besides completing 18 credits in professional writing courses, English majors choosing the emphasis also take ENGL 190, 251, 252, 253, 254, 338, 339, Chaucer (395) or Shakespeare (397 or 398), and any 400-level Senior Seminar in literature.

Non English majors in the College of Letters, Arts, and Sciences, and students in the College of Business and the College of Engineering and Applied Science may select a minor in professional writing.

Unclassified students and students with a baccalaureate degree may select a certificate in professional writing.

To complete the program, students complete 18 credit hours with a C or better from among the following courses:

ENGL 301-3 Advanced Composition

ENGL 307-3 Administrative and Business Writing

or

ENGL 309-3 Technical Writing and Presentation

ENGL 311-3 Advanced Grammar

ENGL 312-3 Technical Editing and Style

ENGL 313-3 Designing Documents for Business and Industry

ENGL 314-3 Managing Writing Projects for Business and Industry

ENGL 315-(1-3) Professional Writing Internship

ENGL 316-3 Tools for Technical Writers

### **Prerequisites for Professional Writing Program**

ENGL 131 or transfer credit or a baccalaureate (for ENGL 301, ENGL 141 is also a prerequisite). Students must complete 9 credits in the program to enroll in ENGL 315.

Upon approval from the program director, 3 credits may be applied towards completion of the program from among the following courses in other departments: INFS 380, VA 210, CS 115, CS 316, and CS 330. Students cannot apply one of these courses both to the program and to another requirement they may need to fulfill.

### **Honors at Graduation**

To graduate with departmental honors in English, a student must compile a 3.75 grade point average in the major; compile a 3.5 grade point average overall; and receive a grade of "Outstanding" on the senior comprehensive exam. If a student has met 2 of the 3 criteria and desires to apply for honors, he or she may appeal to the English faculty by submitting to the English department chair a writing portfolio of 20 pages of writing from upper division literature courses, as well as ENGL 483, taken at this campus for the faculty to review.

### **Students Who Contemplate Teaching**

Statements of curriculum requirements for a Colorado teaching certificate in English may be obtained from the College of Education. Students planning to teach should also confer with a member of the College of Education faculty about the Teacher Education Program. Since requirements for Education and English make a very tight schedule, students should be fully informed as to both departmental and certification requirements by the beginning of the sophomore year.

## **Academic Policies**

### **Levels of Courses**

Ordinarily, 100 level courses are taken prior to 200 level courses, and so on. Unless otherwise indicated, courses have general prerequisites as follows: for 200 level courses, 24 prior college credits; for 300 level courses, 30 college credits; for 400 level courses, 45 college credits.

### **Prerequisite for All English Courses**

Students must fulfill the ENGL 131 requirement prior to taking any other English course beyond 131. For English majors, ENGL 190 is a prerequisite for all other literature courses offered through the Department of English. For non-majors, ENGL 150 is a prerequisite for all other literature courses.

### **Graduate Course Offerings**

In general, courses numbered 400 may also be taken for graduate credit as a 500 numbered course. See instructor for details. Courses numbered 500 and 600 are for graduate students only.

### **The Writing Program**

Any student who wishes to take ENGL 099, ENGL 131 or ENGL 141 must meet the following placement requirements:

ENGL 099: Students may enroll without having an ACT or SAT score. Placement criteria: ACT of 18 or below, SAT of 449 or below. Contact LAS Extended Studies, Columbine 2024, 262-4071, to enroll in ENGL 099.

ENGL 131: To be admitted to ENGL 131, students must meet one of the following requirements:

- Score 19-28 on the English ACT.
- Score 450-640 on the English SAT.
- Complete ENGL 099 or an equivalent course completed elsewhere, but not counted toward graduation.

Students without ACT or SAT scores must submit a writing sample to the Writing Program, Columbine 1041 for placement purposes.

ENGL 141: To be admitted to ENGL 141, students must meet one of the following requirements:

- Complete ENGL 131 at UCCS
- Score 29+ on the English ACT.
- Score 650+ on the English SAT.
- Score a 4 on the CEEB Advanced Placement English Language and Composition Exam.
- Score a 5 on the IB English Examination.
- Successfully complete a first-semester composition course (equivalent to ENGL 131) at an accredited college or university with a C- or better.
- Score 67% and receive a pass on the essay portion of the CLEP Freshman College Composition with essay examination to earn credit for ENGL 131.
- Score 67% on the multiple choice section and receive a pass on the essay portion of the CLEP English Composition with essay exam to earn ENGL 141 placement, without credit for ENGL 131.

For additional information on required courses and the writing portfolio assessment, refer to "Writing Competency Requirement," in this bulletin. For other questions concerning placement criteria, contact the writing program at 262-4038 or 262-4040.

### **Ethnic Studies Program**

Professor Andrea Herrera, Director

Ethnic Studies was established in 1995 as an interdisciplinary program leading to a minor. The program promotes curricular and faculty development and sponsors a variety of cultural programming and colloquia. Courses offered through the program focus primarily on the experiences and cultural expressions of the four main ethnic minority communities in the United States: African Americans, Native Americans, Asian Americans, and Latinos/Hispanics. These experiences and cultural expressions include, but are not limited to, economic, political, legal, historical and cultural dimensions of life in the United States. An important goal of the program is to build on the knowledge grounded in the experiences of racial/ethnic groups that have been marginalized and excluded from full participation in society.

Students may earn a minor degree in ethnic studies or include ethnic studies as part of a distributed studies degree. The purpose of courses in Ethnic Studies is to synthesize knowledge in terms of ethnic minority perspectives. The Ethnic Studies minor at the College of Letters, Arts, and Sciences will, therefore, provide a basis for:

1. examining knowledge from specific U.S. racial/ethnic minority perspectives;
2. examining relationships among racial/ethnic groups and the processes of racial/ethnic formation — and its intersections with class, gender and sexuality — at the personal and collective levels;
3. developing competencies for working with people of different racial/ethnic backgrounds, and fostering an understanding of racial/ethnic diversity;
4. fostering in students critical perspectives regarding Euro-centric, indigenous, and other forms of knowledge constructions.

Ethnic Studies also provides students a forum for exploring the realities of their own experiences and discussing those realities in a systematic, informed and civil manner. Courses are designed to facilitate this exploration process in a supportive context and empower students to live their own cultures, and view others' cultures, in a new and positive light.

### **Requirements for the Minor**

The minor may be earned by students enrolled in any undergraduate program at UCCS. Students must take at least 18 semester hours of designated Ethnic Studies courses for the minor. EST 200 (Introduction to Ethnic Studies) or EST 201 (Introduction to Race and Gender) is the only required course for the minor; however, it is strongly recommended that either EST 200 or EST 201 be taken before any other EST coursework is completed. (Students will be allowed to take only one of these two courses in order to fulfill the core requirement for the program). Students are also strongly encouraged to consider the possibility of taking EST 366 Service and Learning Internship, a three-credit upper division course, which provides students the opportunity to put into practice the theoretical knowledge gained in EST through campus and placements with community based organizations and programs. The remaining 15 credit hours may be chosen from the courses listed below. Overall, 12 of the 18 hours earned for the minor must be through upper division courses. A minimum grade of C (2.0) must be received for any course to be counted toward the completion of the minor. Courses taken on a pass/fail basis will not be accepted. Transfer credits are limited to 9 hours and must be approved by the program director. Students may count up to three courses (nine credits) toward both the Ethnic Studies minor and their majors.

### **Required Courses**

EST 200-3 Introduction to Ethnic Studies or  
EST 201-3 Introduction to Race and Gender

### **Elective Courses**

All courses listed below are cross-listed with Ethnic Studies.

ANTH 325-3 The Prehistory and History of Native American Cultures of the Southwest

ANTH 342-3 North American Indians

ANTH 440-3 Indigenous Peoples and Cultures of the Southwest

A H 343-3 African American Art

ENGL 346-3 Race, Writing and Difference:

Contemporary American Literature  
 ENGL 355-3 Native American Literature  
 ENGL 360-3 African American Literature  
 ENGL 483/583-3 Rhetoric and Writing:  
 Multicultural American Rhetorics  
 EST 201-3 Introduction to Race and Gender  
 EST 290-3 Special Topics  
 EST 300-3 Race and Gender at the Movies  
 EST 310-3 Women of Color: Image and Voice  
 EST 366-3 Service and Learning Internship  
 EST 390-3 Special Topics  
 EST 401-3 Special Topics  
 EST 940-1-3 Independent Study in Ethnic  
 Studies  
 HIST 350-3 Chicana/o History: Pre-Columbian  
 to 1910  
 HIST 351-3 Chicana/o History since 1910  
 HIST 352-3 History of Latina/os in the U.S.  
 HIST 358-3 Immigrant Histories  
 HIST 372-3 From Slavery to Freedom: The  
 African American Experience, 1607-1877  
 HIST 373-3 Vision and History in Native  
 American and African American Narratives  
 HIST 374-3 African American Social and  
 Political Thought, 1790-1980  
 HIST 471-3 Asian American History  
 MUS 205-3 Jazz History  
 PHIL 363-3 Gender and Race in Biblical  
 Literature  
 PSC 305-3 Race and Ethnicity in American  
 Politics  
 SOC 323-3 The Chicana/o Community  
 SOC 324-3 The African American Community  
 SOC 328 The Asian American Community  
 SOC 329-3 Perspectives on Race and Ethnic  
 Relations  
 SPAN 442-3 U.S. Latino/Hispanic Literature  
 SPAN 443-3 U.S. Latina/o Drama  
 SPAN 444-3 Hispanic, Chicana/o, and  
 Mexican American Literature  
 SPAN 445-3 U.S. Cuban Literature  
 THTR 211-3 Introduction to Teatro Chicano/a

### **Exit Focus Group**

During the fall semester of senior year, each student is required to participate in an exit focus group (date to be announced). This is a mandatory meeting to discuss students' understanding and mastery of material present in the Program. Students will come to the exit focus group with an exit survey that will be distributed several weeks in advance of the meeting; and a one-page exit statement that (a) reflects upon and synthesizes their overall experience in the minor, specifically as it relates to their respective disciplinary fields; (b)

assesses the overall effectiveness of the Program. (Guide questions for the exit statement will also be mailed to students in advance of the focus group meeting.)

In addition to providing students with the opportunity to reflect upon their experience in the program, the purpose of the focus group survey and statement is to allow the Ethnic Studies Curriculum Committee the opportunity to assess and improve the academic program.

Ethnic Studies is located in Columbine Hall, Room 1024, (719) 262-4553. Advisors for the program are Andrea Herrera (EST/ENGL), Lynda Dickson (SOC), Abby Ferber (SOC/WMST), Kee Warner (SOC), and Linda Watts (ANTH).

## ***Geography and Environmental Studies***

Professors: Eve Grunfest, Tom Huber and Robert Larkin; Professor Emerita: Jacquelyn Beyer; Associate Professors: John Harner and Steven Jennings (Chair); Assistant Professor: Curt Holder; Assistant Research Professor Roger Sambrook; Instructors: Carole Huber and Michael Larkin

## ***Geography and Environmental Studies – Bachelor of Arts***

The bachelor of arts in geography requires the four introductory classes (GES 100, 101, 198, and 199) plus 16 hours of upper-division coursework. The upper-division coursework must include at least one of the tools courses, GES 305, 400, 406, or 411. (NOTE: GES 105 will not count as credit towards this tools requirement). A maximum of 54 credit hours may be taken by a major in GES. All students must take an exit exam before graduation.

### **Minor in Geography and Environmental Studies**

A minor requires a total of 18 credit hours of GES courses; at least nine of these must be at the upper-division level. A student pursuing a minor must take GES 100 or 101, GES 199 or 198, and a tools course (GES 305, 400, 406 or 411). A degree option is available for elementary and special education teachers. Please contact the Student Success Center or the College of Education for further information.

## ***Applied Geography – Master of Arts***

The Department of Geography and Environmental Studies offers a master of arts in applied geography. The goal of the program is to provide graduate level education that enables students to address community concerns through applied geographic research. Graduates with an MA in applied geography will have integrative skills that link human activity to natural systems, and that apply a spatial perspective to human and natural processes. Areas of emphasis are:

Physical systems, including geomorphic, climatic, biologic, and hydrologic processes.

Natural hazards mitigation and policy issues

Population and society, including urban community development

Applied uses of Geographic Information Systems (GIS) and remote sensing

The MA provides students with specific scientific and communication skills necessary to be community leaders in their area of expertise. Graduates of this MA program will have the following skills and competencies to work on community issues:

An understanding of and appreciation for the interactions between the human and natural world

Skills to synthesize, analyze, and evaluate diverse social and physical information

Ability to conceptualize spatial relationships for problem solving

Communication skills to clearly present solutions or recommendations

### ***Admittance Requirements***

The following are minimum standards for admission of students to the MA in applied geography degree program:

1. Hold a baccalaureate degree or a master's degree from an accredited college or university, or demonstrate completion of work equivalent to the baccalaureate or master's degree given at this university.
2. Have an undergraduate grade point average of 3.0 or better ("A" is equal to 4.0).

Complete the GRE general test. While we have no threshold for acceptance, we use your scores in combination with



other criteria to evaluate your application. We recommend a minimum combined score for the verbal and quantitative sections of the exam of 1000.

Provide 3 letters of recommendation.

Provide two copies of official transcripts from all institutions attended.

### **Program Requirements**

Students may complete either a thesis option or a non-thesis option for the MA in applied geography. The department strongly encourages students to fulfill the thesis option. The thesis option consists of 24 credits of coursework and 6 credits of thesis. The non-thesis option consists of 30 credits of coursework plus a research paper and comprehensive exam. All students must take GES 577: History and Nature of Geography during their first fall semester, then GES 501: Seminar in Geographic Research during the following spring semester.

### **Prerequisites**

All entering graduate students are required to have the kind of knowledge presented in the department's introductory courses in physical geography (GES 100 Environmental Systems/Climate and Vegetation and GES 101 Environmental Systems/Landforms and Soils) and human geography (GES 198 World Regional Geography and GES 199 Human Geography). It is the responsibility of the student to obtain this knowledge. Students may gain the required knowledge by formally taking the introductory courses, by auditing the courses, by reading the textbooks or by any other means. This knowledge will enhance the student's ability to perform at the level expected in the GES 501 research seminar. You will work with your advisor to determine the appropriate action needed to fulfill the prerequisites. Students are encouraged to have some background in college math, statistics, and computer skills.

### **Contacts**

For more information, please see our departmental web page at <http://web.uccs.edu/geogenvs>. Follow the MA program links. Also, you may contact John Harner, Graduate Director at (719) 262-4054, email [jharner@uccs.edu](mailto:jharner@uccs.edu), or Donna Wilson, 262-4065.

The Department of Geography and Environmental Studies (GES) is also part of the Masters of Basic Science (MBS)

program. For applications and initial advising contact the MBS director. GES has a separate option under the MBS program. See the description of the MBS degree program later in the catalog for general questions.

## **Geology Program**

Associate Professor: Paul Grogger;  
Instructor: George Bolling

Geology courses offer a unique opportunity for students. Credits earned in geology will count toward a degree in Letters, Arts and Sciences as electives. Courses are listed which have been offered in the past. Selected courses will be offered each semester.

## **Gerontology**

### **Minor and Certificate in Gerontology**

A minor and an academic certificate in gerontology may be obtained through the College of Letters, Arts, and Sciences. Offered by the Gerontology Center, this program provides students and practitioners with knowledge and skills necessary for work in the aging field. The minor and certificate in gerontology may be pursued by students enrolled in any undergraduate program. The certificate is also available to students in other colleges, and to individuals possessing a baccalaureate degree. The core courses will become available in on-line format in 2004-06.

The minor and certificate in gerontology certifies the successful completion of at least 21 credit hours of required and elective courses. A grade point average of at least 2.0 (C) is required for the certificate or minor to be awarded. All courses applied to the minor must be completed with a grade of C- or better. The program includes the five required courses noted below and at least two electives.

### **Required Core Courses:**

GRNT 300 Introduction to Gerontology  
HSCI 204 Biomedical Aspects of Aging  
GRNT 463 Psychology of Aging (Also may be taken as PSY 351)  
GRNT 462 Sociology of Aging (Also may be taken as SOC 462)  
GRNT 498 Professional Field Experience in Gerontology (3 hours minimum)

An individually planned field experience will be required (GRNT 498). This

experience will be under the direct supervision of experienced personnel in an approved agency or institution dealing with the special concerns of older persons.

### **Elective Courses:**

COMM 260 Family Communication  
ECON 466 Health Economics  
PSY 306 Psychology and Health  
PHIL 417 Medical Ethics  
PHIL 316 Philosophical Issues in Death and Dying  
SOC 467 Sociology of Death and Dying  
GRNT 498 Professional Experience in Gerontology  
GRNT 940 Independent Study  
Other courses that focus on aging may be approved by the Center Director.

For further information about the Gerontology Center or the minor or certificate in gerontology, contact Sara Qualls, the Director of the Center. The Gerontology Center is located in Columbine Hall, Room 4028, (719) 262-4179, [geron@uccs.edu](mailto:geron@uccs.edu).

## **History**

Professors: Paul Harvey, Christopher Hill, Robert Sackett (Chair and Graduate Adviser) and Richard Wunderli; Professor Emeritus: Norman Bender; Associate Professors: Bernice Forrest and Harlow Sheidley; Assistant Professor: Christina Jimenez; Instructors: Janet Myers and Judy Price

## **History – Bachelor of Arts**

The student majoring in history must complete a minimum of 36 (maximum of 54) hours of history courses (21 hours of which must be upper-division courses). 15 upper-division hours must be taken at the Colorado Springs campus. All majors must select six hours each from any two of the following survey sequences: Western Civilization (HIST 101, 102, 103, 104); American Civilization (HIST 151, 152, 153, 154); Latin American Civilization (HIST 140, 141); or Asian Civilization (HIST 111, 112, 113, 114). These survey sequences may be waived by the department only on adequate proof that the student has had equivalent education in these fields. Majors must also take HIST 499 (Senior Thesis) during their junior or senior year. Majors may choose any history faculty member as a counselor to advise them on the

distribution of their courses. Majors are required to have a grade of C (not C-) or better in their history courses.

A student with a double major (history and another major) must complete 30 hours of history courses, meeting the same course and grade requirements as above.

### **Requirements for a Minor in History**

The minor in history consists of 21 hours of coursework, nine of which must be upper-division courses. At the lower division, students must take 12 hours, six hours each from any two of the following sequences: Western Civilization (HIST 101, 102, 103, 104); American Civilization (HIST 151, 152, 153, 154); Asian Civilization (HIST 111, 112, 113, 114); or Latin American Civilization (HIST 140,141). Students are required to have a grade of C (not C-) or better in history courses counted toward the minor. A degree option is available for elementary, secondary and special education teachers. Please contact the Student Success Center or the College of Education for further information.

## **History – Master of Arts**

### **Departmental Requirements**

The master of arts degree in history can be obtained at UCCS. The Department of History processes applications for admission to the program, offers courses required for the MA degree, and administers the final oral examination. See also Requirements for Advanced Degrees and the general requirements of the Graduate School.

The student should have a good foundation in history and a sufficient knowledge of the allied humanities and social sciences to afford an adequate background for graduate work. A candidate may be required to correct any apparent deficiencies.

### **General requirements**

The following departmental rules with respect to the master of arts degree supplement, but in no way supersede, the requirements of the Graduate School of the University of Colorado.

1. All graduate applications must be completed by March 1 for admission for the following fall semester, and by October 15 for admission for the following spring semester. Exceptions require the approval of the history department graduate faculty committee.

2. For purposes of admission to the graduate program, a writing sample will be required.
3. All coursework will be taken within the Department of History except as stated under number 8 below; further exceptions may be granted by the department's graduate faculty and according to graduate school regulations.
4. Thirty credit hours are required for the MA degree.
5. HIST 600, Historiography (3 credit hours) is required of all graduate students.
6. Students must take courses from the specific historical fields offered by the history department (see a list of the historical fields below). Seminars in a historical field are offered over two consecutive semesters: "Readings" in a specific field will be offered one semester (with a 600 number); and "research" in the same field will be offered only in the following semester (with a 700 number). A "research" course at the 700-level may not be taken without having completed the prerequisite of the corresponding 600-level "readings" course. "Readings" courses are for 3 credits; "research" courses are for 4 credits. Students must complete the readings and research in at least three historical fields for a total of 21 credit hours. No course may be taken twice for credit. Exceptions to the above requirements require the approval of the history department graduate faculty committee.

Historical fields and their course numbers are as follows:

### **European History**

Readings/Research in Medieval European History, c. 300 - 1300 a.d. (HIST 611/711)

Readings/Research in The Renaissance and Late Medieval Europe, c. 1300 - c. 1500 a.d. (HIST 615/715)

Readings/Research in the Reformation and Counter Reformation, c. 1500 - 1648 (HIST 622/722)

Readings/Research in the Old Regime, 1648 - 1789 (HIST 625/725)

Readings/Research in the Age of Revolution, 1789 - 1870 (HIST 631/731)

Readings/Research in Modern Europe, 1870 - the Present (HIST 635/735)

### **United States History**

Readings/Research in Religion and Culture in America, 1500-2000 (HIST 646/746)

Readings/Research in U.S.: the Birth of a Nation, 1763 - 1815 (HIST 655/755)

Readings/Research in U.S.: Division and Reunion, 1815 - 1877 (HIST 661/761)

Readings/Research in U.S.: Emergence of Modern America, 1876 - 1918 (HIST 666/766)

Readings/Research in U.S.: The Super Power Era, 1918 to Present (HIST. 671/771)

Readings/Research in U.S.: The Trans-Mississippi West (HIST 676/776)

### **Asian History**

Readings/Research in the Indian Subcontinent since 1556 (HIST 681/781)

Readings/Research in the Pacific Rim since 1600 (HIST 686/786)

Latin American History

Readings/Research in Latin American History (HIST 679/779)

Any of the above seminars will be offered only once over a period of several years. In order to plan their graduate careers, students should check the history department website at <http://web.uccs.edu/~history> to find out when specific historical fields will be taught and who will be offering them. Each year the history department usually offers a two semester, readings/research sequence in American History, and a two semester, readings/research sequence in a non-American field.

7. Students will also take three credit hours of Independent Study (HIST 960) to prepare for oral exams and presentation of a portfolio of three papers (in triplicate) to the history faculty. (See Number 10 below).
8. In addition to History 600, History 960, and the three readings/research sequences, each student is to take one elective for three credits. This must be either an extra readings seminar; or, by permission of the history department graduate faculty committee, a 300- or 400- level history department undergraduate course; or, by permission of that committee, a course at the 300-level or higher in another department. Regarding these undergraduate courses, there is no guarantee of availability for any particular course; any prerequisites need to be observed; no course counted for the BA degree may count for the MA credit; at the discretion of the instructor, extra assignments could apply to graduate students.

9. In history courses, no grade lower than B- will count toward the completion of coursework for the master's degree. Candidates must maintain a grade point average of 3.0 in their graduate courses, or face departmental probation.
10. Upon nearing completion of degree work, candidates are required to pass an oral exam that covers the coursework that they have completed. The oral examination committee will consist of three professors. Candidates will also present, and defend, before the history faculty a portfolio of three papers (submitted in triplicate) that they have written in research seminars. Candidates may have no more than six credit hours of coursework pending at the time they attempt this examination. The examination, for which a student must register, will be given each semester, including summers, at times agreed upon by candidates and the history faculty.
11. The department offers to evaluate the academic progress of graduate students after two semesters of coursework, if they request this review. The purpose is to apprise students of their progress in professional training as historians.
12. Below is a sample schedule for a full-time graduate student who will complete the MA degree in five semesters (including one summer) or two years. This is an ideal case; most students take slightly longer to complete the degree.

**First Year****Fall Semester:**

HIST 600 Historiography  
HIST 6 Readings in Field #1

**Spring Semester:**

History 7 Research in Field #1  
History 6 Readings in Field #2

**Second Year****Fall Semester:**

History 7 Research in Field #2  
History 6 Readings in Field #3

**Spring Semester:**

History 7 Research in Field #3  
Elective

**Summer Semester:**

History 960 Independent Study;  
oral exam

## Humanities

Professor Robert Sackett, Director

All degree students admitted to the College of Letters, Arts, and Sciences must fulfill three of the twelve hours of humanities area requirements by taking one core humanities course (three hours) under the departmental heading "Humanities" (HUM). Students may take a second core humanities in order to satisfy three credit hours of the general humanities requirement. Humanities courses are upper-level and as such presume students have senior or junior status and have completed the composition requirement.

The core humanities courses are multi-disciplinary courses that combine the study of literature, history, art and music history, and philosophy, with an emphasis on the interaction of these fields with social, political, economic, and scientific/technological events. The class format combines lectures, group discussions, slide presentations, guest panels, dramatic performances, and musical recitals. Faculty from the various humanities-related departments join together in teaching the courses to provide students a solid overview of humanities disciplines.

The core humanities courses study the various humanities disciplines by focusing on a specific year or on a specific topic, some with a traditional and some with a non-traditional influence.

There is no guarantee that core humanities courses will be offered.

All course descriptions that appear here are "samples" of previously offered or designed courses and therefore are non-binding. Since different faculty members may teach in different semesters, they are accustomed to designing courses in light of the interests and expertise of those teaching on a given team.

Each of the "HUM" courses in any given semester's course schedule fulfills the core humanities requirement (3 hours) of the general humanities area requirement (12 hours). Check the Schedule of Courses each semester for additional Humanities courses that may have been developed by the faculty.

## Interdepartmental Studies

Professors: James Burkhart and

Alexander Soifer

Interdepartmental studies offers a unique opportunity for students to experience courses which cover several disciplines. Established in 1976, the program is expected to expand to meet student demands with eventual participation by all departments in the College of Letters, Arts, and Sciences. The interdepartmental studies program also offers a minor in mathematics as liberal arts (see mathematics.)

Interdepartmental credits earned will count toward a degree in Letters, Arts and Sciences as electives. Students wishing to use ID credits in other colleges should consult with the academic advisors of their respective colleges.

Selected courses will be offered each semester.

## Languages and Cultures

Professors Emeritus: John Miller, Inez Dölz-Blackburn and Douglas McKay;  
Associate Professors: Teresa Meadows and Robert von Dassanowsky (Chair);  
Assistant Professors: Fernando Feliu-Moggi and Maria Steen; Senior Instructors: Margaret Mistry and Fadia Zaki-Gnoske; Instructors: Blanca Glisson, Maria Goni and Ilse Stratton.

Along with other leading institutions of higher learning, the University of Colorado considers the study of languages an essential part of a sound liberal education. Competence in a language other than English not only promotes international understanding and communication, but also increases student's career opportunities in commerce and finance, diplomacy, library science, education, social work, publishing, communication, scientific and technical research, and the arts, and prepares them for graduate school, which normally requires proficiency in at least one foreign language. Students might consider taking language classes as excellent complements to their major. Consult the distributed studies section of this bulletin. French, German, or Spanish can be used as part of a distributed studies degree.

## Spanish – Bachelor of Arts

The department offers a complete BA degree in Spanish and minor

concentrations in French, German, and Spanish. Basic courses are also offered in American Sign Language, Italian, Russian, Latin and Japanese. Students desiring to major in French and German may complete a distributed studies major; others must complete requirements for the major in French or German, at the Boulder campus by approval of the appropriate Boulder department.

A total of 35 credit hours in Spanish courses (beyond Spanish 102) including the following minimum distribution:

Language: 9 semester hours in advanced language selected from SPAN 292, 293, 300, 301, 302, 401, 403.

Literature: 15 semester hours-310, 319 and 320 are required. Six additional semester hours in literature.

Culture/Civilization: 325, 425.

Senior Seminar: 497.

Plus Foreign Culture Studies: 6 semester hours in Hispanic topics.

Total: 41 semester hours-35 semester hours in Spanish plus 6 semester hours in F CS.

In some cases these major requirements may result in total credit hours in excess of the Letters, Arts and Sciences 54 hour subject area requirement. Unless the student successfully petitions the Committee on Academic Progress for a waiver, all hours in excess of the 54 hour maximum will be added to the 120 hours needed to graduate. The department strongly recommends that all majors and minors include study in a setting where the language of concentration is spoken. Credit earned will normally count toward satisfaction of the major/minor requirements, but the student must see the department chair before enrolling in an external study program to assure full transfer of credit. Selected programs are also available through the Office of International Education, Boulder and Denver.

### ***Minor in Spanish***

A total of 18 credit hours in Spanish beyond Spanish 102 including the following minimum distribution: Spanish Grammar (300); Spanish Conversation and Composition I or II (301 or 302); Hispanic Culture Studies (325 or 425); Literature: 310 and 319 or 320.

Language courses at the 100 level introduce students to essentials of

grammar, reading, oral fluency, and aural comprehension, as well as to a general understanding of the cultural context. Courses at the 300 and 400 levels are taught almost exclusively in the language.

### ***Minor in French***

A total of 18 credit hours in French beyond French 102 including the following minimum distribution: two language based courses from 293, 300, 301, 302 and two literature/culture/film based courses from 311 and above.

### ***Minor in German***

The German minor consists of the following requirements: A total of 18 credit hours in German beyond German 102 including the following minimum distribution: two language based courses from 293, 300, 301, 302, and two literature/culture/film based courses from 313 and above.

### ***Language Courses***

#### **American Sign Language**

American Sign Language (ASL) provides a unique modality - visual and gestural rather than the traditional aural/oral approach to modern language teaching. ASL is a fully developed language, containing rich verbal aspects and a classifier system. Elements of deaf culture are also presented through theoretical and applied simulations.

#### **French**

As one of the key languages of international diplomatic communication, literary creativity, and artistic achievement, French is a practical and useful language for career, personal and professional travel, and general cultural enrichment.

#### **German**

An important language closely related to English, German is the tongue of America's third largest trade partner, of much scientific research, and of international diplomacy. It is also the language of music's "3B's" (plus Wagner, Mozart, and Mendelssohn), of Goethe, Marx, Einstein, Kant, and Freud, spoken not only in Germany, but also in Austria and Switzerland. As such, German is a staple of any sound general education-a language that will enhance a career and enrich personal pleasure and travel.

#### **Italian**

The language of the great literature of the Renaissance, grand opera, and the influential neo-realist cinema.

Italian is not only a language of artistic achievement, but one of strong American ethnic heritage and international business.

#### **Japanese**

Japanese is the language of contemporary commerce, the literature of Mishima and Nobel Prize winner Kawabata. Its theatrical tradition includes Kabuki, Bunraku, and Noh, while its writing system utilizes Hiragana, Katakana, and Kanji. Japan is the land of flower arrangement and the tea ceremony, the Samurai and "Ran."

#### **Latin**

With 50 percent of English vocabulary derived from Latin, it is not surprising to discover that students who have studied Latin score about 150 points more on such standardized verbal tests as the SAT than do students who have not had Latin (Washington Post). Latin is also the basis of the five romance languages (Spanish, French, Italian, Portuguese, and Rumanian) and as such helps students with further language study.

#### **Russian**

Russia, expanding in social and economic importance, has a history of great literature and great art. Turgenev, Dostoyevski and Solzhenitsyn as well as the artistic treasures of the Kremlin are revealed through a study of this language.

#### **Spanish**

In the United States, Spanish is fast becoming second to English in usage. A language of practical utility, great literature (Don Quixote), and wide applicability (in North, Central, and South America, as well as in Europe), Spanish is becoming a necessary skill for dealing with today's world. A degree option is available for elementary, secondary and special education teachers. Please contact the Student Success Center for further information.

#### **Foreign Culture Studies**

Foreign culture studies courses are designed to give students the opportunity to explore different facets of foreign culture, film, and literature in courses, particularly through on-site experiences.

### ***Mathematics***

The Department of Mathematics of the College of Engineering and Applied Science now offers the BA degree and

the minor in mathematics. Please see the math listing under the College of Engineering and Applied Science section.

### **Minor in Mathematics as Liberal Art**

A minor in mathematics as liberal art is offered by the Interdepartmental Studies Program of the College of Letters, Arts, and Sciences and is designed to give students a special look at mathematics as a liberal art. Prime emphasis is on ideas of mathematics rather than on skills, and on aesthetic aspects of mathematics such as beauty, elegance and paradox, that bring mathematics close to the arts. Special attention is paid to the questions of what mathematics is, what mathematicians do, how they pursue their research, and what role intuition plays. Also of interest is the human aspect of mathematics in the life and work of its creators. This program may be of a special interest to students majoring in humanities, mathematical education, and natural sciences. A degree option is available for elementary, secondary and special education teachers. Please contact the Student Success Center or the College of Education for further information. The Colorado Mathematical Olympiad, held annually at UCCS, provides a valuable field experience for the program.

The successful completion of at least 18 credit hours is required with a grade point average of at least 2.0 (C). All courses applied to the minor are to be completed with a grade of at least a C-. At least nine credit hours must carry upper-division credits. The program includes three required courses and at least three electives. A substitution by an equivalent course is subject to approval by Professor Soifer. For further information about the minor, please contact Professor Soifer.

#### **Required Courses:**

I D 200 Mathematics: A Human Endeavor  
I D 445 Creators of Mathematics: An Historic View  
I D 480/580 What is Mathematics?

#### **Elective Courses:**

I D 205 Beyond the Finite  
MATH 311 Theory of Numbers  
MATH 350 Graph Theory  
I D 450/550 A Serious Course in Recreational Mathematics  
I D 455/555 Geometry as a Study of Transformations  
I D 485/585 Geometric Insight in Combinational Mathematics

### **Mathematics**

I D 490/590 Mathematical Coloring Course  
I D 501 Advanced Problem Solving in Secondary Mathematics

## **Military Science (US Army)**

### **Reserve Officers' Training Corps (ROTC) Program**

Professor of Military Science: Lieutenant Colonel Kathryn Schramm; Assistant Professors of Military Science: Major Gregory Cyr and Captain Ellen Kelley; Senior Military Science Instructors: Master Sergeant Michael LaRock, and Master Sergeant Pedro Celestino; Human Resources Assistants Nancy Silva and Lonnie Forbes.

### **The Army ROTC Program**

The focus of this program is to recruit, develop, and commission college-educated men and women to serve as Officers in the United States Army. Participants in the program are commissioned as Second Lieutenants in the Army upon graduation with a bachelor's degree. They will be expected to serve in either the active Army or in the Reserve components (Army Reserves or Army National Guard) after commissioning.

The program is centered on teaching the principles of Leadership. These principles can be applied to positions in the military or in civilian careers. All courses of instruction are designed to develop leadership and management skills as well as enhance the self-confidence and initiative of each student.

Military Science is taken in addition to the required courses for each student's major.

ROTC is a four-year program that is divided into two phases: the basic course and the advanced course.

A minor in military science is available for qualified students.

### **The Basic Course**

The focus for these lower division courses (MS 100/200 courses) is to lay a foundation for more advanced instruction in the skills needed to be a successful leader. Students may participate, even if they do not plan on receiving a commission, in order to gain experience in leadership and management.

This phase is open to all qualified students (generally freshmen and sophomores). Students should be aware that physical training is required for successful course completion.

There is no military obligation for participation in the basic course unless a student is receiving an Army ROTC scholarship.

Sophomores wanting to complete the basic course requirements so that they may enter the advanced course can compress the basic course and/or attend the Leader's Training Course during the summer between their sophomore and junior years. For further information please see below and contact the Department of Military Science.

### **The Advanced Course**

The advanced course (MS 300/400 level courses) is oriented to preparing students (juniors and seniors) who have successfully completed the basic course requirements with the skills and knowledge necessary to be commissioned as a Second Lieutenant in the Army. The focus of the advanced course continues on building leadership skills and abilities.

Students participating in the advanced course have a contractual obligation to complete the program and enter the Army upon graduation.

Students must have a minimum of four semesters remaining in their course work before graduation to participate in the advanced course and they must be in a full-time status (12 credit hours per semester) during each of those semesters.

Credit for the basic course for entry into the advanced course may be achieved in a number of ways. The normal progression is to successfully complete all four basic course military science classes (MS 101, 102, 201 and 202) with a grade of C or better. Students can also enter the course laterally by receiving credit for one of the following:

Prior enlisted service in the Army, Air Force, Navy or Marines

Participation of a minimum of three years in a JROTC program

At least one year as a service academy Cadet

Successful completion of the Army ROTC Leaders' Training Course (LTC).

LTC training is available to students who did not have the opportunity to participate in any of the above programs. The five-week course is conducted every summer at Fort Knox, KY. Participants receive pay while attending. The Army also pays travel and some other expenses. For more information contact the Department of Military Science.

Students participating in the advanced course will be required to attend the Leadership Development Assessment Course (LDAC) which is conducted annually at Fort Lewis, Washington. This camp is normally attended during the summer between a student's junior and senior year. It is a 33-day event that provides the best possible professional training and evaluation for all students participating in ROTC before commissioning. The camp mission includes continued military training and leadership development, but the primary focus is to evaluate each student's Officer potential. This camp represents the only opportunity in ROTC to gather all qualified students from across the nation on one "level playing field" for the purposes of making those assessments. Successful completion of the camp is mandatory for commissioning.

### **Course Offerings**

COURSE/TITLE	CREDIT
<b>Basic Course</b>	
MS 101 Fundamental Concepts of Leadership (F) .....	1
MS 102 Basic Leadership (S) .....	1
MS 201 Advanced Leadership (F) .....	2
MS 202 Tactics and Officership (S) .....	2
<b>Advanced Course</b>	
MS 301 Fundamentals of Military Leadership and Training I (F) .....	3
MS 302 Fundamentals of Military Leadership and Training II (S) .....	3
MS 303 Leadership Development Assessment Course (LDAC) .....	3
MS 401 Military Staff Functions (F) .....	3
MS 402 Transition to Lieutenant (S) .....	3
MS 498 Special Studies in Leadership (F/S) .....	3

### **The Military Science Minor**

A minor in military science is available for students participating in the Army ROTC Program. Participants must achieve a minimum of 18 credit hours by graduation, which includes credit for all advanced course classes (to include graduation from Advanced Camp) and a course in Military History. More

information about the minor is available through the Department of Military Science.

### **Scholarship Information**

The Army ROTC Scholarship program provides financial assistance for the education and training of highly motivated men and women who desire to pursue careers as commissioned officers in the U.S. Army after graduation with a bachelor's degree. Four-, three- and two-year scholarships are available to qualified candidates. The scholarship pays for school tuition, books, certain fees, and provides the student with a monthly, tax-free stipend of between \$250.00 and \$400.00 per month for up to 10 months per year (depending on academic status). For more information pertaining to scholarships and enrollment eligibility please contact the Department of Military Science.

## **Philosophy**

Professors: Frederic Bender, Mary Ann Cutter, Dorothea Olkowski, and Raphael Sassower; Associate Professor: Robert Welshon (Chair); Senior Instructor: Lorraine Arango; Instructors: Dan Clanton, Brian Duvick, Raymond Steiner and Patrick Yarnell.

## **Philosophy – Bachelor of Arts**

Philosophy teaches analytical and critical thinking, develops oral and written communication skills, and contributes to interdisciplinary understanding. Philosophy as a discipline attempts to answer perennial questions about values, human existence, and the nature of reality. Skills developed in this inquiry help philosophy students to excel in careers in law, medicine, management, education, government, writing, computer science, psychology, sociology, and ministry among many others. Philosophy majors consistently score in the top percentiles for all majors on the GRE, LSAT, GMAT, MCAT and other graduate and professional admissions tests.

### **General Requirements**

The bachelor of arts degree in philosophy requires 30 semester hours with grades of C or above; a maximum of 54 hours can be applied to the degree. At least 21 out of the 30 hours must be upper division courses. The philosophy minor requires 18 hours of course work. The

philosophy major may choose either the general requirements or the student may specialize in one of four optional programs.

### **Required Courses for the Philosophy Major**

- One course in Logic selected from:
  - PHIL 112 Critical Thinking
  - PHIL 344 Symbolic Logic
  - PHIL 443 Logical Theory
- One course in Social and Political Philosophy/Ethics selected from:
  - PHIL 316 Death and Dying
  - PHIL 320 Politics and the Law
  - PHIL 322 Philosophy of Law
  - PHIL 323 Women's Equality; Women's Difference
  - PHIL 324 Philosophy of War, Conflict Resolution, and Peace
  - PHIL 340 Holocaust
  - PHIL 360 Philosophy of Religion
  - PHIL 373 Philosophy and Literature
  - PHIL 414 Environmental Philosophy
  - PHIL 415 Ethical Theory
  - PHIL 416 Business and Management Ethics
  - PHIL 417 Health Care Ethics
  - PHIL 425 Selected Topics in Social Theory
  - PHIL 426 Philosophy of Law
  - PHIL 455 Feminism, Sexuality, and Culture
- One course in Metaphysics, Ontology, Epistemology, or Philosophy of Science:
  - PHIL 317 Theories of Knowledge
  - PHIL 330 Philosophy of Mind
  - PHIL 335 Metaphysics
  - PHIL 339 Philosophy of Psychology
  - PHIL 370 Aesthetics
  - PHIL 404 Twentieth Century Philosophy
  - PHIL 407 Existentialism
  - PHIL 408 Contemporary Continental Philosophy
  - PHIL 410 American Pragmatism
  - PHIL 435 Analytic Philosophy
  - PHIL 440 Philosophy of Science
  - PHIL 441 Philosophy of Biology
  - PHIL 446 Theories of Human Nature
- Two courses in the History of Philosophy:
  - PHIL 348 Philosophies of India
  - PHIL 349 Philosophies of China
  - PHIL 351 Ancient Philosophy
  - PHIL 353 Hellenistic Philosophy
  - PHIL 354 Medieval and Renaissance Philosophy
  - PHIL 356 Modern Classical
  - PHIL 357 Enlightenment and 19th Century

- PHIL 358 From Hegel to Nietzsche
- 5. Senior Seminar and Thesis
  - PHIL 495 Senior Seminar and Thesis

**Philosophy Major Options**

The department offers options in areas of philosophy that focus on particular fields of study. Students completing the requirements in any of the options will receive a certificate from the department indicating that they have a major in philosophy with competence in a particular area. To qualify for an option, the student must fulfill the requirements for the major including at least 30 hours of course work, 12 hours of which must be in the option area.

**Options**

1. Philosophy and Religions, East and West
  - PHIL 105 Philosophy and Religion
  - PHIL 110 Introduction to Religious Studies
  - PHIL 310 Comparative Religions
  - PHIL 311 Women and Religion
  - PHIL 312 Greek and Roman Mythology
  - PHIL 316 Philosophical Issues in Death and Dying
  - PHIL 340 Holocaust
  - PHIL 348 Philosophies of India
  - PHIL 349 Philosophies of China
  - PHIL 350 Buddhist Philosophy
  - PHIL 354 Medieval and Renaissance Philosophy
  - PHIL 360 Philosophy of Religion
  - PHIL 361 Philosophical Approaches to the Hebrew Bible
  - PHIL 362 Philosophical Approaches to the New Testament
  - PHIL 363 Race and Gender in the Bible
2. Law, Social Justice, and Global Conflict:
  - PHIL 102 Ethics
  - PHIL 104 Philosophy and Society
  - PHIL 131 Women and Science
  - PHIL 320 Politics and the Law
  - PHIL 322 Philosophy of Law
  - PHIL 323 Women's Equality, Women's Difference
  - PHIL 324 War, Conflict Resolution, and Peace
  - PHIL 340 Holocaust
  - PHIL 414 Environmental Philosophy
  - PHIL 415 Ethical Theory
  - PHIL 417 Health Care Ethics
  - PHIL 425 Topics in Social Theory
  - PHIL 455 Feminism, Sexuality and Culture
  - PHIL 493 Advanced Topics in Philosophy
3. Analytic Philosophy, Computer Sciences,

- and Psychology:
  - PHIL 317 Theories of Knowledge
  - PHIL 330 Philosophy of Mind
  - PHIL 344 Symbolic Logic
  - PHIL 420 Consciousness
  - PHIL 435 Analytic Philosophy
  - PHIL 440 Philosophy of Science
  - PHIL 443 Logical Theory
  - PHIL 449 Philosophy of Language
- 4. Continental Philosophy, Cultural Studies, and Humanities:
  - PHIL 340 Holocaust
  - PHIL 357 Enlightenment and 19th Century'
  - PHIL 358 From Hegel to Nietzsche
  - PHIL 370 Aesthetics
  - PHIL 404 Twentieth Century Philosophy
  - PHIL 407 Existentialism
  - PHIL 408 Contemporary Continental Philosophy
  - PHIL 440 Philosophy of Science
  - PHIL 455 Feminism, Sexuality, and Culture
  - PHIL 460 Theory of Film

**Philosophy Minors**

The department offers minors in areas of philosophy that complement various major fields. Minors require 18 hours of course work, including PHIL 112 and one course in the History of Philosophy.

**Philosophy Double Majors**

Adding a philosophy major to one's major in another discipline, thereby creating a double major, is an option for students who wish to obtain a broader perspective in their discipline for post-graduate work. All requirements for the philosophy major apply to double majors. Students may have two different majors in two different colleges or in the same college.

**Physics and Energy Science**

Professor Emeritus: Richard Blade;  
 Professors: James Burkhart (Chair), Robert Camley and Zbigniew Celinski;  
 Associate Professors: Tom Christensen and Marek Grabowski; Assistant Professor: Radek Lopusnik; Senior Instructors: Sam Milazzo and Daryl Prigmore; Instructor: Richard Dawson, and Robert Gist.

**Physics – Bachelor of Science**

The bachelor of science program in physics is designed to help students

attain their professional goals in physics. Three options within the bachelor of science program enable students to achieve their particular educational objectives. The options are: Traditional Physics, Solid State Physics, and Energy Science. Engineering Physics is discontinued as of Fall 2005. A degree option is available for secondary education teachers. Please contact the Student Success Center or the College of Education for further information.

**Degree Options**

Courses in each option are chosen to teach the fundamental concepts on which the field is based. Laboratories are designed to give students practical hands-on experience. Advanced laboratories provide opportunities to study and use state-of-the-art technology in the student's area of interest.

The solid state laboratory required in the solid state option is designed to teach the fundamentals of materials technology. Students in each of the three options are required to take the core course requirements as well as the option requirements listed below.

**Required Courses for All Four Options**

**Physics and Energy Science (PES)**

PES 111 General Physics I.....	4
PES 112 General Physics II.....	4
PES 213 General Physics III.....	3
PES 115 Physics Laboratory I.....	1
PES 215 Physics Laboratory II.....	1
PES 313 Modern Physics.....	3
PES 315 Modern Physics Laboratory.....	2
PES 317 Instrumentation Laboratory I.....	2
PES 318 Instrumentation Laboratory II.....	2
PES 321 Classical Mechanics.....	3
PES 331 Electricity and Magnetism I.....	3
PES 341 Thermodynamics and Statistical Mechanics.....	3
PES 481 Senior Physics Seminar.....	2

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**Other Core Areas**

MATH 135, 136 Calculus I, II.....	8
MATH 235 Calculus III.....	4
MATH 340. Differential Equations.....	3
C S 105, 106, 107 or 115 Programming Language.....	3
CHEM 103, 106 General Chemistry I, II.....	10
ENGL 131, 141 Composition I, II.....	6
ENGL 307 Business and Administrative Writing.....	3



OR

ENGL 309 Technical Writing and  
Presentation .....3**37**

In addition, students must meet the 12 hour area requirements from both humanities and social science. Furthermore, the department requires a grade of C or better in every physics course that is applied toward the graduation requirements. Students may take a maximum of 54 credits in PES which will apply toward the degree.

In addition to the above core requirements, students will complete one of three options: Traditional Physics, Solid State Physics, or Energy Science.

**Traditional Physics Option**

This program is designed for students intending graduate studies in physics or planning to obtain an industrial position with a traditional physics degree. This option requires a minimum of 18 credit hours of courses in addition to the core.

**Required Courses**

PES 325 Mathematical Methods  
of Physics .....3  
PES 332 Electricity and Magnetism II.....3  
PES 425 Quantum Mechanics .....3  
PES 451 Optics .....3

Also, the traditional physics option requires a minimum of three upper-division hours of mathematics in addition to MATH 340. A minimum of three credit hours from the following PES courses must be taken:

**Elective Courses**

PES 306 Astrophysics .....3  
PES 365 Nuclear Physics and Energy  
Technology.....3  
PES 370 Acoustics.....2  
PES 395, 396, 397 Special Topics (variable  
credit, maximum of 6 hours allowed)  
PES 415 Solid State Laboratory .....2  
PES 426 Quantum Mechanics II .....3  
PES 430 Celestial Mechanics .....3  
PES 446 Solid State Physics.....3  
PES 449 Physics of Thin Films ..... 3/4  
PES 472 Stellar Structure and Evolution ...3  
PES 485 Senior Project (variable credit,  
maximum of 6 hours allowed)

Other elective courses may be substituted with the written approval of the department chair.

**Solid State Physics Option**

This option is designed for students presently employed by or intending

employment in the semiconductor industry. It will provide theoretical foundations and practical experience in solid state physics.

This option requires a minimum of 20 credit hours of courses in addition to the core.

**Required Courses**

PES 325 Mathematical Methods of Physics3  
PES 332 Electricity and Magnetism II.....3  
PES 415 Solid State Laboratory .....2  
PES 425 Quantum Mechanics.....3  
PES 446 Solid State Physics.....3

This option also requires the completion of a minimum of six hours from the following technical electives:

**Elective Courses**

PES 426 Quantum Mechanics II .....3  
PES 448 Surface and Interface Physics....3  
PES 449 Physics of Thin Films ..... 3/4  
CHEM 301 Materials Science.....3  
CHEM 451 Physical Chemistry I .....4  
CHEM 452 Physical Chemistry II .....4  
ECE 2410 Logic Circuits .....3  
ECE 2420 Logic Circuits Laboratory.....2  
ECE 4020 Introduction to Semiconductor  
Devices .....3  
MATH 381 Probability Theory .....3  
MATH 445 Complex Variables.....3  
MATH 447 Partial Differential Equations ...3  
C S 316 Programming Languages.....3  
C S 460 Numerical Computing .....3  
C S 472 Design and Analysis  
of Algorithms .....3

Other elective courses may be substituted with the written approval of the department chair.

**Energy Science Option**

This option will prepare graduates for energy-related careers in industry and government and will provide the student with a strong background in the technical, economic, and instrumentation aspects of all energy resources.

This option requires a minimum of 19 hours of courses in addition to the core.

**Required Courses**

PES 250. Energy Fundamentals .....3  
ECON 101. Microeconomics .....3  
GEOL 101. Physical Geology (with lab) .....4  
Students in this option are required to complete 9 hours from the following technical electives.  
PES 332 Electricity and Magnetism .....3  
PES 361 Solar Engineering Design .....3

PES 365 Nuclear Physics and Energy  
Technology.....3  
PES 367 Wind Energy.....3  
PES 460 Advanced Solar Energy.....3  
GEOL 312 Structural Geology I .....5  
GES 320 Practical Meteorology .....4  
GES 406 Introduction to Remote Sensing .4  
GES 409 Advance Remote Sensing .....4  
Other elective courses may be substituted with the written approval of the department chair.

**Minor in Physics or Energy Science**

Students may earn a minor in physics by taking PES 111, 112, 213, 313 and any other six hours of upper-division physics courses. This is a total of 20 hours. A grade of C or better is required in these courses. A minor in energy science is available and is discussed in detail in the energy science section of this bulletin.

**Physics – Master of Basic Science**

There are several options for graduate studies in physics. Students may obtain a Master of Basic Science (MBS) All of the courses are taken at UCCS, and thesis work may be done with a professor or in conjunction with an adjunct professor who is employed in a local solid state, optics, or space industry. More details on this program follow below.

A Doctor of Philosophy (Ph.D.) in physics can be obtained from the University of Colorado at Boulder with much of the coursework and the thesis done at UCCS. Each student is evaluated on the basis of his or her experience and academic grades but, in general, will be expected to complete a year of residency at Boulder as well as passing all qualifying, comprehensive, and preliminary exams at Boulder. Application to this program is made to the Boulder Physics Department with the assistance of the UCCS Physics Department.

**Admission Requirements**

Admission requirements into the MBS program are consistent with those specified by the Graduate School. These admission requirements are: applicants for graduate work in physics will be required to submit two complete official transcripts of all previous graduate and undergraduate work and three letters of recommendation. Application is made directly to the physics department at UCCS. Application deadline is July 1st



for the fall semester, December 1st for the spring semester, and May 1st for the summer semester.

An applicant for the master's degree should hold a BS or BA from a college or university of recognized standing or have done work equivalent to that required for such a degree and equivalent to the degree given at this university. He or she should have considerable coursework in physics, sufficient mathematical background, and show promise of ability to pursue advanced study and research. Applicants with a BA or BS in physics or in a related area, such as chemistry, computer science, electrical engineering or mathematics, are natural candidates for graduate study in physics.

A student is considered to have sufficient mathematical background if he or she has taken at least two semesters of mathematics beyond the normal calculus sequence, such as differential equations and mathematical methods of physics.

To be admitted into the program on the basis of grade point only, the student should have an undergraduate grade point average of at least 3.0 on a 4.0 scale.

Students with an undergraduate grade point average of less than 3.0 but at or above 2.5, or students with an inadequate background, may be allowed into the program provisionally. This decision would be made by the Physics Graduate Student Committee. Provisional status would subsequently be removed and a student given regular standing after completion of nine hours of MBS courses with a 3.0 average (or better).

Regular degree students must maintain at least a 3.0 grade point average each semester or summer term on all work taken, whether or not it is to be applied toward the advanced degree intended. Students who fail to maintain this standard of performance will be subject to suspension from the Graduate School.

**Requirements for Transfer Students**

Students who are transferring from other physics graduate programs must meet the minimum standards outlined above and, in addition, have a 3.0 average (or better) in all graduate work done previously. Full credit, up to nine hours (normally one semester of full-time coursework), will be given for coursework done previously, assuming the prior work is done at accredited institutions with

approved programs. Course equivalency will be decided by the UCCS Physics Graduate Student Committee after interviewing the student and comparing textbooks, class notes, or any other helpful documentation.

**Degree Requirements**

A student has the option of taking 24 credit hours of coursework plus six hours of thesis work. This is the thesis option. A student can also graduate by taking 30 credit hours of coursework without a thesis. This is the non-thesis option.

**Master of Basic Science Curriculum**

**Approved graduate courses include:**

PHYS 631 Electromagnetic Theory I .....3  
 PHYS 632 Electromagnetic Theory II.....3  
 PHYS 621 Theoretical Mechanics.....3  
 PHYS 625 Quantum Mechanics I.....3  
 PHYS 541 Statistical Mechanics .....3  
 PHYS 503 Mathematical Methods of Physics.....3  
 PHYS 626 Quantum Mechanics II.....3  
 PHYS 546 Intro to Solid State Physics .....3  
 PHYS 690 Solid State Physics I.....3  
 PHYS 691 Solid State Physics II.....3  
 PHYS 515 Solid State Lab .....2  
 PHYS 549 Physics of Thin Films .....4  
 PHYS 520 Computational Physics .....3  
 PES 451 Optics .....3  
 PHYS 695 Topics in Advanced Physics .....3  
 ASE 510 Astrodynamics I.....3  
 ASE 511 Perturbation Theory in Astrodynamics .....3  
 ASE 560 Space Environment.....3  
 C S 560 Numerical Computing .....3  
 ECE 5020 Principles of Semiconductor Devices .....3  
 ECE 5030 Advanced Semiconductor Device Modeling .....3  
 ECE 5050 Microelectronics IC Fabrication Laboratory.....3  
 ECE 5070 Electronic Properties of Materials.....3  
 MATH 545/562 Functions of a Complex Variable I, II .....3

Other elective courses may be substituted with the written approval of the graduate program advisor.

**Degree Options**

**Thesis and Non-Thesis**

For the thesis option, the student must take 24 credit hours. Thesis work is an additional six hours (three credits per semester) for a total of 30 credit hours.

The non-thesis option requires 30 credit hours from the approved courses.

In order to design a more specialized degree, students may concentrate their elective courses in areas outside of physics. Concentration areas could include space studies, electrical engineering, mechanical engineering, geography, computer science, applied mathematics or other graduate disciplines. These concentration areas might be appropriate for students who have very well-defined career objectives which require a combination of physics with another discipline. Students should consult with the Physics graduate program advisor to establish a course sequence for the MBS degree.

**Master's Comprehensive Exam**

There is an exit oral exam called the Master's Comprehensive Exam which must be passed by all students. Students electing the thesis option may substitute an oral defense of their thesis. The committees for such exit exams will consist of three members of the graduate faculty, one of whom is to be the student's adviser. The other two members will typically be from the physics department, but one may be selected from a related discipline such as electrical engineering, mathematics, computer science or chemistry.

**Political Science**

Professor: James Null; Professors Emeritus: Busey and Pierce; Associate Professors: C. David Moon, Dan Ponder and Paul Sondrol (Chair); Assistant Professors: Joshua Dunn and Patricia Keilbach.

**Political Science - Bachelor of Arts**

Students majoring in political science must complete a minimum of 36 semester hours in the discipline, of which 30 hours must be with a grade of C or better. At least 21 hours must be in upper-division courses. The program offers four major tracks, one general and three representing important subfields of political science: American Politics/Public Law, Global Politics, and Public Administration. All four tracks are designed to prepare students for professional careers in the public or private sector, or graduate or professional study. Federal, state and local governments are important



employers of political science graduates. In the private sector, including non-profits, the increasing interaction with government creates a growing demand for graduates with an understanding of political systems, domestically and internationally. Political Science, Law, and Public Administration are common graduate fields of study for our graduates.

### **Degree Tracks**

#### **General**

Students majoring in the general track are required to take P SC 101 and 110, or equivalent lower-division courses with the approval of the department chair; P SC 250, and either P SC 442 or 445. Students should plan to complete P SC 101, 110 and 250 prior to taking upper-division courses. In addition, students should plan to take at least one upper-division course from each subfield (American Political Institutions and Behavior, Global Politics, and Public Administration, Policy and Law).

#### **American Politics/Public Law**

Students majoring in the American Politics/Public Law track are required to take P SC 101, 110, and 210 or equivalent lower-division courses with the approval of the department chair; P SC 250; P SC 440; either P SC 442 or 445; P SC 447; and P SC 450 or an approved equivalent. Students should plan to complete P SC 101, 110, 210 and 250 prior to taking upper-division courses. In addition, students in this track must complete three additional courses from among those listed under American Political Institutions and Behavior or Public Administration, Policy and Law.

#### **Global Politics**

Students majoring in the Global Politics track are required to take P SC 101 and 110, or equivalent lower-division courses with the approval of the department chair; P SC 250; P SC 421; P SC 422; and P SC 442. Students should plan to complete P SC 101, 110, and 250 prior to taking upper-division courses. In addition, students in this track must complete three additional courses from those listed under Global Politics.

#### **Public Administration**

Students majoring in the Public Administration track are required to take P SC 110 and 210, or equivalent lower-division courses with the approval of the department chair; P SC 250; P SC 432;

P SC 440; P SC 445; and P SC 446. Students should plan to complete P SC 110, 210, and 250 prior to taking upper-division courses. Students in this track must complete three additional courses from among those listed under Public Administration, Policy and Law.

#### **Minor In Political Science**

Students majoring in other Letters, Arts, and Sciences disciplines may elect a minor in political science, global politics, American politics and public law, or public administration. A minor requires a minimum of 18 hours of coursework in political science, to include P SC 101 and P SC 110, except for the minor in public administration, which requires P SC 110 and P SC 210. For the general political science minor, students must complete at least nine hours of upper-division coursework of their choice. For the global politics minor, at least nine hours must be selected from the global politics section. For the American politics and public law minor, nine hours of upper-division must come from either American Political Institutions and Behavior or Public Policy, Administration and Law. The public administration minor must include nine hours of upper-division coursework from Public Policy, Administration and Law.

#### **Prelaw**

Students planning to attend law school should consult with Jim Colvin, JD, prelaw advisor.

#### **Departmental Honors Requirements**

The Department of Political Science offers honors for students who have demonstrated high academic achievement. In order to be awarded departmental honors, a student must:

- a) have an overall CU GPA of 3.0 or better; AND have a 3.5 or better in political science courses;
- and EITHER
- b) enroll in P SC 450, in which students complete a major research paper;
- OR
- c) submit a major research paper prepared for another upper division political science course to a committee of the faculty of the department, and if the faculty deems the paper of sufficient merit, the student will be awarded honors.

The level of honors is dependent on completion of a) and either b)

and c) above, and the level of the departmental GPA. Students who meet these requirements and have a political science GPA of between 3.5 and 3.69 will receive Distinction, those whose political science GPA is between 3.7 and 3.89 are eligible for High Distinction, and those with a political science GPA equal to 3.9 or above are eligible for Highest Distinction.

#### **Internships**

The department encourages all students to consider enrolling for an internship during their tenure at the university. Internships give students "hands on" experience in the public sector, giving students a greater appreciation for the complexity of politics and policymaking and of the legal system. The department places students in three kinds of internships: prelaw (P SC 948), legislative, with U.S. or Colorado legislators (P SC 348), and public agency internships in governmental or non-profit agencies (P SC 398). Students may earn up to six credits in P SC 348 or 398, and should see Professor Ponder for more information. The prelaw internship (P SC 948) may earn up to three hours of credit. Interested students should see Professor Ponder.

#### **Course Offerings**

Courses at the 100 level are designed for beginning students and 200 level courses are taught at the sophomore level. Remaining courses are structured in a more advanced manner. Students without previous courses in political science should consult appropriate instructors before attempting to take courses numbered 300 and above.

#### **American Political Institutions and Behavior**

- P SC 103-3 Colorado Politics
- P SC 301-3 Women in Politics
- P SC 303-3 Political Parties
- P SC 305-3 Race and Ethnicity in American Politics
- P SC 348-3 to 6. Legislative Internship
- P SC 402-3 The American Congress
- P SC 404-3 Political Interest Groups
- P SC 405-3 Public Opinion and Political Behavior
- P SC 408-3 U.S. Electoral Process
- P SC 439-3 The Presidency
- P SC 440-3 Government and Society

#### **Global Politics**

- P SC 311-3 Emerging Nations
- P SC 321-3 Western European Political Systems

P SC 322-3 Eastern European Political Systems  
 P SC 413-3 Latin American Politics and Development  
 P SC 418 Gender in International Politics  
 P SC 421-3 International Politics  
 P SC 422-3 Comparative Politics  
 P SC 423-3 The United States in World Politics  
 P SC 424-3 Russian Foreign Policy  
 P SC 425-3 International Law  
 P SC 426-3 International Organizations  
 P SC 427-3 Latin America in World Politics  
 P SC 429 International Environmental Politics  
 P SC 434-3 National Security Organization and Policymaking  
 P SC 453 Model United Nations

#### **Public Policy, Administration and Law**

P SC 330-3 The Bureaucrats  
 P SC 398-3 or 6 Public Administration Internship  
 P SC 406-3 State Political Systems  
 P SC 407-3 Urban Politics  
 P SC 432-3 Public Administration  
 P SC 435-3 Environmental Policies and Administration  
 P SC 446-3 Administrative Law  
 P SC 447-3 Introduction to Constitutional Law  
 P SC 448-3 Constitution and Individual Rights  
 P SC 449-3 The Judicial System  
 P SC 451-3 Defendant's Constitutional Rights  
 P SC 948-3 or 6 Prelaw Internship

#### **Other Courses**

P SC 498-1 to 3 Special Problems in Political Science  
 P SC 940-1 to 3 Independent Study

## **Psychology**

Professors: Frederick Coolidge, Hasker Davis, Edith Greene, Tom Pyszczynski, Sara Qualls and Sandy Wurtele;  
 Associate Professors: Charles Benight, Robert Durham (Chair), Kelli Klebe, and Dan Segal; Assistant Professors: Livia Gilstrap, Lori James, Michael Kisley, and Stacey Wood.

### **Psychology Department Goals**

1. Acquire a solid knowledge base of psychological terms, assumptions, concepts, principles, theories, and research methods and findings associated with the major psychological perspectives (e.g., psychodynamic, behavioral, cognitive, personality, learning, biopsychology).
2. Acquire knowledge of several areas of specialization in psychology (e.g.,

developmental, abnormal, social, cognitive, personality, learning, biopsychology).

3. Demonstrate an understanding of and the ability to apply the fundamentals of research methodology and statistical analysis to the interpretation and evaluation of psychological data and research reports.
4. Demonstrate the ability to communicate knowledge of the field of psychology both orally and in writing, the latter following the American Psychological Association guidelines.

## **Psychology – Bachelor of Arts**

The major program consists of at least 36 hours and not more than 54 hours of psychology courses, of which at least 18 must be in upper-division courses (300/400 level). Students should begin their studies with the three required courses: PSY 100 General Psychology, PSY 210 Introduction to Psychological Statistics, and PSY 211 Introduction to Psychological Research and Measurement. Beyond the introduction and methodology courses, students are required to take four courses from the seven core content areas. The core areas are Abnormal (Psy 328), Personality (Psy 324), Developmental (Psy 362), Social (Psy 340), Cognition and Learning, (Psy 313, 314, or 320), and Biopsychology (Psy 327). Students are also required to take one Advanced Seminar. Psychology majors must earn a grade of at least C- in the three required courses, the four core content courses, and the one Advanced Seminar. Other psychology courses taken by the students should be planned with the student's advisor.

Accountability examination: All graduating psychology majors will take an "Accountability Examination." The examination samples the student's understanding of the core content areas. Students can sign up to take the exam in the department office during their senior year. The exam is given several times during each semester.

### **Minor in Psychology**

The minor in psychology consists of at least 20 hours of psychology courses, of which nine must be upper-division courses (300/400 level). Students should begin their studies with two required courses, PSY 100 General

Psychology, and PSY 210 Introduction to Psychological Statistics. Minor students may substitute an equivalent statistics course taken from another major area for PSY 210. Students are also required to take two of the seven core content courses (Abnormal, Personality, Developmental, Social, Cognitive, Learning, and Biopsychology). Psychology minors must earn a grade of at least C- in the two required and core content courses. In addition to these guidelines, students should follow the general guidelines for minors in the College of Letters, Arts, and Sciences.

### **Honors Program**

In addition to the normal undergraduate curriculum in psychology, the department offers interested and qualified undergraduates an opportunity to further increase the breadth and depth of their psychological training through the Departmental Honors Program. Prior to or during the first semester of the junior year, interested students should contact any psychology faculty member regarding the prospect of departmental honors work.

## **Psychology — Master of Arts**

The Department of Psychology offers coursework and thesis supervision for a master of arts degree. The program offers two tracks: clinical, and general experimental psychology with various subspecialties such as neuropsychology, social psychology, program evaluation, psychology and the law, psychometric theory, memory and aging, and cognitive development. Both tracks are designed to prepare students for doctoral programs. A majority of students are subsequently accepted into doctoral programs. The program is designed to be completed in two academic years and includes a thesis requirement.

Applicants should have the following credentials:

1. A BS or BA degree or its equivalent from an accredited college or university.
2. An overall average of B or above in all undergraduate courses.
3. Graduate Record Exam scores of at least 1100 cumulative on the verbal and quantitative sections. The advanced psychology test is strongly recommended.

4. An adequate undergraduate program in psychology including college-level mathematics, statistics, experimental psychology, and some background in the biological, physical, and social sciences.
5. Applicants to the clinical track should also have coursework and community experience in applied psychology.

Promising students who do not meet all the requirements may be considered as applicants. Admission to the program is competitive.

#### **Application Material and Deadline**

The application deadline for fall admission is January 1.

For information and application for the master's program, see the following website: [www.uccs.edu/~psych/pages/ma\\_apply.htm](http://www.uccs.edu/~psych/pages/ma_apply.htm).

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### ***Psychology — Doctorate of Philosophy***

The Department of Psychology offers coursework and dissertation supervision for a Doctorate of Philosophy degree. The program is designed to produce specialists in the normal and abnormal psychological processes that accompany aging (Geropsychology). The program trains students in mental health assessment and intervention for older adults, and basic and applied research on the psychological functioning, social psychology, psychology and law, program evaluation, and cognition. For more information on faculty and their area of specialization, see [www.uccs.edu/~psych/faculty/faculty.htm](http://www.uccs.edu/~psych/faculty/faculty.htm). Students will be trained to work in a range of settings, including mental health clinics, clinical practices, hospitals, nursing homes, colleges and universities, state offices, research institutes, and as consultants to a wide variety of housing and social service providers to older adults.

#### **Program requirements**

Although the specialty focus of this program is in geropsychology, the students must have a solid base in the general knowledge of psychology. Students must demonstrate competence in basic psychology, as well as geropsychology. Students entering this program are essentially agreeing to focus their work on aging rather than sampling the variety of populations and problems that might form the elective offerings in another program.

The clinical program adheres to the scientist-practitioner model of training, commonly referred to as the Boulder model. Under this model, professional psychologists are trained to be both scientists and practitioners with the goal of enhancing the interplay between science and practice.

The clinical curriculum will require at least five years of post-baccalaureate work to accomplish requirements of the doctoral degree. Students complete required and elective courses, a comprehensive exam, a dissertation of original scholarship. The clinical curriculum requires specific coursework required for licensure and accreditation, a clinical practica, and an offsite fifth year internship. Students who enter the program with a B.A. or B.S. degree will earn an M.A. en route to the doctoral degree through the mechanism of the existing M.A. program.

#### **Admissions Requirements**

Applicants should have the following credentials:

1. A B.S. or B.A. degree or its equivalent from an accredited college or university.
2. An overall average of 3.0 ("A" is equivalent to 4.0) or above in all undergraduate courses, and 3.5 or better on all graduate coursework.
3. Graduate Record Exam scores of at least 1200 cumulative on the verbal and quantitative sections. The advanced psychology test is strongly recommended.
4. An adequate undergraduate program in psychology including college-level mathematics, statistics, experimental psychology, and some background in the biological, physical, and social sciences.
5. Applicants should have career goals consistent with the program specialization in geropsychology.

Promising students who do not meet all the requirements may be considered as applicants.

Applicants with previous graduate coursework or degree may request a review of their transcript and related materials to determine whether specific courses or thesis requirements may be waived.

#### **Accreditation**

Accreditation of this program will

be sought from the Committee on Accreditation that is co-sponsored by the American Psychology Association and the American Psychological Society at the earliest point of eligibility.

#### **Application Material and Deadlines**

The application deadlines for Fall admission each year is January 1st. See the following website for an online application.

[www.uccs.edu/~psych/pages/phd\\_apply.htm](http://www.uccs.edu/~psych/pages/phd_apply.htm)

#### **Contact Information**

Questions concerning the Geropsychology program can also be addressed by calling 719-262-4500 or emailing [ddubois@uccs.edu](mailto:ddubois@uccs.edu).

All written correspondence and credentials should be mailed to:

Geropsychology  
Doctoral Program  
Departments of Psychology  
UCCS 1420 Austin Bluffs Parkway  
Colorado Springs, CO 80933-7150

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### ***Sociology***

Professors Emeritus: Jay Coakley, Robert Hughes, and Barbara Lorch; Professor: Richard Dukes; Associate Professors: Lynda Dickson, Abby Ferber and Kee Warner (Chair); Assistant Professors: Heather Albanesi and Michele Companion; Instructors: Kate Kane and Patricia Walker.

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### ***Sociology — Bachelor of Arts***

Majors in Sociology must complete a minimum of 36 hours in Sociology, at least 18 hours of which must be upper-division courses (300 or 400 level). Courses at the 500 level may be taken by qualified undergraduates with the consent of the instructor.

#### **Requirements for Bachelor's Degree in Sociology**

1. A minimum of 36 hours of course work in Sociology, which must include:
  - a. Each of these Core Courses:
    - SOC 111-4 Introduction to Sociology
    - SOC 212-4 Introduction to Social Research
    - SOC 315-3 Modern Sociological Theory
    - SOC 317-4 Social Statistics
  - b. And, three courses selected from the following:

- SOC 322-3 Community and Urban Sociology
- SOC 329-3 Perspectives on Race and Ethnicity
- SOC 341-3 Sociology of Law
- SOC 360-3 Introduction to Social Psychology
- SOC 361-3 Gender and Society
- SOC 364-3 Sociology of Popular Culture

2. Completing the Sociology Field Test from Educational Testing Services during the final semester of course work. Dates and times for the test will be announced.

**Certificate in the Sociology of Diversity**

The sociology department has a strong emphasis in diversity and inequality issues, highlighting race and ethnicity, gender, sexuality, and class. For sociology majors, minors, and other students wishing to concentrate in these areas, we offer a certificate of specialization. Completion of the certificate provides evidence of specialized study, which can be beneficial for enhancing future career options and interests. The certificate is marketable to a wide variety of employers and educational institutions, including social work, graduate and professional schools, community action organizations, and social services. Participation in the certification program also provides students with opportunities for networking and mentoring. Dr. Abby Ferber is the coordinator of the Certificate in the Sociology of Diversity.

- **Minimum requirement for completion:** four courses, for a total of twelve credits.
- A minimum grade of 3.3 is required for each course applied toward the certificate.
- To satisfy the certificate requirements, all courses must be at 300 level or above in Sociology.

Independent studies may not be used to earn this certificate. All courses must be offered through the Sociology department upon approval of the Certificate Coordinator. Up to three Sociology transfer credits may be applied to the certificate. Students must take at least one course from each of the categories below:

**Race and Class**

- 220 – Intro to Racial and Ethnic Groups
- 321 – American Minority Communities
- 323 – The Chicano Community
- 324 – African-American Community

- 325 – Power, Privilege, and Social Difference
- 329 – Perspectives on Race and Ethnic Relations
- 431 – Social Inequalities

**Gender and Sexuality**

- 211 – Sex and Society
- 225 – Images of Women in Society
- 361 – Gender and Society
- 404 – Sociology of Gender & Sexuality
- 408 – Sociology of Men’s Lives

Additional special topic courses may be offered that can be counted toward the certificate. These courses must be approved in advance by the Certificate Coordinator.

**Certificate in Criminology and Justice Studies**

The sociology department has a strong emphasis in multiple aspects of the criminal justice system, highlighting the impact of law and society, corrections systems, and structures of deviance in the social order. For students wishing to concentrate in these areas, we offer a certificate of specialization. Completion of the certificate provides evidence of specialized study, which can be beneficial for enhancing future career options and interests. The certificate is marketable to a wide variety of employers and educational institutions, including the Department of Corrections, law enforcement, law school, social work, graduate and professional schools, and social services. Participation in the certification program also provides students with opportunities for networking and mentoring. Dr. Michèle Companion is the coordinator of the Certificate in Criminology and Justice Studies.

- **Minimum Requirement for Completion:** 4 courses, for a total of 12 credits.
- A minimum grade of 3.3 is required for each course applied toward the certificate.
- SOC 341 (Sociology of Law) and SOC 340 (Criminology) are mandatory for completion of the certificate.
- To satisfy the certificate requirements, all courses must be at level 300 or above in Sociology.

Independent studies may not be used to earn this credit. Upon approval by the Certificate Coordinator up to three sociology transfer credit hours may be applied to the certificate. Additional courses that are eligible to fulfill this requirement include, but are not limited to the following:

- SOC 419 – Deviant Behavior
- SOC 452 – Sociology of Corrections and Rehabilitation
- SOC 496 – Juvenile Delinquency

Additional special topic courses may be offered in a given semester that can be counted toward the certificate. These courses must be approved in advance by the Certificate Coordinator.

**Certification Process**

Students wishing to enroll in a certificate program must turn in an application to the Certificate Coordinator, ideally when they declare their major. Students are strongly encouraged to enroll by their junior year to ensure that certificate requirements are met. Students that are not sociology majors or minors must complete 3 credit hours of additional lower division sociology credit before enrolling in the certificate program.

Students must submit their transcript to the coordinator to verify that they have met the requirements for the certificate at the beginning of their final semester. To complete the certificate program, students are required to submit a five-page, typewritten self-statement, evaluating changes in their perceptions of diversity issues as a result of program participation and implications for future scholarly and professional work. The certificate will be mailed to recipients upon completion of a certificate audit and graduation.

**Minor in Sociology**

Students seeking a minor must complete a minimum of 22 hours in sociology, at least 12 hours of which must be upper-division courses (300 or 400 level). Specific courses which must be completed for the minor include the following: SOC 111 (Introduction to Sociology), SOC 212 (Introduction to Social Research), and either SOC 315 (Modern Social Theory) or SOC 317 (Social Statistics). The remaining 12 hours should be chosen according to the student’s academic interests and goals. Students may consult with sociology faculty to identify courses that best address their academic and professional interests.

**Master of Arts in Sociology**

The Department of Sociology offers a Master of Arts degree in Sociology. All coursework for the M.A. degree can be taken on the Colorado Springs campus,



although students may take appropriate and approved courses at the Denver or Boulder campuses. Admission to the M.A. program in Colorado Springs does not constitute admission to the graduate programs at Denver or Boulder. There are two options for completing the requirements for the degree:

### **Plan I - Requirements**

Plan I students must complete a total of 24 hours of approved course work, including the required courses, plus an acceptable thesis for 6 hours of credit.

### **Plan II - Requirements**

Plan II students must complete a total of 30 hours of approved course work, including the required core sociology courses and are encouraged to develop individualized areas of concentration with their elective credits. Elective coursework may include approved courses from other UCCS Graduate programs, for example the Graduate School of Public Affairs, Applied Geography and the College of Education.

### **Core Courses Required for M.A. Degree**

SOC 505-1 Proseminar in Sociology

SOC 507-4 Seminar on Research Methods

SOC 516-3 Seminar on Social Theory II (Students that have not taken an undergraduate course in Social Theory are also required to take SOC 515-3 Seminar in Social Theory I.)

Add ONE of these:

SOC 517-4 Seminar on Advanced Statistics and Research Methods

OR

SOC 518-3 Seminar: Community Organization and Analysis

All M.A. students must pass the Preliminary and Qualifying Exams and either a Thesis Defense or a Comprehensive Examination, as defined below.

### **The Qualifying Examination:**

Students' progress will be reviewed after completion of the first 6 hours of graduate level courses to ensure adequate qualifications to proceed in the program. Students found to be not well prepared in statistics will be required to take SOC 502 and those not well prepared in social theory will be required to take SOC 503. Students will be notified of the results of this review process and appropriate recommendations for further progress will be included.

**The Preliminary Examination:** After completing 18 graduate hours, including the required core sociology courses, students must prepare an admission to candidacy form (available from Shari Patterson, Graduate Program Coordinator). The student's academic record will be reviewed and a plan for either a thesis (Plan I) or coursework (Plan II) must be approved to continue in the program. If problems are identified, appropriate steps will be specified in order to become a candidate for the degree.

**Plan I: Thesis Defense:** Upon completion of the master's thesis and approval of the Chair of the thesis committee a defense is scheduled. The goal of the defense is to provide for a thorough discussion of the thesis project, and exploration of issues and implications for continued research in the thesis topic.

OR

### **Plan II: Comprehensive Examination:**

The comprehensive examination is based on a discussion of the materials provided by the student in her/his graduate student portfolio. During the examination the student is asked to summarize her/his educational development in the program and relate this to further academic work and/or career plans. The graduate student portfolio should include: 1) a self statement detailing the student's goals and what he/she has learned; 2) an academic resume; and, 3) copies of papers from each of the required sociology courses. Portfolios should be turned in to the graduate program coordinator two weeks before the comprehensive examination. Portfolios are not returned to the student, but become part of the graduate archive in the sociology department.

### **Admission Requirements**

Application for admission is made directly to the Director of Graduate Studies, Department of Sociology, University of Colorado at Colorado Springs, P.O. Box 7150, Colorado Springs, CO 80933-7150

### **Admission as a Regular Degree Student:**

To be admitted as a regular degree student, an applicant must:

- hold a baccalaureate degree from an accredited college or university or have completed work equivalent for such a degree and equivalent to the degree given at this university;

- have an undergraduate grade-point average of at least 2.75;
- have adequate preparation to begin graduate study in sociology;
- show promise for advanced study and research, as judged by the applicant's previous scholastic record;
- have three letters of recommendation from instructors or employers;
- have completed the Graduate Record Exam; and
- be recommended for admission to a regular degree status by the Graduate Faculty in the Department of Sociology.

### **Admission as a Provisional Degree**

**Student:** An applicant who does not meet the minimum requirements for admission as a regular degree student may be admitted on a provisional basis. To convert to regular degree status the student may be required to complete courses to make up deficiencies and/or demonstrate the ability to successfully perform graduate work.

### **Guaranteed Admission Policy**

Students who complete a major in Sociology at UCCS and achieve a minimum grade point average of 3.0 overall and a 3.25 in sociology will be guaranteed admission to the Department's M.A. program. For students meeting these requirements the Graduate Record Exam (GRE) and letters of recommendation will be waived. Students who do not meet these requirements will be guaranteed provisional admission to the M.A. program if:

- they have at least a 2.75 GPA and
- an acceptable score on the GRE
- they are deemed to have adequate preparation to begin graduate study in sociology

### **Five-Year Program**

The traditional M.A. program in Sociology is designed to allow completion in one year (fall, spring and summer semesters) of full-time study by those who have a strong background in Sociology. The possibility of completing the M.A. degree with only a 5th year of study is enhanced for students who complete appropriate graduate level courses while an undergraduate, if these courses are not counted toward the total number of hours required for completing the B.A. degree. Students may apply for up to eight hours

of such course work to be counted toward fulfilling the M.A. requirements, in much the same manner as graduate credits earned in graduate programs in other departments may be transferred toward the M.A. degree in sociology.

### **Financial Assistance**

A limited number of graduate assistantships for new and continuing students are available from the sociology department. These are awarded on the basis of both need and merit in compensation for assisting with departmental programs of instruction and research. Contact the Sociology Office for application forms and deadlines. Additional support may be available from the Graduate School.

### **Additional Requirements**

The student is referred to the Graduate School section of this course Bulletin for a complete listing of all rules and regulations that apply to MA programs on this campus of the University of Colorado.

Information and applications for admissions may be obtained from:

Shari Patterson, Graduate Program Coordinator, Department of Sociology, P.O. Box 7150 Colorado Springs, CO 80933-7150

## **Visual and Performing Arts**

Professors: Louis Cicotello, Lin Fife; Professor Emerita: Julia Hoerner; Associate Professors: Robert von Dassanowsky, Suzanne MacAulay (Chair), Teresa Meadows; Assistant Professors: Elissa Auther, Valerie Brodar, and Laura Tesman; Assistant Professors Attendant Rank: Kathryn Andrus, Gerald Riggs, and Murray Ross; Senior Instructors: Curtis Smith and Glen Whitehead; Instructors: Carol Dass, Christopher Lowell, and Lenore McKerlie; Producing Director, Theatreworks: Drew Martorella.

### **Visual and Performing Arts – Bachelor of Arts**

The Visual and Performing Arts department offers a cross-disciplinary degree that encourages innovative collaboration among disciplines. The focus integrates art history, film studies, gallery management, music, theatre, and visual arts. Students will complete this degree with a primary

concentration in one area and develop a fundamental knowledge in each of the major disciplines. Through studio arts, performance, theory, scholarship, and creative uses of media and technology, students will engage in an investigative approach to the arts where the local and global coverage, where cross-fertilization inspires critical thinking, dialogue, improvisation, and where diversity is intrinsic to artistic process and practice. When students complete this degree they will have the skills and knowledge to enter graduate school or pursue different careers in the arts.

The Gallery of Contemporary Art, the Heller Center for Arts & Humanities, Theatreworks, and the Visual Resource Center offers students opportunities and venues for professional practice and interactions with visiting artists and scholars.

The Visual and Performing Arts degree is composed of a primary concentration and a group of core VAPA and interdisciplinary courses. The following distribution outlines the requirements for the degree.

60 credits total:  
30 Primary Field (max 42)  
1 VAPA Foundation  
2 VAPA Upper-division  
1 VAPA Capstone  
6-12 Auxiliary Courses (lower and upper division credits)

#### **Arts Fees**

A program fee of \$45 per semester will be assessed to all students enrolled in Visual and Performing Arts courses. In addition, all students enrolling in visual art courses and certain art history courses will be assessed fees to help defray the cost of supplies. Course fees will be assessed as follows: \$20 per class per semester with a \$40 maximum total fee per semester, with a fee of \$30 per photography class. There is a full refund of the deposit for courses dropped the first two weeks of the term.

#### **Art History Option**

Students intending to earn a Bachelor of Visual and Performing Arts with an art history option must complete 57 credit hours in VAPA art history and cross-disciplinary courses.

To complete the OPTION component, 33 credit hours in art history courses are required. AH 100: Languages of Art and AH 400: Research and Seminar in Art History are required. In addition, 12

credits must come from lower division survey level courses and 12 credits must come from upper division courses distributed among four different areas of study. These areas include: Ancient Cultures, the Medieval World, the Art of Africa, North American Native Arts, Renaissance and Baroque Art of Europe, The Arts of the Pacific Rim, Modern European or American Art, Latin American Art, African American Art, the History of Women in the Arts, Public Art and Architecture, Art of the Contemporary Period, and Current Issues in Art History. 6 credits must come from VA courses. Courses can be selected from the following list: VA 101: Beginning Studio 2D, VA 102: Beginning Studio 3D, VA 103: Introduction to Photography, VA 104: Beginning Drawing, VA 204: Beginning Painting, VA 210: Digital Imaging, or VA 219: Weaving. Students with the proper prerequisites may elect to take upper division visual arts courses (for instance, VA 301: Advanced Drawing) to fulfill this requirement.

The CROSS-DISCIPLINARY component requires students to complete 6 credit hours within VAPA but outside the specialty of art history. The art history faculty recommends courses in fine arts and film studies for art history majors, but courses in music and theater are also appropriate. An additional 6 credit hours must be selected from upper division interdisciplinary courses with a VAPA rubric.

A total of 57 credits are required to complete the VAPA major with an art history option.

33 credits in Art History:  
AH 100 (3 credits)  
Four AH 200 level survey courses (12 credits)  
Four upper division AH courses (12 credits)

Two fine arts courses (6 credits)  
12 credits in VAPA core:  
Introductory VAPA course (3 credits)

Two interdisciplinary courses (6 credits)

Capstone VAPA course (3 credits)

12 credits representing the Interdisciplinary Component of VAPA:  
Two electives anywhere inside VAPA but outside art history (6 credits)

Two upper division interdisciplinary courses with VAPA rubric (6 credits)

The faculty considers foreign language study in French or German to be

the most appropriate for art history students.

Art history courses are offered on a rotating basis; not all courses are available every semester. Students should check the current Schedule of Courses.

**TRANSFER STUDENTS NOTE:** The department requires nine hours of art history coursework at UCCS as the minimum component for this option in the degree program.

### **Film Studies Option**

The Film Studies option in the Visual and Performing Arts major is devoted to the study of film as a multicultural and transnational artistic discipline. The emphasis of this track is on film history, theory, and analysis. The department provides an interdisciplinary approach to the study of the moving image, which prepares the student for graduate programs in advanced film and media study or as a component to filmmaking.

The VAPA major with the film studies option requires 36 hours of coursework in the subject in addition to the requirements for the overall VaPA major. The two required initial courses, FILM 100 Introduction to Film Studies, and FILM 200, Narrative Film offer a basic approach to film analysis through the study of composition, genre, plot structure, symbolism, and general cinema history. Other film studies courses explore a variety of national cinemas, offer specialized genre, period, or director study, and focus on various special topics. The Film Studies major emphasis requires all advanced students to complete FILM 450 Film Theory and either FILM 403 Internship in Film Studies or FILM 940 Independent Study. Both non-production (festivals, journalism, teaching assistant duties, etc.) settings are recommended for the internship experience, but a production setting is acceptable if the student has filmmaking knowledge and demonstrated ability. Independent study is restricted to majors and consists of a research project dealing with some aspect of the film studies program not covered in course offerings. The student must propose the topic to a film studies faculty member who serves as the student's instructor.

#### Required Courses

FILM 100-3. Introduction to Film Studies  
FILM 200-3. Narrative Film.

#### Elective Courses

FILM 280/ENGL 280-3. Film and Fiction.  
FILM 345/GER 345/FCS 345-3. German and Austrian Film.  
FILM 350/COMM 350-3. American Cinema.  
FILM 369/SPAN 369/FCS 369-3. Hispanic Culture Through Film.  
FILM 371-3. Great European Film Directors.  
FILM 372-3. Russian Avant-Garde Cinema.  
FILM 373-3. Russian Art Cinema.  
FILM 390-3. Special Topics in Film.  
FILM 395-3. Women in Film.  
FILM 398/HIST 398-3. The Vietnam War Through Film.  
FILM 399/HIST 399-3. European Film/ European History.  
FILM 403-1 to 3. Internship in Film Studies.  
FILM 411/FRENCH 411/FCS 399-3. French or Francophone Film.  
FILM 450. Film Theory.  
FILM 940-1 to 3. Independent Study.  
PHIL 460-3. Theory of Film.

### **Music Option**

The music option in the department of Visual and Performing Arts offers opportunities for rigorous scholarship, performance, and interdisciplinary collaborations. Students can minor in music through a comprehensive plan, which includes a program of Music Theory, Ear Training / Rhythm, a diverse spectrum of music history classes in European Classical Music, Ethnomusicology, 20th Century Contemporary Music, Popular Music, Jazz and Improvised Music, and opportunities to participate in instrumental and choral ensembles. For students majoring in the Visual and Performing Arts, innovative classes are offered that address historical and contemporary practices of interdisciplinary collaboration between music and other artistic disciplines. Digital recording and computer assisted music production software are available for collaborative work. In addition, issues of music and culture are explored through cross-listed classes with Ethnic Studies and Women's Studies.

#### Curriculum Electives

Lower division: MUS 100, Intro to Music; MUS 131, University Choir; MUS 205, History of Jazz; MUS 210, Rock and Roll Music; MUS 225, Jazz Ensemble.

Upper division: MUS 375, 20<sup>th</sup> Century Music; MUS 385, Symphonic Literature; MUS 493 or 495, Special Topics.

### **Theatre Option**

The Theatre Program offers a Major in Visual and Performing Arts with a Theatre option and a Minor in Theatre (see Visual and Performing Arts – Minors). The basic sequence of required courses comprising the Theatre option is designed to provide the student with a theoretical/ historical grounding in the art of the theatre and the opportunity to put theories into practice in performance situations. Electives allow students to create a focus of study according to their interests. The academic theatre program will normally sponsor a student production and a theatre festival every spring semester, and encourages student-generated projects. Students may also have the opportunity to participate in productions of Theatreworks, the regional repertory company at CU-Colorado Springs. Students are advised that theatre courses, especially acting courses, are progressive and should be taken in sequence.

#### Requirements

The VAPA Major with a Theatre option requires a minimum of 30 (maximum 42) hours of coursework beyond the Core, 18 of which must be upper-division courses.

All students must complete the following THREE required lower-division courses:

THTR 100-3: Introduction to Theatre  
THTR 200-3: Introduction to Technical Theater  
THTR 202-3: Acting Workshop I  
These THREE upper-division courses are also required:  
THTR 320-3: History of Theater I  
THTR 321-3: History of Theatre II  
THTR 406-3: Directing I

And all students must participate in at minimum FIVE productions earning PRACTICUM credits in at least two areas:

THTR 336-1: Acting Practicum  
THTR 337-1: Technical Practicum  
THTR 407-1: Directing Practicum

### **Visual Art Option**

Visual Art is an option within the VAPA major.

Required VAPA courses include an introduction, two upper division and a capstone course.

VA101 Beginning Studio 2D, VA102 Beginning Studio 3D, VA104 Beginning



Drawing, and AH100 Languages of Art are core requirements and must be completed before enrollment in any 200/300/400 level visual arts course. VA398 Seminar in Studio Problems, AH386 Contemporary Art, and VA498 Professional Seminar are upper division requirements.

In addition 9 hours of VA 200/300, 12 hours of VA 300/400, and 6 hours of cross-disciplinary courses in AH, GM, FILM, MUS, or THT are also required for a total of 60 credits.

300/400 level courses may be repeated once for credit.

It is recommended that a student meet with a member of the visual art faculty for advising once a year.

The Department of Visual and Performing Arts maintains the right to retain a limited number of examples of outstanding student work for its permanent collection.

Students interested in teaching art at the K-12 level should develop a comprehensive undergraduate major in Visual and Performing Arts and check with the College of Education for requirements for certification after graduation.

TRANSFER STUDENTS NOTE: The department requires a minimum of twelve hours of visual art coursework at UCCS as the minimum component for this concentration in the degree program.

### **Visual and Performing Arts – Minors**

The department offers minor programs of study in all six areas of its curriculum: art history, film studies, gallery management, music, theater and visual art. For information on minors not listed below, contact Suzanne MacAulay, Chair, at (719) 262-3865 or smacaula@uccs.edu.

#### **Film Studies Minor**

The Film Studies minor enriches many academic subjects and majors with its critical and multicultural exploration of cinematic expression.

The minor requires 18 hours of coursework, 12 of which must be in upper division credits. Two required courses, FILM 100 and FILM 200, offer the basics of film analysis in dominant and avant-garde cinema. Elective courses focus on national cinemas, current topics and genre/auteur study. Most electives

are cross-listed and students may refer to the cross-listing for a description of the course.

For a complete listing of Film Studies courses, see the Film Studies Option under the Visual and Performing Arts Major.

#### **Gallery Management Minor**

Gallery Management minor requirements: any three AH courses; GM 404 and 405 (Gallery Management I and II); and AH 456: Perspectives of Art or GM 940: Independent Study. (18 hours total).

#### **Theatre Minor**

The Minor in Theatre provides a basic introduction to the various elements of theatre and allows students to develop performing skills.

The Minor in Theatre requires 18 hours of coursework, 9 of which must be upper-division courses.

#### **All students must complete the following THREE required lower-division courses:**

THTR 100-3: Introduction to Theater

THTR 200-3: Introduction to Technical Theater

THTR 202-3: Acting Workshop I

#### **Choose ONE of these upper division courses:**

THTR 320-3: History of Theater I

THTR 321-3: History of Theatre II

THTR 322-3: What's Funny? The Nature and Form of Dramatic Comedy

THTR 328-3: Women in Theatre

And all students must participate in at minimum THREE productions earning PRACTICUM credits in at least two areas:

THTR 336-1: Acting Practicum

THTR 337-1: Technical Practicum

THTR 407-1: Directing Practicum

### **Women's Studies**

Associate Professor: Abby Ferber, Director; Instructor: Dena Samuels

#### **Minor in Women's Studies**

The minor may be obtained by students enrolled in any undergraduate program. Students must take at least 18 semester hours of designated Women's Studies courses with grades of C or better. WMST 200 (Introduction to Women's Studies) or WMST 201 (Introduction to Race and Gender) is the only course required for the minor degree. (Students may take only one of these two courses,

not both.) The remaining 15 hours may be chosen from designated courses. Transfer credits are limited to nine hours. Students may count up to three courses (nine credits) towards both the women's studies minor and their major at the same time.

The minor in women's studies also constitutes the basis for a major in distributed studies with a concentration in women's studies.

Students wishing to double minor in women's studies and ethnic studies are encouraged to consult the director.

#### **Exit Focus Group**

During the fall semester of senior year, each student is required to participate in an exit focus group (date to be announced). This is a mandatory meeting to discuss students' understanding and mastery of material present in the Program. Students will come to the exit focus group with an exit survey that will be distributed several weeks in advance of the meeting; and a one-page exit statement that (a) reflects upon and synthesizes their overall experience in the minor, specifically as it relates to their respective disciplinary fields; (b) assesses the overall effectiveness of the Program. (Guide questions for the exit statement will also be mailed to students in advance of the focus group meeting.)

In addition to providing students with the opportunity to reflect upon their experience in the program, the purpose of the exit focus group survey and statement is to allow the Women's Studies Curriculum Committee the opportunity to assess and improve the academic program.

The women's studies office is located in Columbine Hall 1024, and the office phone number is 262-4553; the Director's Office is in Columbine Hall 4005, and the phone number is 262-4139.

### **Preprofessional Curricula of the Professional Schools**

#### **Health Fields**

Professional programs are offered at facilities such as the Health Sciences Center in Denver, with preprofessional programs at Colorado Springs. Admission to a preprofessional program does not imply acceptance into the professional program; for example, more stringent

residency requirements are common, and many professional programs are very selective because of enrollment limitations.

The course requirements stated in the following sections are for the University of Colorado programs; other schools may have slightly different requirements. Students are advised to check the bulletins of all schools to which they may apply, as requirements continually change. Students should consult Letters, Arts and Sciences academic advisors for additional information. Admission to a professional program normally requires evidence of academic achievement and letters of recommendation documenting both academic and nonacademic qualifications. Each of the professional programs has many more applicants than it can accommodate, so no student should count on acceptance. Students are strongly urged to select undergraduate courses that provide the opportunity to apply to a number of different professional programs, as well as provide alternatives outside the health science fields.

Students should choose appropriate chemistry courses because courses are available at several levels of complexity. A student enrolling in courses suggested for premedical or pre dental students maintains the option of applying to any of the health fields; a student enrolling in less complex courses limits available options. Several preprofessional programs are based on the assumption that the student will be enrolled in Letters, Arts and Sciences for only two or three years. However, it is suggested that students assume they will graduate from the College of Letters, Arts, and Sciences and select courses and a college major that provide the potential for graduation.

Because of the complexities involved in planning, the student is urged to consult the preprofessional adviser early in his or her college career. Professor Pigage is the faculty adviser for premedical, preveterinary, pre dental, premedical technology, and prepharmacy programs and other allied health programs.

**Predental Hygiene**

In conjunction with the School of Dentistry, a baccalaureate degree program in dental hygiene is available at the University of Colorado. This is a "2+2" program with two years at Colorado Springs and two years at Denver. The

dental hygienist must satisfactorily complete a college program and pass the state board examination. After being licensed by the state in which he or she wishes to practice, the dental hygienist has many opportunities for employment in private dental offices, state and city health agencies, federal government agencies, public and private schools, boards of education, industrial dental clinics and hospitals, and in schools of dental hygiene as directors and teachers. Minimum requirements for admission to the University of Colorado program are completion of 60 semester hours including:

- General Biology (BIOL 110/111) .....8
- Biology 201-4 Human Anatomy and Physiology
- General Chemistry (CHEM 103 and 106) 10
- English Composition (ENGL 131 and 141) 6
- Psychology (PSY 100).....4
- Public Speaking (COMM 210).....3
- Sociology (SOC 111) .....4
- Human Anatomy and Physiology (BIOL 201)4

Information and application materials are available from: School of Dentistry, University of Colorado, 4200 E. Ninth Avenue, Denver, CO 80262.

**Predentistry**

Students planning to seek admission to the School of Dentistry should meet periodically during their undergraduate years with the faculty pre dental adviser concerning their curriculum. The majority of students accepted to the University of Colorado School of Dentistry have completed at least four years of undergraduate work and have received an undergraduate degree. Students must complete the Dental Admissions Test before entering dental school. The basic requirement for admission is completion of 90 semester hours (with at least 30 hours upper division) including:

- General Biology (BIOL 110/111 and 115/116) .....8
- General Chemistry (CHEM 103 and 106) 10
- Organic Chemistry (CHEM 331/333 and 332/334).....10
- Physics (PES 101/115 and 102/215)....10
- English Literature or Humanities.....6
- English Composition (ENGL 131).....3

**Other electives**

Because schools of dentistry vary in admission requirements, students are urged to check the bulletins of other dental schools where they might apply to determine specific requirements. Since

most pre dental students will graduate before entering dental school, it will be necessary to complete an academic major and other College of Letters, Arts, and Sciences degree requirements.

Information and application materials are available from: School of Dentistry, University of Colorado, 4200 E. Ninth Avenue, Denver, CO 80262.

**Premedicine**

Students planning to seek admission to medical school should consult the academic advisors of the College of Letters, Arts, and Sciences. They are also urged to meet periodically during their undergraduate years with a faculty adviser to discuss their premedical curriculum. Because schools of medicine vary in admission requirements, students are urged to check the bulletins of medical schools where they might apply to determine specific requirements.

The University of Colorado School of Medicine is a multifacility aggregate with all modern resources for the assessment and comprehensive health care of individuals of all ages. The curriculum is under constant study and has recently been extensively revised to meet the changing needs in medical education. The MCAT and a baccalaureate degree or at least 120 semester hours of college credit with a major leading to a degree are required. The MCAT must be taken before the November 1 application deadline. The following courses are required:

- General Biology (BIOL 110/111 and 115/116) .....8
- General Chemistry (CHEM 103 and 106) 10
- Organic Chemistry (CHEM 331/333 and 332/334).....10
- Physics (PES 101/115 and 102/215)....10
- Mathematics (Minimum requirement of algebra and trigonometry, MATH 135 and 136 recommended)..... 6-8
- English Literature .....6
- English Composition (ENGL 131).....3

Although many medical schools, including that of the University of Colorado, do not specifically require all of the above courses, the student who completes them successfully will have a substantial advantage in attempting to gain medical school admission. Students who deviate from the above program should do so only after consultation with a faculty adviser.

Information and application materials

are available from: School of Medicine, University of Colorado Health Sciences Center, 4200 E. Ninth Avenue, Denver, CO 80262.

**Prephysical Therapy**

Physical therapy is a health profession whose practitioners are involved in the treatment of abnormalities of the muscular, skeletal and nervous systems. Persons who are disabled as a result of pain, disease, injury or developmental delay are evaluated by a physical therapist who then plans and administers an appropriate therapeutic program. Rehabilitation of individuals with cardiac or pulmonary disease also involves physical therapy in the recovery process.

The physical therapy program at the University of Colorado is an entry-level master of science curriculum. A bachelor's degree (BS or BA) in a field other than physical therapy must be completed prior to matriculation into the professional program. Beginning in 2006, the physical therapy program will be a doctor of physical therapy (DPT). As such, different prerequisites will be required. Please see an academic advisor for details if you plan to apply for entry into the physical therapy program for 2006 or beyond. For entry into the physical therapy program for 2005, please follow the prerequisites listed below:

General Biology (BIOL 110/111 and 115/116) .....8  
 Functional Human Anatomy (BIOL 435-4)  
 General Chemistry (CHEM 103 and 106) 10  
 Physics (PES 101/115 and 102/215).....10  
 Developmental Psychology (PSY 362) .....3  
 Abnormal Psychology (PSY 328) .....3  
 English Composition (ENGL 131).....3  
 Biomechanics/Kinesiology (BIOL 455) .....3  
 Exercise Physiology (BIOL 330) .....3  
 Statistics (PSY 210 or other statistics) .....3

A minimum cumulative grade point average of 3.0 (4.0 scale) and a 3.0 science GPA are both required for application. The pass/fail option and grades below C will not be accepted in required courses. A score of 500 each on the verbal and quantitative portion as well as a 3.5 written assessment score from the GRE is required. Proficient computer skills will be required as well as 45 hours combined of field experience in three different areas: acute in-patient setting, out-patient setting, and long-term care facility. All science courses listed as prerequisites can be no older than seven

years at the time of matriculation.

The application process is completed on-line through the University of Colorado Health Sciences Center Physical Therapy Program website, www.uchsc.edu/pt/index.htm. The mailing address is Physical Therapy Program, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Box C-244, Denver, CO 80262, (303) 372-9144.

**Prepharmacy**

Students are referred to the School of Pharmacy, University of Colorado Health Sciences Center for information concerning admissions policies and details of the curriculum leading to the Doctor of Pharmacy degree.

Students accepted into the School of Pharmacy must have completed 60 semester hours of undergraduate work, including the following:

General Chemistry (CHEM 103/106).....10  
 Organic Chemistry (CHEM 331/332) .....10  
 General Biology (BIOL 110/111, 112, and 115/116).....8  
 Microbiology (BIOL 203).....4  
 Calculus (MATH 135).....4  
 English Composition (ENGL 131 and 141) 6  
 Speech & Thought Curriculum (COMM 210)3  
 Electives.....10  
 Human Anatomy & Physiology (BIOL 201)..4  
 Physics (PES 101/115) .....5  
 Social Science Elective .....3  
 Economics (ECON 101) .....3

The doctor of pharmacy is a "2+4" program with four years of professional pharmacy course work completed once admitted to the School of Pharmacy. All math and science prerequisite courses can be no older than seven years at the time of application.

PhD programs in pharmaceutical sciences are also available at the University of Colorado. Information and application materials for all pharmacy programs are available from: the School of Pharmacy, University of Colorado Health Sciences Center, Box C238, 4200 E. Ninth Ave., Denver, CO 80262.

**Preveterinary Medicine**

A preprofessional veterinary medicine curriculum prepares students to apply to a professional veterinary medicine program. In Colorado, a program is available at Colorado State University in Fort Collins. Students interested in this area should consult the bulletins of the

schools they may apply to for specific requirements. In general, at least 68 semester credits must be completed before admission to a veterinary program, including:

General Biology (BIOL 110/111 and 115/116) .....8  
 Genetics (BIOL 383).....3  
 General Chemistry (CHEM 103 and 106) 10  
 Organic Chemistry (CHEM 331/333 and 332/334).....10  
 Biochemistry (BIOL/CHEM 481) .....3  
 Physics (PES 101/115 .....5  
 Statistics (PSY 210 or BIOL 300) ..... 3-4  
 English Composition (ENGL 131).....3  
 Social Science and Humanities .....12

Additional courses which are highly recommended include microbiology, cell biology, developmental biology, computer science and nutrition. Since most pre-veterinary medicine students will graduate before entering veterinary school, it will be necessary to complete an academic major and other College of Letters, Arts, and Sciences degree requirements.

**Child Health Associate Program**

**Physician Assistant Program**

Educational programs for these careers are also available at the University of Colorado. Minimum requirements for applying to the programs are completion of a bachelor's degree of at least 120 semester hours. A GRE General Exam and a GRE Writing Assessment no older than five years at time of application must also be submitted. Additionally, the upper division science prerequisites and the statistics class must be no older than five years at the time of the application deadline.

General Biology (BIOL 110/111 and 115/116).....8  
 General Chemistry (CHEM 103 and 106) 10  
 Genetics (BIOL 383).....3  
 Human Physiology (BIOL 321-4)  
 Advanced Functional Human Anatomy  
 Statistics (PSY 210, BIOL 300, or QM 201)4  
 Psychology.....6  
 Humanities .....12

Information on these programs may be obtained from: the School of Medicine, University of Colorado Health Sciences Center, 4200 E. Ninth Avenue, Denver, CO 80262.

**Other Prehealth Professional Programs**

A number of other professions exist



for which preparatory coursework may be completed in this College. Students interested in such programs should see Professor Pigage for advising.

### **Other professional programs**

#### **Prejournalism**

Students are referred to the School of Journalism section of the University of Colorado at Boulder Bulletin for detailed information concerning requirements for the bachelor of science degree in journalism.

Students normally transfer to the School of Journalism at the end of the sophomore year. Application for intra-university transfer must be filed not later than 90 days prior to the term for which the student wishes to register, or 60 days prior to preregistration if the student participates in early registration. A cumulative grade point average of at least 2.25 in prior work at the University of Colorado is required before the student will be considered for admission to the School of Journalism.

Candidates for bachelor of science degrees in journalism are expected to fulfill all general requirements of the College of Arts and Sciences at Boulder. Students should note that these requirements differ in several ways from those of the College of Letters, Arts, and Sciences which are listed in this Bulletin. Satisfactory completion of these requirements will normally occupy most of the first two years. However, two required journalism courses are designed as lower-division courses and should be taken in the sophomore year prior to transfer to the School of Journalism:

JOUR 100 Contemporary Mass Media .....3  
JOUR 290 Writing for the Media .....3

#### **Prelaw**

Students are referred to the School of Law section of the University of Colorado at Boulder Bulletin for details of the curriculum leading to the professional degree, Juris Doctor (JD).

The School of Law of the University of Colorado, Boulder, requires a bachelor's degree for admission but does not stipulate courses that shall constitute a prelaw curriculum. Normally, all degree programs in the College of Letters, Arts, and Sciences in Colorado Springs will enable a student to meet the School of Law admission criteria, with the possible exception of a few specialized performance programs such as those

involving concentration in music, studio fine arts, or physical education.

The Law School Admission Test is required of all applicants and should be taken as early as possible during the senior year.

Students are urged to consult the Admissions Office of the School of Law, Room 141, Fleming Law Building (Boulder). Please contact the Department of Political Science for prelaw advising.

#### **Teacher Education**

Students are referred to the College of Education sections of this Bulletin for detailed information concerning teacher education programs (TEP) at elementary and secondary levels.

Students may obtain teaching licensure training in elementary education or in secondary education in the areas of English, foreign language (Spanish), mathematics, science, or social studies. However, they must first complete all requirements for an approved academic major in the College of Letters, Arts, and Sciences.

Students who plan on applying to the TEP should seek early advising from the Student Success Center in order to complete all requirements in a timely fashion.

### **Master of Basic Science Degree Program**

Director: Robert Melamede; Advisors: Professors Jeff Broker, Robert Camley, James Daly, Daniel Guerra, Steven Jennings, Mark Malone, Allen Schoffstall, Z.G. Standing Bear and Forrest Tierson.

This program is the only graduate-level program in the natural and physical sciences that can be taken totally at UCCS. The breadth of the program allows students to emphasize their principal discipline of interest and also to take several courses in a related department. There is no list of courses in the degree program. Instead, each student designs his or her own program in consultation with a departmental adviser.

### **Master of Basic Science**

The Master of Basic Science (MBS) Program is a cross-disciplinary program leading to the master of basic science. It provides an opportunity for present and prospective science and mathematics professionals and others to extend and/

or broaden their training in the natural and physical sciences and mathematics at advanced undergraduate and graduate levels. These professionals include teachers, industrial scientists, engineers, business persons, and others.

Wide latitude is possible in the details of a degree plan so that each student may follow a course of study most pertinent to his or her interests and career goals. Each degree plan must be approved by the MBS Director and the student's adviser.

All courses credited toward the degree after admission must be taken at the University of Colorado, on the Colorado Springs, Denver, Health Sciences or Boulder campuses, over a maximum of five years or six successive summers.

#### **Requirements for Admission**

1. General regulations for admission to the Graduate School apply.
2. Must submit a completed MBS application (see "How to Apply" below)
  - Cover letter: states intent and interest of obtaining an MBS and used as a writing sample
  - Application for Graduate Admission: Part 1, Part 2, resume and in-state classification
  - Transcripts: two official transcripts from all previous higher education institutions attended
  - Letters of recommendation: three preferably, at least one from an undergraduate professor
  - Letter from a sponsor: required for biology option
  - Application fee: \$60 for domestic students and \$75 for international students
  - Selective Service form: for all male applicants
  - GRE: original only if required by option
3. Must hold a bachelor's degree from an accredited university
4. Must have at least 40 semester hours in the natural sciences and mathematics, preferably including one year of calculus. (Several departments accept other mathematics courses in lieu of calculus.) Students may be admitted to the program with a deficiency in mathematics but must remedy the deficiency within one year

after admission with a grade of C or better.

- Must have a GPA of 2.75 or higher depending on the option. A student with an undergraduate grade point average below 2.75 must take the GRE prior to consideration for admission.

### **How to Apply**

Write to UCCS, MBS-SB1, 1420 Austin Bluffs Pkwy, Colorado Springs, CO 80918. All forms, transcripts, and supporting documents are processed at the campus. Student advising is available through the Program Director or faculty advisors listed above.

### **Requirements for MBS Degree**

- General regulations of the Graduate School governing the award of the master's degree apply except as modified below.
- Thirty to thirty-six semester hours of science and/or mathematics courses numbered 300 and above are required. If a thesis is written, the student will take 24-26 semester hours of coursework and four to six semester hours of thesis credit. These are to be selected from two or more departments. All courses must be taken from approved Graduate School faculty members. Fifteen or more hours in science/math must be from courses numbered 500 and above. Courses may be selected from the following departments: anthropology, biology, chemistry, education, health sciences, geography, mathematics, and physics. Because not all courses will be appropriate for all programs, students should first consult with their advisor before enrolling. An academic plan should be completed during the student's first semester.
- Either a thesis (thesis option) or a paper (non-thesis option) is required. Completion of a paper describing a research project or other specialized study on a topic is to be approved by the director and the student's adviser. Approval of the topic is given on the basis of a written explanation or précis submitted within six months of entering the program. The final paper must be approved by the student's committee and is in lieu of the comprehensive examination. Thesis option students write a thesis on their research rather than a paper. Students give a presentation and defend

their thesis before a thesis defense committee. Publication of thesis results is encouraged.

- Minimum grade point average: Courses at the 300 and 400 levels will be accepted toward the degree only with grades of A or B; 500 and 600 level courses will be accepted toward the degree with grades of A, B, or C. Students must have a B average in all courses taken subsequent to admission to the program, including courses not actually required for the degree.

### **Once Accepted into the Program**

The student has the option of selecting Plan I or Plan II.

**Plan I:** 30 semester hours, including 4-6 hours of thesis credit. At least 15 semester hours must be at the graduate level in their primary department. A minimum of three credit hours must be taken from a secondary department. Student must write a thesis on their research, give a presentation, and defend their thesis before a thesis defense committee.

**Plan II:** 30 semester hours; at least 15 semester hours must be at the graduate level in their primary department. A minimum of three credit hours must be taken from a secondary department. Student must complete a paper describing a research project or other specialized study on a topic and give a presentation. This paper must be approved by the student's committee.

### **Program Options**

#### **Mathematics Option**

Students must (1) develop a reasonable degree of competence in the fields of analysis and algebra and (2) demonstrate a depth to their mathematical education. Towards that end, the requirements for the Mathematics Option in the Masters of Basic Science Program are:

- Students must complete a minimum of 15 semester hours of upper division and graduate courses offered by the mathematics department.
- Of these 15 hours, 12 semester hours must be at the 400-level or higher, including at least three semester hours at the 500-level. (For example, students could take one 300-level course, three 400-level courses and one 500-level course.)
- Students must demonstrate the

successful completion (with a grade of B or better) of the following courses.

- Algebra. MATH 414 Introduction to Modern Algebra (or its equivalent)
- Analysis. MATH 431 Introduction to Modern Analysis (or its equivalent)
- A year-long sequence of mathematics courses, sharing a common mathematical topic, to provide depth within the student's mathematical education. The common topic of the sequence may be one of algebra, analysis, probability and statistics, or mathematical applications. The courses of this sequence must be 400 level or higher. For example, MATH 414 and MATH 513 constitute an acceptable sequence in algebra. The details of this requirement are to be specified in the student's program plan that is to be approved by a member of the Department of Mathematics.

The student opting for the Mathematics Option must arrange for a faculty advisor during the first or second semester after admission. The student, together with the advisor, will construct an academic plan and will decide on the details for the paper or thesis option. To formally arrange for the advisor, the student should contact the chair of the Graduate Committee of the Mathematics Department.

#### **Science Options:**

anthropology, biology, chemistry, exercise science, geography and physics

The Science Option emphasizes the following natural science departments: biology, chemistry, anthropology, and physics. Two-semester sequence courses (which are offered in some of the natural science departments) are encouraged where appropriate. The student's courses in his or her department of emphasis are supplemented with several courses from a second department. The secondary department may be any of the following: biology, health sciences, chemistry, mathematics, anthropology, and physics.

The complete Science Option Program includes 30 semester hours of coursework, of which 15 or more hours must be at the graduate level (500 level or above). Thesis research is not counted toward this 15-hour requirement. The 30 hours may also include three semester hours of upper-division courses or

seminars in secondary school teaching, history of science, or philosophy of science.

**ANTHROPOLOGY:** Students interested in the anthropology program must meet with the program advisor.

**BIOLOGY:** Students interested in the biology program must meet with the faculty member advising their area of interest. Requirements will vary but will likely include at least one 400-level course taught by that faculty. thesis is required. A sponsor is necessary for admission.

**CHEMISTRY:** Completion of CHEM 451 Physical Chemistry I. The prerequisites for CHEM 451 are two years of chemistry. There are a few upper level chemistry courses that require CHEM 452 Physical Chemistry II also. However, this course is normally completed by the end of the junior year.

#### **GEOGRAPHY & ENVIRONMENTAL**

**STUDIES:** The Department of Geography and Environmental Studies (GES) has a stand-alone option in the MBS program. For applications and initial advising contact the MBS director. See the description of the MBS degree program in the previous section for general questions. Entry into the GES option requires a 3.00 GPA in undergraduate work or higher; 40 hours of science, mathematics, or computer science; and requires the GRE exam. Students may substitute a college level statistics course and a computer science course in lieu of the general calculus entrance requirements.

Once accepted into the GES Option, each student will take GES 501 Seminar: Geographic Research in their first fall semester. Students may select either Plan I: thesis or Plan II: non-thesis option.

**PHYSICS:** Students interested in the physics program must meet with the physics program advisor.

Research students in the program are especially encouraged to begin research projects by their junior year and no later than their fourth year so that they may submit significant theses upon completion of the fifth year as part of a thesis MBS degree.

#### **Teaching Options**

mathematics and science

This option requires 36 semester hours

of study. The same rules are followed as for the science option except that 24 hours of science/math and 12 hours of education courses are required.

For the 12 hours of required education courses, students should consult their advisors to choose courses suitable for their programs.

Students may select either Plan I: thesis or Plan II: non-thesis option.

#### **Forensics Science Option**

The Forensic Science Option emphasizes the basic sciences and clinical application of forensic study. The student's program is supplemented with several courses from a second department. The secondary department may be any of the following: biology, chemistry, psychology, sociology or anthropology.

\*Complete specific courses listed below:

- HSCI 630-3 Sexual Assault: Implication for Health Care Delivery
- HSCI 631-3 Introduction to Forensic Science\*\*\*
- HSCI 632-3 Investigation of Death and Injury
- HSCI 633-3 Crime Scene and Crime Lab
- HSCI 634-3 Psychosocial Aspects of Forensic Science\*\*\*
- HSCI 635-2 Forensic Internship\*\*\*
- HSCI 636-3 Legal Aspects of Forensic Science: Civil and Criminal
- HSCI 637-3 Violence and Human Rights Issues
- HSCI 439-3 Forensic Photography
- HSCI 441-4 Forensic Chemistry and Toxicology\*\*\*
- HSCI 702-3 Health Science Research\*\*\*

\*\*\*required course

#### **BA/BS-MBS Dual Degree Program option**

For students majoring in biology, chemistry, or physics

The dual degree program is a high quality, five-year program designed for students who wish to pursue further graduate studies such as doctoral programs and for those who wish to be gainfully employed in work in the natural or physical sciences upon graduation.

By achieving two degrees in a shorter period than traditionally possible in some of the MBS disciplines, students can benefit from an enriching research experience beyond what they would achieve by completing a BA or a BS alone.

#### **Entrance Requirements:**

Applicants must be biology, chemistry, or physics majors, have junior or senior status, and a minimum overall GPA of 3.1. Qualifies students will be admitted to the Dual Program (as "Dual Program majors") based upon the recommendation of the faculty (3 letters of recommendation). Students will be accepted into the Dual Program as juniors or seniors, and subject to their satisfactory performance, are subsequently accepted into the graduate school upon completion of the BA or BS degree.

#### **Major Requirements:**

Each department has a minimum set of requirements in the major that must be met before a student can be admitted to the Dual Program.

#### **Dual Program Plan:**

The degree plan for each student is drawn up in cooperation with the department program advisor and department chair. Every student is expected to take 120 undergraduate hours and 30 graduate hours. However, some 500-level hours may be taken during the fourth year and more 400-level undergraduate hours may be taken during the fifth year (more than for a typical MBS student).

#### **Transfer Students:**

Upon receiving acceptance to UCCS, transfer students interested in the Dual Program should consult with a departmental advisor.

After completing these minimum requirements, a Dual Program student can then proceed to complete additional upper level courses. Consultation with the program advisor and department chair is required to formulate an academic plan for the Dual Program.

# Beth-El College of Nursing and Health Sciences

**Carole Schoffstall, Dean**

**University Hall**

**3955 Cragwood**

*(Corner of Austin Bluffs Pkwy & Union Blvd.)*

**Telephone (719) 262-4422**

**Fax: (719) 262-4416**

**B**eth-El School of Nursing was established in 1904 by an agency of the Methodist Church. The school was purchased by the City of Colorado Springs in 1943. In 1983 the school sought regional accreditation from NCA to acquire college status as a professional school. Beth-El operated as a city school/college until 1997. In July 1997, Beth-El merged with CU-Colorado Springs. The College moved to the CU-Colorado Springs campus in December 1997.

## Mission

Beth-El College of Nursing and Health Sciences prepares graduates for service and leadership roles in health care. The college addresses the nursing and health science educational needs of the city of Colorado Springs and beyond by offering undergraduate and graduate degrees as well as certificate, and life-long learning programs. The multidisciplinary approach to academic and clinical excellence fosters a community of scholarship and caring that extends beyond the walls of the college influencing the present and future direction of health care. The college facilitates collaboration for the promotion of a healthy community.

## Program Accreditations

Colorado State Board of Nursing  
National League for Nursing  
CCNE Graduate Nursing Program

## Memberships

Colorado Association of Colleges of Nursing  
Colorado Council of Nurse Educators  
American Association of Colleges of Nursing  
Sigma Theta Tau (Xi Phi Chapter)  
National League for Nursing

## Clinical Learning Experiences

The College utilizes diverse clinical facilities to provide learning

opportunities for students in Colorado Springs, Pueblo, Denver, and throughout the country. Memorial Hospital, Penrose/St. Francis Health Services, Evans Army Hospital, Pikes Peak Hospice, Cedar Springs Behavioral Health Systems Inc. and Colorado Mental Health Institute at Pueblo provide clinical learning environments for students. In addition over 130 community agencies, care provider offices, other health agencies and hospitals are utilized for clinical experiences.

## Faculty

Professor: Carole Schoffstall; Associate Professors: Mary Hagedorn, Barbara Joyce-Nagata, Kathy LaSala, Jenenne Nelson, Cindy Roach, Zug Standing Bear. Assistant Professors: Lynne Bryant, Jewell Chambers, Lea Gaydos, Jennifer Hensley, Mary Ann Kluge, Richard Petersen, Travis Peterson, Glenda Reimer, Elizabeth Teichler; Amy Silva-Smith; Senior Clinical Instructors: Marcia London; Clinical Instructors: Ellen Biebesheimer, Trellis Moore, Kit Pedersen, Jefferson Spicher.

## Programs of Study

Bachelor of Science in Nursing (BSN)

Bachelor of Science in Nursing - Accelerated

RN to Bachelor of Science in Nursing (BSN) Distance Option Available

RN to Master of Science in Nursing (MSN)

Bachelor of Science in Health Care Science (BS) with options in:

Nutrition

Forensic Health Science

Sports Health and Wellness Promotion

Health Care Management

Completion degree Allied Health (self defined)

**Minors:** Forensic Science; Health Care Management; Sports, Health & Wellness Promotion

Masters of Science in Nursing (MSN) with options in:

**Nurse Practitioner**

Adult Nursing

Adult Gerontology

Family Nursing

Women's Health (completion)

Pediatric\* Post MSN NP completion program  
Post NP MSN completion program  
(\*In collaboration with UCHSC)

## Clinical Specialist

Community Health Nursing

Forensic Nursing

Self Defined Option (with approval)

## Nursing Administration

**Minors:** Holistic, Forensic, Community Health, Gerontology, Business Administration, Public Administration, Nursing Administration & Nursing Education Minor.

## Certificates:

Undergraduate and graduate with options in:

Forensic Nursing or Health Science

Gerontology Nursing

Holistic Nursing

Nursing Education

## Academic Policies

All students are responsible for knowing and following the provisions set forth in this Bulletin, in the Schedule of Courses and in the Beth-El Student Handbook. It is also the responsibility of the student to know and observe program requirements and deadlines.

The bulletin that governs a student's graduation requirements is the one in effect at the time of a student's most recent admission into the college of the student's degree program. The academic policies and regulations stated herein are in effect at the time this bulletin is printed but may be subject to change. In an effort to regularly enhance the programs offered as well as meet the needs of our students, changes are made periodically to the curricula. These changes may not be reflected in this catalog. You are encouraged to visit the website at [web.uccs.edu/bethel](http://web.uccs.edu/bethel), the undergraduate student handbook at [web.uccs.edu/bethelstudenthandbook](http://web.uccs.edu/bethelstudenthandbook) or the graduate student website at [web.uccs.edu/bethel.msn.handbook](http://web.uccs.edu/bethel.msn.handbook) for current information.

## Undergraduate Academic Progress

To be eligible to graduate with one of the bachelor's degrees in the College of

Nursing & Health Sciences, a student must meet the following minimum requirements:

- Be admitted into the degree major at least 30 credits prior to graduation
- Have at least a 2.0 cumulative GPA, including CU GPA plus transfer GPA
- Complete all general education courses with a C- or better
- For nursing students, complete all Nursing and Health Science courses with a C or better
- For health care science students, complete all core and option requirements with a C- or better
- Complete the Writing Competency Exam as outlined in the General Information section of this Bulletin
- Satisfactorily complete any previously identified MAPS deficiencies

**Undergraduate Standards of Performance**

To remain in good academic standing, undergraduate students must maintain a cumulative CU grade point average of 2.0 or better for all courses attempted. In addition, no course grade below a C- is applicable to the degree program. For nursing students no course grade below a C is allowed if the course is a required health science or nursing course.

**Probation and Suspension Policy**

**Academic Probation for Nursing Students:** Students may be placed on academic probation if their CU GPA falls below 2.0 or if they receive a grade below a C in required health science or nursing courses for the first time. They may continue with required courses unless the failed course/courses are pre-requisites for upcoming courses. In that case the failed course/courses must be repeated prior to progressing. If the failed course/courses are general education courses, the student must meet with the Nursing Advisor in the Student Success Center to create a plan for future success. Students may remain on academic probation for a maximum of three semesters. If, by the end of their third semester of probation, their CU GPA has not been raised to 2.0 or better, they will be subject to suspension from the College. If the failed course is a clinical course, the student must meet with the Chair of the

Undergraduate Nursing Department to discuss clinical progression.

**Academic Probation for Health Care Science Students:** Students may be placed on academic probation if their CU GPA falls below 2.0 or if they receive a grade below a C- in required core or option courses for the first time. They may continue with required courses unless the failed course/courses are pre-requisite for upcoming courses. In that case the failed course/courses must be repeated prior to progressing. Students must meet with the Nursing Advisor in the Student Success Center to create a plan for future success. Students may remain on academic probation for a maximum of three semesters. If, by the end of their third semester of probation, their CU GPA has not been raised to 2.0 or better, they will be subject to suspension from the College.

**Clinical Probation for Nursing Students:** Each undergraduate clinical student will receive a progress evaluation at the end of each rotation within the semester. If the student receives an unsatisfactory rating, the student will be placed on clinical probation and must consistently improve all ratings to satisfactory by the end of the semester in order to pass the course. It is possible to receive a failing grade on clinical without having previously been placed on probation. Clinical failure constitutes failure of the entire course, regardless of academic scores on theory content.

**Academic Suspension for Nursing and Health Care Science Students:** Two failures of any required nursing and/or health science core and specialty courses of two credits or greater will result in dismissal from the College. Students may petition in writing to the Department Chair for readmission to the College within 30 calendar days. Dismissal from the Nursing or Health Care Science Program does not imply dismissal from the University of Colorado.

**Course Pass/Fail Registration**

With the exception of NURS299 or 300, students in the College of Nursing & Health Sciences may not use courses taken on a pass/fail basis to satisfy degree requirements.

**Incomplete Grades**

Please refer to the General Information section of this Bulletin for an explanation

of IW or IF grades.

**Student Organizations**

Nursing Prep students are encouraged to join the Beth-El Student Nurses' Association upon admission. Information can be obtained at <http://web.uccs.edu/bsna>.

**Nursing – Bachelor of Science**

The graduate is prepared to practice professional nursing while providing care for individuals, families, groups and communities. Students who are not RNs will choose the traditional curriculum plan.

**Admission Requirements for Bachelor of Science in Nursing Program**

**Freshmen**

Students who have a previous conviction for a felony as well as some misdemeanors may not be eligible to be placed in clinical assignments and may not be allowed to sit for the State Board of Nursing exam (NCLEX), even if they complete a degree in nursing. Contact the Colorado State Board of Nursing for additional information prior to application to Beth-El College of Nursing & Health Sciences.

Students applying as freshmen must meet all three of the following criteria:

- Rank in the top 30th percent of their high school graduating class
- Complete suggested high school course units with an un-weighted GPA of 3.0 or better
- Achieve a composite score of 24 on the ACT or a total score of 1080 on the SAT

**Suggested High School Course Units**

English.....	4 years
Math-College Prep.....	3 years
Chemistry.....	1 year
Biological Science.....	1 year
Non-lab Science.....	1 year
Social Sciences .....	2 years
Foreign Language.....	2 years
Academic Electives.....	1 year

Students who meet admission criteria are admitted into the Nursing program



under Nursing Prep. Nursing Prep students complete general education requirements while awaiting an invitation into the clinical portion of the program. In order to progress into the clinical portion of the program, students must have completed the first year curriculum courses successfully (C- or better with the exception of HSCI207 which must be completed with a C), attain a cumulative GPA of 3.0 or better, and have availability of a clinical spot. Due to the limited number of clinical spots available, ranking will occur based on date of admission and more than 4 years may be required to complete the program. Nursing Prep students must meet with their academic advisor prior to registration for any semester and will be notified by mail for appointment opportunities.

Students not admitted directly into the college of Nursing & Health Sciences may still be admitted to UCCS under the College of Letters, Arts and Sciences Pre-Nursing program. Freshmen admitted to the Pre-Nursing program may apply to transfer to the College of Nursing & Health Sciences once 30 credit hours of designated nursing curriculum courses have been completed with a cumulative GPA of 3.0 or better. Contact the Nursing Advisor in the Student Success Center for details. Admission eligibility to the University of Colorado does not constitute a guarantee of enrollment in any specific nursing program.

**Transfer Students**

Students who have attended a collegiate institution other than CU or who have been admitted to a different college within the university may apply as transfer students if they have completed 30 credit hours of transferable college level work. Applicants for the nursing program must have a cumulative GPA of 3.0 or better. Transfer students must be in good standing and eligible to return to all institutions previously attended. While transferability of credits is determined by the Office of Admissions, final application to the degree program is determined by the College of Nursing and Health Sciences. Students who meet admission criteria are admitted into the Nursing program under Nursing Prep. Nursing Prep students complete general education requirements while awaiting an invitation into the clinical portion of the program. In order to progress into the clinical portion of the program, students must have completed the first

year curriculum courses successfully (C- or better with the exception of HSCI 207 which must be completed with a C), maintain a cumulative GPA of 3.0 or better, and have availability of a clinical spot. Due to the limited number of clinical spots available, ranking will occur based on date of admission. Nursing Prep students must meet with their academic advisor prior to registration for any semester and will be notified by mail for appointment opportunities.

Students who have attended a different BSN program and who wish to transfer must meet the above stated admission criteria. In addition, students who wish to transfer from a different BSN program must be in good standing and eligible to return to all institutions previously attended. Clinical placement is subject to review of completed clinical courses and availability of appropriate clinical spot.

**Returning Students**

Students who were previously admitted into the College of Nursing & Health Sciences and who must reapply, must meet the admission criterion of a cumulative GPA of 3.0 or better. If no clinical courses have been completed, students will be readmitted into Nursing Prep to complete general education requirements and await availability of clinical spot. If clinical courses have been completed, assessment of clinical skills may be required with determination of clinical placement based upon the assessment and availability of clinical spot.

**Advanced Placement for LPN's**

All students seeking advanced standing will be required to meet the same prerequisites and terminal objectives of the college as traditional students. Advanced placement credit may be obtained by transfer or credit examination. Advanced placement students must have an active unrestricted LPN license in Colorado and have completed at least 30 credit hours of transferable college level work with a cumulative GPA of 3.0 or better prior to application.

If eligible, student will receive notification of admission. Admission eligibility to the University of Colorado does not constitute a guarantee of enrollment in any specific nursing program.

**Curriculum Plan for Traditional Baccalaureate Nursing Students First Year**

ANTH 104 Cultural Anthropology .....	3
BIOL 201 Anatomy and Physiology I.....	4
BIOL 202 Anatomy and Physiology II.....	4
CHEM 101 Chemistry I.....	4
CHEM 102 Chemistry II .....	4
ENGL 131 Rhetoric and Writing I .....	3
ENGL 141 Rhetoric and Writing II .....	3
HSCI 207 Nutrition for Health Professional	3
PSY 100 General Psychology .....	3-4
General Education Elective .....	3

**34-35 credits**

All first year courses must be completed prior to progressing to second year courses.

**Second Year**

BIOL 203 Microbiology .....	4
HSCI 101 Pharmacological Math..(16 clock hours)	
HSCI 205 Pharmacology .....	3
HSCI 301 Pathophysiology .....	3
NURS 123 Foundations of Nursing Practice	3
NURS 208 Health Promotion .....	3
NURS 210 Basic Health Assessment .....	3
NURS 220 Fundamentals of Nursing .....	6
PSY 362 Developmental Psych .....	3
SOC 111 Intro to Sociology.....	3-4

**31-32 credits**

All second year courses must be completed prior to progressing to third year courses.

**Third Year**

HSCI 206 Health Science Statistics .....	3
NURS 310 Mental Health Nursing .....	6
NURS 320 Nursing Care of Adults I .....	5
NURS 321 Nursing Care of Adults II .....	5
NURS 401 Nursing Research .....	3
Nursing/Health Science Elective .....	3
Humanities Elective.....	3

**31 credits**

All third year courses must be completed prior to progressing to fourth year courses.

**Fourth Year**

NURS 410 Nursing Care of Children .....	6
NURS 420 Nsg Care of the Childbearing Family .....	6
NURS 429 Advanced Nursing.....	6
NURS 440 Community Health Nursing .....	6
General Education Elective.....	1-3
Humanities Elective .....	3

**28-30 credits**

**Total Program Credits:..... 126**



### **Computer Competency Requirements**

Students are expected to have basic computer skills upon entering Beth-El. If not, students can take a computer literacy course to count for general education elective credit.

### **Continuing Students**

Once students have accepted an invitation for a clinical spot their status will be changed from Nursing Prep to Nursing. The nursing curriculum is a very structured program and must be adhered to in order. Second year courses must be successfully completed prior to progression of third year courses. Third year courses must be successfully completed prior to progression of fourth year courses. If an interruption in the sequencing of courses is necessary, students accept their Leave of Absence knowing that a possible delay in program completion may occur. Non-matriculating students only return on a space available basis. Returning students must make an appointment with the Nursing Advisor or the Chair of the Undergraduate Nursing Department prior to registration.

### **Leave of Absence**

Leave of Absence requests must be made in writing to the Chair of the Undergraduate Nursing Department. Refer to the Beth-El Student Handbook for an explanation of the policy.

## **Nursing for Registered Nurses — Bachelor of Science**

Multiple entry levels facilitate the educational upward mobility of RNs. All students seeking advanced standing will be required to meet the same prerequisites and terminal objectives of the college as traditional students. Advanced placement credit may be obtained by transfer credit, or credit by examination. Those seeking advanced placement in the baccalaureate program must meet the following requirements:

- Clinical practice experiences of at least 1,000 hours within the past three years or completion of an approved R.N. refresher course
- Advanced placement students must have an active unrestricted R.N. license in Colorado and have graduated from an accredited program. Request information related to the

“Colorado Articulation” to answer additional questions for registered nurses seeking advanced placement

### **Curriculum Plan for Advanced Placement in R.N. to B.S.N.**

#### **General Education**

ANTH 104 Cultural Anthropology.....	3
BIOL 201 Anatomy and Physiology I.....	4
BIOL 202 Anatomy and Physiology II.....	4
BIOL 203 Microbiology .....	4
*HSCI 207 Nutrition for Health Science ....	3
CHEM 101 Chemistry I.....	4
*CHEM 102 Chemistry II .....	4
ENGL 131 Rhetoric and Writing I .....	3
ENGL 141 Rhetoric and Writing II .....	3
HSCI 206 Health Science Statistics .....	3
PSY 100 General Psychology .....	3
PSY 362 Developmental Psych .....	3
SOC 111 Intro to Sociology.....	3
Humanities Elective (2).....	6
General Education Elective (2) .....	6
	<b>56 credits</b>

#### **Nursing/Health Science Required Courses**

HSCI 301 Pathophysiology.....	3
NURS 304 Patterns of Knowing (R.N.) .....	3
NURS 305 Health Assessment (R.N.) .....	3
NURS 401 Nursing Research .....	3
NURS 425 Professional Nursing Practice (R.N.) .....	3
NURS 435 Nursing Management (R.N.) ...	3
NURS 445 Community Health (R.N.).....	6
Nursing/Health Science Elective (2) .....	6
	<b>32 credits</b>

All advanced Nursing/Health Science courses, with the exception of Nursing/Health Science Electives, are offered in an on-line format. Refer to the Beth-El website at <http://web.uccs.edu/bethel> for information regarding technological requirements for completing on-line courses.

Colorado Articulation: Credits granted through articulation for RNs ..... 38 credits

**Total Program Credits: .....126 credits**

\*For RN programs with integrated content, substitutions for these courses are possible.

## **Nursing-Accelerated Program — Bachelor of Science**

Students who have completed a bachelor's degree in a non-nursing field may be eligible to apply for the

accelerated BSN program if they have successfully completed (C- or better) all of the general education requirements as detailed on our website at [web.uccs.edu/bethel](http://web.uccs.edu/bethel) and have a cumulative GPA of 3.0 or better. Contact the Chair of the Undergraduate Nursing Program or the Nursing Advisor for specific information.

### **B.S.N. Program Requirements**

#### **Clinical Requirements for Students in the B.S.N. Program**

Nursing students are to keep a personal file of the following information. It will be reviewed by clinical faculty prior to any clinical courses.

- Colorado Nursing License (for R.N. to B.S.N. students)
- CPR card
- Date and result of PPD test or last chest x-ray report if unable to take PPD
- Date and result of Rubella Titer or evidence of MMR boosters (2) if born after 1957
- Dates of Heptavax series
- Verification of Medical Insurance
- Date and results of TD within last 10 years

#### **B.S.N. State Board Passing Rates**

B.S.N. graduates of the program are eligible to apply to the Colorado State Board of Nursing to take the R.N. licensure examination.

State Board of Nursing passing rates for those taking the licensing exam (NCLEX) for the first time are one of the highest in the state of Colorado for B.S.N. Nursing programs.

## **Health Care Science — Bachelor of Science**

The Bachelor of Science in Health Care Science prepares the graduate for professional practice in health related settings. The program includes a foundation in general education as well as a broad understanding of health care delivery systems.

It is possible to choose options within the program to develop advanced specialization in a specific or chosen discipline such as forensic science, sports health and wellness promotion, nutrition or health care management. An upper division completion option is available in allied health areas such

as radiation technology, paramedicine, dental hygiene or respiratory therapy for students with associate degrees or certificates in these areas.

**Admission requirements for Bachelor of Science in Health Care Science**

**Freshmen**

Students applying as freshmen must meet the following criteria:

- Rank in the upper 40% of high school graduating class
- Complete suggested high school course units with an un-weighted G.P.A. of 2.8 or better
- Achieve a composite score of 24 on the ACT or a total score of 1080 on the SAT

**Suggested High School Course Units**

English.....	4 years
Math-College Prep.....	3 years
Chemistry.....	1 year
Biological Science.....	1 year
Non-lab Science.....	1 year
Social Sciences.....	2 years
Foreign Language.....	2 years
Academic Electives.....	1 year

Freshmen applicants whose records vary in any way from the above admissions criteria will be considered on an individual basis by evaluation of their overall academic records including (a) the quality of their high school program of study; (b) the level of their college entrance test scores (SAT or ACT); and (c) any information unique to an individual situation.

Students not admitted directly into the College of Nursing & Health Sciences may still be admitted to UCCS under the College of Letters, Arts and Sciences Pre-Health Care program. Freshmen admitted to the Pre-Health Care program may apply to transfer to the College of Nursing & Health Sciences once 30 credit hours of designated health care science curriculum courses have been completed with a cumulative GPA of 2.5 or better. Contact the Nursing Advisor in the Student Success Center for details. Admission eligibility to the University of Colorado does not constitute a guarantee of enrollment in any specific health care science program.

**Transfer Students**

Students who have attended a collegiate

institution outside of the CU system or who have been admitted to a different College within the University may apply to transfer into the Health Care Sciences program once 30 credit hours have been completed with a cumulative GPA of 2.5 or better. While transferability of credits is determined by the Office of Admissions, final application to the degree program is determined by the College of Nursing and Health Sciences.

**Emergency Health Services Completion Option**

Students must complete an EMT-Paramedic program at another approved program and submit a current National Registry Certification for credit hours (31) to be applied to the degree. Students then complete the health science program listed below.

**General Education Course Requirements**

ENGL 131 Rhetoric and Writing I.....	3
ENGL 141 Rhetoric and Writing II.....	3
HSCI 206 Health Science Statistics.....	3
Humanities Electives (2).....	6
PSY 100 General Psychology.....	3-4
SOC 111 Introduction to Sociology.....	3-4
General Education Electives.....	6-9

**Credits 30**

**Health Science Prerequisites**

BIOL 201 Anatomy and Physiology I.....	4
BIOL 202 Anatomy and Physiology II.....	4
CHEM 101 Chemistry I.....	4
CHEM 102 Chemistry II.....	4
MATH 104 College Algebra.....	3
Science Electives.....	4
Social Science Electives.....	6

**Credits 29**

**Health Science Core Requirements**

HSCI 200 Professional Practice Foundations.....	3
HSCI 245 Health Care Environments.....	3
HSCI 248 Computer Applica Hlth Care.....	3
HSCI 301 Pathophysiology.....	3
HSCI 345 Trends and Issues.....	3
HSCI 401 Health Science Research.....	3
HSCI 436 Health Care Management.....	3
HSCI 450 Legal/Ethical Issues.....	3

**Credits 24**

**EHS Option Requirements**

HSCI 205 Pharmacology.....	3
HSCI 210 Patient Assessment.....	3
Paramedic Certificate Portfolio.....	31

**Credits 37**

**Total Program Credits..... 120**

**Forensic Health Science**

**Option A — Field Investigations**

**General Education Course Requirements**

ENGL 131 Rhetoric and Writing I.....	3
ENGL 309 Tech Writing (Complete Competency Exam).....	3
HSCI 206 Health Science Statistics.....	3
Humanities Electives (2—see LAS list).....	6
PSY 100 General Psychology.....	3-4
SOC 111 Introduction to Sociology.....	3-4
General Education Electives.....	6-9

**Credits 30**

**Health Science Prerequisites**

BIOL 201 Human Anatomy and Physiology I.....	4
BIOL 202 Human Anatomy and Physiology II.....	4
CHEM 101 Introduction to Chemistry I.....	4
CHEM 102 Introduction to Chemistry II.....	4
MATH 104 College Algebra (or higher).....	3

**Credits 19**

**Health Science Core Requirements**

HSCI 200 Professional Practice Foundations.....	3
HSCI 210 Patient Assessment.....	3
HSCI 245 Health Care Environments.....	3
HSCI 301 Pathophysiology.....	3
HSCI 401 Health Science Research.....	3
HSCI 436 Health Care Management.....	3
HSCI 450 Legal/Ethical Issues.....	3

**Credits 21**

**Forensic Health Science Option Requirements**

Forensic Science Electives – see advisor for list.....	12
HSCI 429 Legal Aspects: Civil and Criminal.....	3
HSCI 430 Sexual Assault.....	3
HSCI 431 Introduction to Forensic Science.....	3
HSCI 432 Investigation of Injury and Death.....	3
HSCI 433 Crime Scene and Crime Lab....	3
HSCI 434 Psychosocial Aspects of Forensics.....	3
HSCI 437 Violence and Human Rights.....	3
HSCI 438 Substance Abuse.....	3
HSCI 439 Forensic Photography.....	3
HSCI 440 Forensic Practicum.....	4
HSCI 441 Forensic Chemistry & Toxicology.....	4
SOC 340 Criminology.....	3

**Credits 50**

**Total Program Credits 120**



**Forensic Health Science Option B —  
Forensic Biology****General Education Course Requirements**

ENGL 131 Rhetoric and Writing I .....	3
ENGL 309 Tech Writing (Complete Competency Exam) .....	3
HSCI 206 Health Science Statistics .....	3
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4

**Credits 17****Health Science Prerequisites**

BIOL 110/111 General Biology I and Lab .....	4
BIOL 115/116 General Biology II and Lab .....	4
BIOL 201 Human Anatomy and Physiology I .....	4
BIOL 202 Human Anatomy and Physiology II .....	4
CHEM103 General Chemistry I .....	5
CHEM106 General Chemistry II .....	5
MATH 135 Calculus I .....	4
MATH 136 Calculus II .....	4
PES 111/115 General Physics I and Lab .....	5
PES 112 General Physics II .....	4

**Credits 43****Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 301 Pathophysiology .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management .....	3
HSCI 450 Legal/Ethical Issues .....	3

**Credits 15****Forensic Health Science Option  
Requirements**

BIOL 302 Cell Biology .....	3
BIOL 383 Genetics .....	3
BIOL 384 Genetics Lab .....	2
BIOL 481 Biochemistry I .....	3
BIOL 482 Biochemistry II .....	4
BIOL 484 Molecular Biology .....	3
CHEM 330 Organic Chemistry .....	3
CHEM 340 Organic Chemistry Lab .....	2
CHEM 417 Analytical Chemistry I .....	4
CHEM 418 Analytical Chemistry II .....	3
CHEM 420 Practical Instrumental Analysis .....	2
HSCI 429 Legal Aspects: Civil and Criminal .....	3
HSCI 431 Introduction to Forensic Science .....	3
HSCI 433 Crime Scene and Crime Lab .....	3
HSCI 441 Forensic Chemistry & Toxicology .....	4

**Credits 45****Total Program Credits 120****Forensic Health Science Option C —  
Forensic Chemistry****General Education Course Requirements**

ENGL 131 Rhetoric and Writing I .....	3
ENGL 309 Tech Writing (Complete Competency Exam) .....	3
General Education Electives .....	6
HSCI 206 Health Science Statistics .....	3
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4

**Credits 23****Health Science Prerequisites**

BIOL 110/111 General Biology I and Lab .....	4
BIOL 201 Human Anatomy and Physiology I .....	4
BIOL 202 Human Anatomy and Physiology II .....	4
CHEM103 General Chemistry I .....	5
CHEM106 General Chemistry II .....	5
MATH 135 Calculus I .....	4
MATH 136 Calculus II .....	4
PES 111/115 General Physics I and Lab .....	5
PES 112/215 General Physics II and Lab .....	5

**Credits 40****Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 301 Pathophysiology .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management .....	3
HSCI 450 Legal/Ethical Issues .....	3

**Credits 15****Forensic Health Science Option  
Requirements**

CHEM 330 Organic Chemistry .....	3
CHEM 340 Organic Chemistry Lab .....	2
CHEM 417 Analytical Chemistry I .....	4
CHEM 418 Analytical Chemistry II .....	3
CHEM 420 Practical Instrumental Analysis .....	2
CHEM 483 Biochemistry Principles .....	3
HSCI 429 Legal Aspects: Civil and Criminal .....	3
HSCI 430 Sexual Assault .....	3
HSCI 431 Introduction to Forensic Science .....	3
HSCI 432 investigation of Injury and Death .....	3
HSCI 433 Crime Scene and Crime Lab .....	3
HSCI 438 Substance Abuse .....	3
HSCI 439 Forensic Photography .....	3
HSCI 441 Forensic Chemistry & Toxicology .....	4

**Credits 42****Total Program Credits 120****Health Care Management Option**

Students in this program can obtain a minor in Applied Management in addition to their bachelor's degree with completion of the following curriculum.

**General Education Course Requirements**

ENGL 131 Rhetoric and Writing I .....	3
ENGL 141 Rhetoric and Writing II .....	3
Humanities Electives (2) .....	6
PSY 100 General Psychology .....	3-4
QUAN 201 Business Statistics .....	3
SOC 111 Intro to Sociology .....	3-4
General Education Electives .....	6-9

**Credits 30****Health Science Prerequisites**

BIOL 201 Anatomy and Physiology I .....	4
BIOL 202 Anatomy and Physiology II .....	4
CHEM 101 Introduction to Chemistry I .....	4
CHEM 102 Introduction to Chemistry II .....	4
MATH 104 College Algebra .....	3
Science Electives .....	4
Social Science Electives (ECON 101 or 202) .....	6

**Credits 29****Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 245 Health Care Environments .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management .....	3
HSCI 450 Legal/Ethical Issues .....	3
HSCI 459 Concepts of Health and Disease .....	3
INFS 110 Information-based Decision Making .....	3

**Credits 21****Health Care Management Option  
Requirements**

ACCT 201 Intro to Financial Accounting .....	3
FNCE 305 Basic Finance .....	3
HRMG 438 Personnel Human Resources Mgmt .....	3
HSCI 4- Health Science Electives .....	6
HSCI 472 Health Care Budget and Finance .....	3
HSCI 473 Community Network Development .....	3
HSCI 477 Management Practicum .....	4
HSCI 479 Synthesis Seminar .....	3
MKTG 300 Principles of Marketing .....	3
MKTG 440 Service Management and Marketing .....	3
OPTM 300 Fundamentals of Operation Mgmt .....	3
QUAN 202 Process & Decision-based Stats .....	3

**Credits 40****Total Program Credits 120**

**Nutrition Option**

**Nutrition Option**

This program has been granted Developmental Accreditation by the Commission on Accreditation for Dietetics Education. Students may earn the credentials of a Registered Dietitian by completing an accredited academic program, completing an Internship at a CADE approved location after the academic program, and by passing a national exam.

**General Education Courses**

ENGL 131 Rhetoric and Writing I .....	3
ENGL 141 Rhetoric and Writing II .....	3
HSCI 206 Health Science Statistics .....	3
Humanities Electives (2).....	6
PSY 100 General Psychology .....	3-4
SOC 111 Intro to Sociology.....	3-4
General Ed Electives (included ACCT 201) .....	6-8

**Credits 29**

**Health Science Prerequisites**

BIOL 110/111 General Biology I w/Lab .....	4
BIOL 201 Anatomy and Physiology I.....	4
BIOL 202 Anatomy and Physiology II.....	4
BIOL 203 Microbiology .....	4
CHEM 103 General Chemistry I.....	5
CHEM 106 General Chemistry II.....	5
HSCI 106 Personal Nutrition .....	3
MATH 104 College Algebra .....	3
Social Science Elective .....	6

**Credits 35**

**Health Science Core Courses**

HSCI 200 Professional Practice Foundations .....	3
HSCI 207 Nutrition for Health Professionals	3
HSCI 245 Health Care Environments .....	3
HSCI 301 Pathophysiology.....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management.....	3
HSCI 450 Legal/Ethical Issues .....	3

**Credits 21**

**Nutrition Option Requirements**

BIOL 430 Advanced Nutrition .....	3
CHEM 330 Organic Chemistry.....	3
CHEM 340 Organic Chemistry Lab .....	2
BIOL 483 Biochemistry Principles .....	3
HSCI 392 Nutrition Science and Community	2
HSCI 394 Nutrition Science & Food Prep	3
HSCI 402 Food Service Management .....	3
HSCI 492 Nutritional Assess Across Lifespan.....	3
HSCI 493 Diet Therapy and Intervention ..	3
HSCI 494 Nutrition Practicum .....	4

HSCI 4 Health Science Elective .....	3
MKTG 300 Principles of Marketing .....	3
<b>Credits 35</b>	
<b>Total Credits .....</b>	<b>120</b>

**Allied Health Completion Option**

An upper division completion option is available in allied health areas such as radiation technology, dental hygiene or respiratory therapy. Students must complete a certificate or an associate's degree in an allied health area from an accredited program other than UCCS for the 31 credit hours to be applied to the degree. Students then complete the health science program listed below in order to be awarded a bachelor's degree.

**General Education Course Requirements**

ENGL 131 Rhetoric and Writing I .....	3
ENGL 141 Rhetoric and Writing II .....	3
HSCI 206 Health Science Statistics .....	3
Humanities Electives (2 courses) .....	6
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4
General Education Electives.....	6-9

**Credits 30**

**Health Science Prerequisites**

BIOL 201 Anatomy and Physiology I.....	4
BIOL 202 Anatomy and Physiology II.....	4
CHEM 101 Introduction to Chemistry I.....	4
CHEM 102 Introduction to Chemistry II....	4
MATH 104 College Algebra .....	3
Science Electives .....	4
Social Science Electives (2) .....	6
HSCI 4 Health Science Electives .....	6

**Credits 29**

**Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 245 Health Care Environments .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management.....	3
HSCI 450 Legal/Ethical Issues .....	3
HSCI 459 Concepts of Health & Disease .....	3
HSCI 400 and above — Health Science Elective .....	6

**Credits 24**

**Allied Health Completions Option Requirements**

Upper Division Electives .....	6
Articulation Credit for Associate Degree or Certificate in Allied Health area.....	31

**Credits 37**

**Total Credits 120**

**Sports Health and Wellness Promotion Option**

**Option A Health and Wellness Promotion**

**General Education Course Requirements**

ENGL 131 & 141 Rhetoric and Writing I & II (Complete Competency Exam).....	6
HSCI 206 Health Science Statistics .....	3
Humanities Electives (two—see LAS list)...	6
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4
General Education Electives.....	6-9

**Credits 30**

**Health Science Prerequisites**

BIOL 110/111 General Biology I and Lab.....	4
BIOL 201 & 202 Human Anatomy & Physiology I & II .....	8
CHEM 101 Introduction to Chemistry I.....	4
HSCI 102 Personal Fitness and Wellness .....	3
MATH 104 College Algebra .....	3
PES 101 Physics for Life Sciences .....	4

**Credits 26**

**Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 245 Health Care Environments .....	3
HSCI 401 Health Science Research.....	3
HSCI 436 Health Care Management.....	3
HSCI 450 Legal/Ethical Issues .....	3
HSCI 459 Concepts of Health and Disease .....	3

**Credits 18**

**Sports Health and Wellness Promotion Option Requirements**

BIOL 330 Exercise Physiology .....	3
BIOL 455 Biomechanics/Kinesiology .....	3
BIOL 477 Human Metabolism .....	3
HSCI 207 Nutrition for Health Sciences ...	3
HSCI 4—Health Science Electives.....	6
HSCI 4—Health Behavior Change.....	3
HSCI 4—Obesity and Weight Mgt .....	3
HSCI 452 Health Teaching.....	3
HSCI 461 Sports Injury and Prevention....	3
HSCI 462 Internship .....	4
HSCI 463 Culture and Health.....	3
HSCI 464 Program Planning and Implementation.....	3
HSCI 467 Health Assessment.....	3
HSCI 495 Exercise Testing and Prescription .....	3

**Credits 46**

**Total Program Credits 120**



**Option B Pre-Professional Track****General Education Course Requirements**

ENGL 131 & 141 Rhetoric and Writing I & II (Complete Competency Exam).....	6
HSCI 206 Health Science Statistics .....	3
Humanities Electives (two—see LAS list)...	6
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4
General Education Electives .....	4-6

**Credits 27****Health Science Prerequisites**

BIOL 110/111 General Biology I and Lab .....	4
CHEM 103 & 106 General Chemistry I & II .....	10
HSCI 102 Personal Fitness and Wellness .....	3
MATH 104 College Algebra .....	3
PES 101/115 Physics for Life Sciences I and Lab .....	5
PES 102/215 Physics for Life Sciences II and Lab .....	5

**Credits 30****Health Science Core Requirements**

HSCI 200 Professional Practice Foundation .....	3
HSCI 245 Health Care Environments .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management .....	3
HSCI 459 Concepts of Health and Disease .....	3

**Credits 15****Sports Health and Wellness Promotion Option Requirements**

BIOL 321 Human Physiology .....	4
BIOL 330 Exercise Physiology .....	3
BIOL 435 Functional Anatomy .....	4
BIOL 455 Biomechanics/Kinesiology .....	3
CHEM 331 Organic Chemistry I .....	3
CHEM 481 Biochemistry .....	3
HSCI 207 Nutrition for Health Sciences ...	3
HSCI 4—Health Science Elective .....	3
HSCI 452 Health Teaching .....	3
HSCI 461 Sports Injury and Prevention....	3
HSCI 462 Internship .....	4
HSCI 467 Health Assessment .....	3
HSCI 495 Exercise Testing and Prescription .....	3
PSY 328 Abnormal Psychology .....	3
PSY 362 Developmental Psychology .....	3

**Credits 48****Total Program Credits 120****Option C Sports Conditioning and Training****General Education Course Requirements**

ENGL 131 & 141 Rhetoric and Writing I & II (Complete Competency Exam).....	6
HSCI 206 Health Science Statistics .....	3
Humanities Electives (two—see LAS list)...	6
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4
General Education Electives .....	6-8

**Credits 29****Health Science Prerequisites**

BIOL 110/111 General Biology I and Lab .....	4
BIOL 201 & 202 Human Anatomy & Physiology I & II .....	8
CHEM 101 Introduction to Chemistry I .....	4
HSCI 102 Personal Fitness and Wellness .....	3
MATH 104 College Algebra .....	3
PES 101 Physics for Life Sciences .....	4

**Credits 26****Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 245 Health Care Environments .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management .....	3
HSCI 450 Legal/Ethical Issues .....	3
HSCI 459 Concepts of Health and Disease .....	3

**Credits 18****Sports Health and Wellness Promotion Option Requirements**

BIOL 330 Exercise Physiology .....	3
BIOL 435 Functional Anatomy .....	4
BIOL 455 Biomechanics/Kinesiology .....	3
BIOL 477 Human Metabolism .....	3
HSCI 207 Nutrition for Health Sciences ...	3
HSCI 4—Health Science Elective .....	3
HSCI 4—Health Behavior Change .....	3
HSCI 4—Obesity and Weight Management .....	3
HSCI 4—Sports Specific Training Principles & Techniques .....	3
HSCI 452 Health Teaching .....	3
HSCI 461 Sports Injury and Prevention....	3
HSCI 462 Internship .....	4
HSCI 467 Health Assessment .....	3
HSCI 495 Exercise Testing and Prescription .....	3
PSY 348 Principles of Sports Psychology .....	3

**Credits 47****Total Program Credits 120****Option D Senior Fitness Instructor****General Education Course Requirements**

ENGL 131 & 141 Rhetoric and Writing I & II (Complete Competency Exam).....	6
HSCI 206 Health Science Statistics .....	3
Humanities Electives (two—see LAS list)...	6
PSY 100 General Psychology .....	3-4
SOC 111 Introduction to Sociology .....	3-4
General Education Electives .....	6-9

**Credits 30****Health Science Prerequisites**

BIOL 110/111 General Biology I and Lab .....	4
BIOL 201 & 202 Human Anatomy & Physiology I & II .....	8
CHEM 101 Introduction to Chemistry I .....	4
HSCI 102 Personal Fitness and Wellness .....	3
MATH 104 College Algebra .....	3
PES 101 Physics for Life Sciences .....	4

**Credits 26****Health Science Core Requirements**

HSCI 200 Professional Practice Foundations .....	3
HSCI 245 Health Care Environments .....	3
HSCI 401 Health Science Research .....	3
HSCI 436 Health Care Management .....	3
HSCI 450 Legal/Ethical Issues .....	3
HSCI 459 Concepts of Health and Disease .....	3

**Credits 18****Sports Health and Wellness Promotion Option Requirements**

BIOL 330 Exercise Physiology .....	3
BIOL 455 Biomechanics/Kinesiology .....	3
GRNT 300 Intro to Gerontology* .....	3
GRNT 462 Sociology of Aging* .....	3
GRNT 463 Psychology of Aging* .....	3
HSCI 280 Biomedical Aspects of Aging* ..	3
HSCI 4—Health Science Electives (Choose specific electives for GRNT minor*) .....	6
HSCI 4—Health Behavior Change .....	3
HSCI 452 Health Teaching .....	3
HSCI 462 Internship (In Gerontology) .....	4
HSCI 464 Program Planning & Implementation .....	3
HSCI 467 Health Assessment .....	3
HSCI 474 Aging, Physical Activity & Health .....	3
HSCI 495 Exercise Testing and Prescription .....	3

**Credits 46****Total Program Credits 120**

\*Required courses for Gerontology minor. To achieve minor, a Professional Field Experience course must also be completed. Completion of minor requires a total of 21 credit hours.

**Minor Options in Health Care Science**

Minors are available in three areas of Health Care Science: Forensic Health Science, Health Care Management, and Sports Health and Wellness Promotion. Each minor requires a minimum of 20 credit hours chosen from a list of approved courses and no more than 9 credit hours of transfer work may be applied. Individual courses must be completed with a C- or better grade and the GPA of the minor courses must be a cumulative 2.0 or better. Some courses that apply to the minor may have pre-requisites and those pre-requisites do not necessarily apply to the minor hours. Minors may be obtained by students enrolled in any undergraduate degree program.

**Forensic Health Science Minor Option**

- HSCI 430 Sexual Assault Implications for Health Care Delivery
- \*HSCI 431 Introduction to Forensic Science
- \*HSCI 432 Investigation of Injury and Death
- \*HSCI 433 Crime Scene & Crime Lab
- \*HSCI 434 Psychosocial and Legal Aspects of Forensic Science
- \*HSCI 435 Internship in Forensic Science
- HSCI 437 Violence and Human Rights Issues
- HSCI 438 Substance Abuse
- HSCI 439 Forensic Photography
- HSCI 440 Forensic Practicum
- HSCI 441 Forensic Chemistry and Toxicology
- \* Certificate granted when all are completed.

**Health Care Management Minor Option**

- ACCT 201 Intro to Financial Accounting
- FNCE 305 Basic Finance
- HRMG 438 Human Resource – Management, Staffing and Development
- HSCI 245 Health Care Environments
- HSCI 436 Health Care Management
- HSCI 472 Health Care Budget and Finance
- HSCI 473 Community Care Networks
- HSCI 477 Management Practicum
- HSCI 479 Synthesis Seminar
- MKTG 300 Principles of Marketing
- MKTG 440 Service Management and Marketing

**Sports Health and Wellness promotion Minor Option**

- BIOL 330 Exercise Physiology
- BIOL 455 Biomechanics/Kinesiology
- HSCI 210 Patient Assessment
- HSCI 245 Health Care Environments
- HSCI 459 Concepts of Health and Disease
- HSCI 452 Health Teaching

- HSCI 461 Sports Injury and Prevention (can be substituted w/BIOL 423 Injury Prevention & Treatment)
- HSCI 462 Internship in Sports Health
- HSCI 495 Exercise Testing and Prescription
- HSCI 464 Program Planning & Implementation

**Master of Science in Nursing**

The graduate nursing program at Beth-El builds upon and expands the knowledge, values, and skills of the baccalaureate prepared nurse. Beth-El College of Nursing and Health Sciences offers a program of advanced study leading to a Master of Science degree. In addition to courses which prepare for expanded clinical roles, the student gains experience with research, health care policy, nursing theory, clinical problem solving/critical thinking and creativity. Students choose a specialty of nurse practitioner, clinical nurse specialist, or nursing administration. Additional credit hours are required if students choose a dual clinical role. Students choose a major in adult, family, forensic, community health, gerontological nursing or choose a self defined major. A pediatric option is also available in collaboration with University of Colorado Health Sciences Center. A nonclinical major in nursing administration is also available. A post certificate masters completion option is available upon approval. Students may also complete a minor in business or public administration through collaboration with the respective colleges or schools. Post masters certificates are available in selected specialties.

**Admission Requirements**

- GPA cumulative 3.0 in all previous coursework
- Completion of an accredited baccalaureate degree in nursing
- Prerequisite undergraduate courses include: Introduction to Statistics, Nursing Research & Health Assessment
- Vitae documenting current work experience (Adult 1 yr.; Family 2 yr.; Neonatal 2 yr. in level II or III nursery)
- Current unrestricted Registered Nurse license or in the state where clinical practice will take place.
- Passing score on the Test of English as a Foreign Language (TOEFL) if your

native language is not English

- Computer technology skills required
  - MSN Graduate Application
- NNP Applicant: satisfactory completion of pre-entrance exam.

If a student does not meet eligibility requirements for admission, petitioning of the Graduate Committee for provisional status is possible.

**Transfer Students**

A transfer student is a student who is seeking the M.S.N. degree, has attended another institution and meets all M.S.N. admission requirements. Articulation course work may be required of a transfer student. The student must petition the Graduate Department for acceptance of transfer credits. No more than 12 credit hours can be accepted from a non-CU campus.

**R.N. to M.S.N. Program**

Registered nurses with baccalaureate degrees in majors other than nursing may choose the RN to MSN curriculum plan. Specific nursing courses provide students knowledge to facilitate their transition to graduate level nursing courses.

**M.S.N. Program**

The Master of Science in Nursing at Beth-El College of Nursing and Health Sciences has three distinct bodies of knowledge; graduate core, advanced practice core and specialty courses related to the selected clinical specialty. All graduate core and advanced practice core courses are offered on-line as well as on site. The Adult Nurse Practitioner and Family Nurse Practitioner options may be taken entirely on-line. Other specialty courses (Forensic and Holistic) are blocked to facilitate part-time residency.

**M.S.N. Curriculum**

**Core Course Requirements**

(Required of all M.S.N. Students)

NURS 610 Philosophy and Theory of Nursing Practice .....	3
NURS 611 Advanced Nursing Practice and Health Care Policy .....	3
NURS 612 Research and Data Management .....	4
NURS 702 Clinical Research Application plus Elective .....	3
or NURS 700 Thesis .....	5

**Credits 16**



**Advanced Practice Nursing Core**

(Required of all M.S.N. Students - \*courses and hours are dependent on degree specialty)

\*NURS 628 Clinical Pharmacotherapeutics 3-4

\*NURS 673 Advanced Health Assessment ..... 3-4

\*NURS 674 Pathophysiology ..... 3-4

**Credits 10-12**

**Nurse Practitioner Option Specialty Courses****Adult Nurse Practitioner**

NURS 627 Family Theory..... 3

NURS 678 Primary Care I ..... 4

NURS 679 Primary Care II ..... 3

NURS 784 Practicum ..... 6

**Credits 41**

**Adult/Geriatric Nurse Practitioner**

NURS 622 Collaborative Health Care Management w/Elderly ..... 3

NURS 623 Physiological Problems of Aging ..... 3

NURS 627 Family Theory..... 3

NURS 678 Primary Care I ..... 4

NURS 679 Primary Care II ..... 3

NURS 784 Practicum ..... 6

**Credits 47**

**Family Nurse Practitioner**

NURS 627 Family Theory and Intervention 3

NURS 662 Family I ..... 4

NURS 664 Family II ..... 4

NURS 667 Family III ..... 3

NURS 789 Practicum ..... 6

**Credits 50**

**Neonatal Nurse Practitioner**

Students take NURS 651, 652 and 654 in place of NURS 673, 674 and 628 in general masters.

NURS 627 Family Theory and Intervention 3

NURS 651 Preinatal /Newborn Assess.... 3

NURS 652 PathoPhysiology of Newborn.... 4

NURS 653 Clinical Management ..... 4

NURS 654 Neonatal Pharmacotherapeutics4

NURS 780 Practicum I ..... 5

NURS 781 Practicum II ..... 5

**Credits 44**

**Collaborative Nurse Practitioner Option**

Pediatric Nurse Practitioner and Psychiatric Nurse Practitioner collaborative programs are available with UCHSC and UCCS. Contact program director for more information.

**Articulation for Nurse Practitioners**

Articulation for Nurse Practitioners returning to school for the M.S.N. degree. Individuals seeking this option should contact the college for information regarding admission, portfolio requirements and curriculum.

**Clinical Nurse Specialist Option*****Clinical Nurse Specialist Option Self Defined Clinical Nurse Specialist***

NURS 615 CNS Seminar ..... 3

NURS 666 Promotion and Management of Health and Disease..... 3

Nursing Specialty Course work ..... 6

NURS 782 CNS Practicum ..... 5

**Credits 42-44**

**Forensic Clinical Nurse Specialist**

NURS 615 CNS Seminar ..... 3

NURS 627 Family Theory..... 3

NURS 666 Promotion and Management of Health and Disease..... 3

NURS 782 CNS Practicum ..... 5

Nursing specialty forensic courses ..... 6

**Credits 46**

**Neonatal Clinical Nurse Specialist**

Students take NURS 651, 652 and 654 in place of NURS 673, 674 and 628 in general Masters

NURS 615 CNS Seminar ..... 3

NURS 627 Family Theory..... 3

NURS 651 Perinatal/Newborn Assess.... 3

NURS 652 PathoPhysiology of Newborn.... 4

NURS 653 Clinical Management ..... 4

NURS 654 Neonatal Pharmacotherapeutics4

NURS 782 CNS Practicum ..... 5

**Credits 41**

**Community Clinical Specialist**

NURS 615 CNS Seminar ..... 3

NURS 627 Family Theory..... 3

NURS 663 Community & Rural..... 2

NURS 629 Resource Management ..... 3

NURS 666 Promotion and Management of Health and Disease..... 3

NURS 782 CNS Practicum ..... 4

NURS 783 Community Assessment Practicum ..... 1

**Credits 46**

Courses related to the selected clinical specialty provide the student an opportunity to use empirical, ethical, esthetic, personal, and socio-political knowledge in the clinical setting specific to the student's chosen advanced practice role.

**Nursing Administration Option**

Designated to prepare qualified careers in hospitals, health maintenance organizations, long-term care facilities, health departments and other health care organizations. Option done in collaboration with the College of Business. Curriculum includes graduate nursing core courses (17 credits) plus 27 credits in specialty administration courses.

NURS 629 Resource Management: Budget and Finance..... 3

NURS 705 Health Care Ethics and Law ... 3

NURS 704 Health Care Administration I... 3

NURS 706 Health Care Administration II.. 3

BAD 680 New Venture Management or other Business Elective ..... 3

NURS 790 Administrative Internship ..... 3

NURS 791 Administrative Practicum ..... 3

Electives ..... 6

**Credits 44**

**Post Certificate MSN Option**

Students with a Nurse Practitioner National Certificate in neonatal, women's health, adult or geriatric nursing:

Certificate program materials are evaluated for transfer credit. Masters core courses and advanced practice courses are required. Specialty courses needed will be determined individually after transcript evaluation. Interviews may be required.

**On-line Option**

Core courses in the graduate program are offered on-line. For further information contact the Department (719) 262-4424. The ANP and FNP are offered totally on-line. The CNS core is offered on-line, with many of the specialty courses offered in one-week blocks. The Nursing Administration Specialty course will be offered on-line 2003-2005.

**RN to MSN Option**

Designation for individuals with an associate degree in nursing and a bachelors degree in a non-nursing discipline. Students apply for admission to graduate nursing program (see graduate nursing admission requirement). Student must meet all MSN admission requirements except graduation from NLN accredited BSN program. Students will be admitted provisionally to the graduate program until completion of 18



credits of undergraduate prerequisite course work (with a grade of B or better).

HSCI 206 Statistics for Health Science.....	3
NURS 301 Pathophysiology .....	3
NURS 305 Health Assessment .....	3
NURS 445 Community Health Nursing .....	6
NURS 401 Nursing Research .....	3

**Requirements for Prescriptive Authority**

Specific courses may differ for the selected specialty but must include Advanced Pathophysiology, Advanced Assessment, and Clinical Pharmacotherapeutics. State requirements differ in various state jurisdictions, currency of course work and practice hours as an APN may be required.

**Program Minor**

A minor can be received by taking nine to twelve hours in one of the following specialty focuses: Community Health (12), Forensics (9), Gerontology (9), Holistic Health Nursing (9), Business (12) or Public Administration (9). A minor can be self-defined if the selected focus meets identified program criteria.

**M.S.N. Program Advising**

Graduate students are responsible for meeting with the Chair of the Graduate Nursing Department to develop a degree plan. Students are assigned an advisor while completing academic requirements of the program. Students meet with their advisors twice a year in October and April. Advisors facilitate development and enhancement of program outcomes in a required student portfolio. Advising is mandatory and failure to participate may result in a recommendation to postpone progression toward degree completion.

New student orientation is provided each semester. Graduate students should obtain a copy of the Graduate Nursing Department Student Handbook and familiarize themselves to policies and procedures of the Department to facilitate success toward completion of the advanced degree. Students will receive a Schedule of Deadlines for Masters Degree Candidates.

**Degree Requirements**

- Completion of a minimum of 39-53 credits at the graduate level
- A grade of “B” in all required nursing courses

- Final comprehensive examination or thesis
- Students are admitted to candidacy following successful academic advisor approval and comprehensive examination or thesis defense
- Completion of degree requirements within five years

**Certificate Programs**

Beth-El College of Nursing and Health Sciences offers two levels of certificate programs:

Undergraduate Certificate

Graduate Certificate

Certificate programs can be taken through regular university enrollment or the Beth-El division of extended study.

**Certificate Options**

- Forensics studies (graduate, undergraduate or extended studies)
- Gerontological Nursing (graduate, undergraduate or extended studies)
- Holistic nursing (undergraduate, graduate or extended studies)
- Neonatal nursing (graduate or extended studies)
- Teaching Certificate in Nursing (graduate)

**Post-Master’s Degree Certificates in Nursing**

Students with master’s degrees in nursing may apply for these certificate programs: adult, family, neonatal, holistic and adult/gerontology. If the student’s initial master’s degree did not require a course in advanced pathophysiology the student is required to take Advanced Pathophysiology. Please request information from the college.

**Application Procedures contact:**

Undergraduate and Certificate Programs:  
 UCCS  
 1420 Austin Bluffs Parkway  
 PO Box 7150  
 Colorado Springs, CO 80933-7150  
 (719) 262-3000 or 1-800-990-UCCS

E-mail: Admissions and Records:  
 ADMREC@MAIL.UCCS.EDU

on the WEB: <http://www.uccs.edu>

Graduate Program: Department of Graduate Nursing 262-4424

Extended Studies: 262-4486

Academic Policies website <http://web.uccs.edu/bethelstudenthandbook>

**Collaborative Degrees**

***Master of Basic Science: Forensic Science Option***

**Department of Biology and Department of Health Sciences**

The Department of Biology in collaboration with the Department of Health Sciences, offers a program leading to the degree of Master of Basic Science (MBS) in Forensic Science. Graduate students pursue coursework in forensic science and related disciplines (Biology, chemistry, psychology, sociology and anthropology) providing the students with a diverse integrated curriculum of study.

For admission into the program contact Sandy Berry-Lowe, Coordinator, MBS 719-339-5276, Science Building 228.

***Master of Business Administration-Health Care Administration Option***

The College of Business in collaboration with the College of Nursing and Health Sciences, offers a program leading to the degree Master of Business Administration (MBA) with Health Care Administration Option.

For Admission into the program see the College of Business section of this Bulletin.





## Course Descriptions

### COLLEGE OF BUSINESS AND ADMINISTRATION

#### ACCOUNTING

**ACCT 201-3. Introduction to Financial Accounting.** Focuses on the selection and preparation of basic financial information for the principal financial statements of the business enterprise, with emphasis on asset and liability valuation problems and the determination of net income. Includes use of spreadsheets. Prer., INFS 110 or equivalent.

**ACCT 202-3. Introduction to Managerial Accounting.** Preparation of the statement of cash flows, basic financial statement analysis, the analysis of product, service and period costs, and the role of accounting in the planning and control of business enterprises. Emphasis on management decision making uses of accounting information. Includes the use of spreadsheets. Prer., INFS 110 or equivalent and ACCT 201.

**ACCT 301-3. Intermediate Accounting I.** A comprehensive analysis of the practice of financial accounting and reporting by public corporations to investors, creditors and other users. Includes analysis of standards setting, accounting theory and generally accepted accounting principles. Emphasis is on the purpose of financial statements with a focus on income determination and asset valuation. Includes the use of spreadsheets. Prer., INFS 110, and ACCT 202 or ACCT 550 or ACCT 600.

**ACCT 302-3. Intermediate Accounting II.** A continuation of ACCT 301 with focus on liabilities, equity, and special areas, including cash flow statements, leases, pensions, income taxes, earnings per share and changing prices. Includes the use of spreadsheets. Prer., ACCT 301.

**ACCT 311-3. Cost Accounting.** Cost analysis for purposes of control and decision making. Analysis of cost behavior, role of accounting in planning and control, and managerial uses of cost accounting data. Includes use of spreadsheets. Topics of current interest will be discussed, including activity-based costing. Includes the use of spreadsheets. Prer., Junior Standing. ACCT 202 or ACCT 550 or ACCT 600.

**ACCT 401-3. Advanced Financial Accounting.** Advanced financial accounting provides an in-depth analysis

into the theory and practices of accounting for business combinations, consolidated financial statements, international operations and partnerships. Prer., ACCT 301 and ACCT 302. Completion of all skills courses or COB Director permission.

**ACCT 402-3. Financial Accounting Theory.** In-depth analysis of contemporary accounting issues and problems, the development of accounting thought and principles, and critical review of generally accepted accounting principles. Prer., ACCT 301. May be taken concurrently with ACCT 302. Completion of all skills courses or COB Director permission.

**ACCT 411-3. Managerial Accounting Issues.** Critical analysis of advanced topics in managerial accounting. Uses cases and readings from the current managerial accounting literature to focus on issues of concern to managers. Prer., ACCT 311. Completion of all skills courses or COB Director permission.

**ACCT 421-3. Individual Income Tax.** Analysis of basic concepts of federal income taxes such as income, exclusions, deductions, passive losses, and property transactions. Concepts will be applied to actual situations by the use of a computer-generated tax return package. Focus is on individual considerations and planning. Prer., ECON 202 and ACCT 202 or ACCT 550 or ACCT 600. Completion of all skills courses or COB Director permission.

**ACCT 422-3. Corporate and Partnership Taxation.** Primary emphasis is on C and S corporations and partnerships. Basic analysis of planning and compliance of most forms of corporate and partnership organization, operations, mergers and dissolution. Business planning and international taxation are also considered. Prer., ACCT 421. Completion of all skills courses or COB Director permission.

**ACCT 431-3. Introduction to Accounting Systems.** An introduction to the elements in an accounting information system, one of an organization's central information systems. Explores the newest technology and the accountant's/financial analyst's role in designing systems. Includes "hands-on" projects designed to expose the student to various software tools commonly used by accountants and financial analysts. Students will also complete several projects on a leading accounting software package. Prer., FNCE 305 and ACCT 202 or ACCT 550 or ACCT 600. Completion of all skills courses or COB Director permission.

**ACCT 441-3. Fund Accounting for Government and Nonprofit Organizations.** To provide an introduction to accounting practices in governmental and nonprofit organizations. Fund accounting and budgetary control techniques will be covered in detail. Emphasis will be placed on management uses of this information. Necessary for CPA exam preparation. Prer., Junior standing. ACCT 202 or ACCT 550 or ACCT 600. Completion of all skills courses or COB Director permission.

**ACCT 451-3. Accounting Ethics and Institutions.** An in-depth study of the technical and behavioral ethical standards existing for professional accountants in all fields, and of the political and regulatory institutions that affect the practice of professional accounting including the SEC, IRS, FASB, AICPA and state authorities. Prepares students for dealing successfully with ethical issues throughout their careers. Prer., Nine semester hours upper division accounting.

**ACCT 461-3. Auditing.** A study of generally accepted auditing standards, ethical responsibilities and legal liabilities of the independent auditor and auditing techniques used by the independent public accountant. Prer., ACCT 301; may be taken concurrently with ACCT 302 with consent of instructor.

**ACCT 495-1 to 3. Topics in Accounting.** Experimental course in accounting.

**ACCT 496-1 to 3. Internship in Accounting.** Undergraduate accounting internship for business students. Prer., Junior/senior business students only.

**ACCT 600-3. Contemporary Issues in Accounting.** Focuses on the use of accounting information for executive decision making. Accounting information can provide managers with critical data about their organizations and those of customers and competitors. Will enable executives to manage better using accounting reports as effectively as possible. Knowledge of spreadsheets required.

**ACCT 601-3. Seminar: Financial Accounting Theory.** A concentrated analysis and evaluation of alternative conceptual systems for reporting about and by public corporations in financial statements. Involves considering the economic and political history of currently acceptable and unacceptable theories and practices for financial accounting in

general and for specific topics. Prer., ACCT 301 and ACCT 302 or equivalent.

**ACCT 609-3. Contemporary Issues in Accounting.** Focuses on the use of accounting information for executive decision making. Accounting information can provide managers with critical data about their organizations and those of customers and competitors. Will enable executives to manage better using accounting reports as effectively as possible. Knowledge of spreadsheets required. Distance MBA course. Tuition differs from on-campus courses.

**ACCT 611-3. Seminar: Managerial Accounting Issues.** An in-depth exploration of the broad professional field of managerial accounting, especially as related to organizational decision making, planning and control. Development and current problems of the managerial accounting function are analyzed. Prer., ACCT 311 or equivalent.

**ACCT 621-3. Seminar: Advanced Topics in Income Taxation.** Prepares the student to develop supporting documentation for tax planning and compliance. Research using tax statutes, regulations, rulings, and court cases related to advanced income tax issues is emphasized. Prer., ACCT 600.

**ACCT 661-3. Seminar: Issues in Auditing.** Development of auditing as a profession including the evolution of auditing standards and audit reports. Current issues relating to ethical and legal responsibilities of the auditor are explored. Historical and contemporary literature in the field is reviewed. Prer., ACCT 600 or equivalent; ACCT 461 desirable.

**ACCT 695-1 to 3. Topics in Accounting - Graduate.** Experimental course in accounting offered at the graduate level for the purpose of presenting new subject matter. Open only to MBA degree students.

**ACCT 696-1 to 3. Internship in Accounting.** Graduate internship in accounting. Prer., Instructor and Dean approval.

**ACCT 940-1 to 3. Independent Study in Accounting - Undergraduate.** With the consent of the instructor who directs the study and the dean.

**ACCT 950-1 to 3. Independent Study in Accounting - Graduate.** With the consent of the instructor who directs the study and the dean.

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## BUSINESS COMMUNICATIONS

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**BCOM 550-3. Professional Business Communication.** A combination of lectures and workshops help students prepare effective reports and presentations. The elements that form the basis for successful communication include analyzing audiences, organizing information, guiding readers through effective formats, creating active structures with effective transitions, and visualizing information. Students gain experience in professional research and giving effective presentations. Issues of documentation, punctuation, and grammar reviewed as needed.

**BCOM 559-3. Professional Business Communication.** Practical and theoretical components of effective professional business communication. Provides foundational skills in effective oral and written business communication, including development of business proposals and presentations. Further strategic communication in interpersonal and group and team contexts is investigated through case analysis with special emphasis on the importance of communication in understanding organizational culture, leadership, diversity, emerging organizational technologies, and business ethics. Distance MBA course. Tuition schedule differs from on-campus courses.

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## BUSINESS LAW

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**BLAW 200-3. Business Law.** The legal significance of business transactions as they are part of the decision making process in business. Coverage of text and statutes includes law and its enforcement and integration of the Uniform Commercial Code with the law of contracts, bailments, warehousemen and carriers, documents of title, sales of goods, and commercial paper. No longer required for Business degree; may be taken as a business elective. Recommended for accounting majors who will be sitting for the CPA exam. Prer., Sophomore standing.

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## BUSINESS ADMINISTRATION

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**BUAD 100-3. Introduction to Business.** Familiarizes students with the structure, operations, management, and socioeconomic aspects of business and nonbusiness entities. Course builds on the college themes of entrepreneurship, technology, team building, and international competitiveness to establish a foundation for integrating information

encountered in more advanced business courses.

**BUAD 295-1 to 3. Topics in Business.** Experimental courses offered irregularly at the Sophomore level for the purpose of presenting new subject matter in a particular business field. Course prerequisites will vary depending upon topics covered. Prer., Sophomore standing.

**BUAD 300-3. Integrated Skills for Management.** Required for the core business courses. Students focus on 3 skill areas: refine communication for management (interpersonal, writing, and presentation); learn principles and practice of teamwork in a lab setting; learn project management in completing two complex projects focusing on outside groups and an ethics study. Students may take this course as a second-semester sophomore. Prer., ENGL 131. INFS 110 highly recommended. Second semester sophomore.

**BUAD 301-1. Career Strengths: Assessment and Development.** Gives students an in-depth understanding of their interests, skills, and values and how these match to particular jobs and professions. Through research and analysis the students will gain a clear, detailed picture of what they want to do and what they have to offer an employer. Pass/fail only.

**BUAD 302-1. Career Skills: Resume Writing and Interviewing.** Instructs and gives students hands-on experience on how to: (a) write cover letters and resumes, (b) practice effective interviewing techniques, and (c) develop effective job hunting skills. Pass/fail only. Prer., Junior standing.

**BUAD 303-1. Career Success: Image and Impact.** Helps students converse, interact, and dress in a professional manner for job interviews, telephone calls, written correspondence, and professional work settings. Course will cover working in a diverse, cross-cultural environment, making effective first impressions, and appropriately communicating in a variety of speaking and writing situations. Pass/fail only. Prer., Junior standing.

**BUAD 390-3. Improving Personal and Team Creativity.** Covers the concepts and theories of creativity but devotes most of the course time to specific, proven approaches to unlock and surface the student's innate creativity. Examples of creative approaches in business and industry are illustrated. Both individual and group creativity techniques are

reviewed and practiced, with emphasis on how to form a creative work team. Prer., Junior standing.

**BUAD 395-1 to 3. Topics in Business - Undergraduate.** Experimental courses offered irregularly at the undergraduate level for the purpose of presenting new subject matter in a particular business field.

**BUAD 400-3. Business, Government, Law, and Society.** An examination of interrelationships between business, society, and government and the legal significance of transactions in the business decision-making processes. Prer., Business seniors only.

**BUAD 450-3. Cases and Concepts in Business Policy.** Takes a general manager's perspective on the administration of the corporation. Topics include the role and responsibility of general management, analysis of threats and opportunities in the competitive environment, strategies for building and sustaining competitive advantage, strategy implementation and management, and strategic management in the international environment. Topics covered through comprehensive case analysis. Prer., QUAN 201, MKTG 300, OPTM 300, FNCE 305, ORMG 330, ENGL 307 or COMM 324. Business seniors only.

**BUAD 470-3. Emerging Businesses and Entrepreneurship.** How to plan, organize and operate a new independent business. Case studies of local small businesses. Prer., Senior standing.

**BUAD 495-1 to 3. Topics in Business - Undergraduate.** Experimental courses offered irregularly at the undergraduate level for the purpose of presenting new subject matter in a particular business field. Second semester junior or senior standing required. Course prerequisites will vary depending upon topics covered.

**BUAD 496-1 to 3. Internship in General Business.** Undergraduate internship for business students. Prer., Junior/senior business students only.

**BUAD 550-3. Fundamentals of Economics.** Students will learn to apply economic logic in solving business problems and in analyzing current topics. Course emphasis is on the role of free markets in determining economic well-being. Course covers the fundamentals of micro and macro economics.

**BUAD 559-3. Macroeconomics for Managers.** Development of economic skills and knowledge of the modern capitalist economic system. Emphasis

on tools of economic analysis, the functioning of the macroeconomy, the growing influence of the international sector on the macroeconomy, and the role of technology in forming a "new" economy. Students will learn to analyze simple market events, understand and interpret key macroeconomic variables, analyze the effect of both domestic and international events on the domestic economy, understand the government's and the Fed's role in the economy, and understand how technological change may be driving the formation of a "new" economy. Distance MBA course. Tuition schedule differs from on-campus courses.

**BUAD 560-3. Business, Government, and Society.** The interdependence of business with societal, governmental, and economic environments. Explores the role and balance of responsibilities between business and government, nature of the free market system, current public policy issues, and external trends affecting business. Prer., BUAD 550.

**BUAD 569-3. Business, Government, and Society.** This course examines the interdependence of business with societal, governmental, and economic environments. The role and balance of responsibilities between business and government, the nature of the free market system, current public policy issues, and external trends affecting business are explored. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., BUAD 559.

**BUAD 649-3. Transforming Technology Organizations and Employees.** Addresses three major issues facing technology organizations today: 1) How to motivate technical people, 2) How to design the technology-based organizations of the future, and 3) How to implement effective change. The purpose of this course is to link academic theory with practical examples from many global organizations concerning the best practices of technology and organizations and work forces. Distance MBA course. Tuition schedule differs from on-campus courses.

**BUAD 650-3. Strategic Management.** Taking a global perspective, this course focuses on the role of the general manager in articulating a vision for the business, assessing threats and opportunities in the competitive environment, formulating a strategy for achieving competitive advantage, and designing an organizational architecture for effectively implementing the strategy. Utilizes a combination of lectures, group discussions, and case analysis to raise and examine the key issues. Prer., All

preparatory courses or their equivalents and all MBA core courses. Recommended for final semester in the program.

**BUAD 659-3. Strategic Management.** Taking a global perspective, this course focuses on the role of the general manager in articulating a vision for the business, assessing threats and opportunities in a competitive environment, formulating a strategy for achieving competitive advantage and designing an organizational architecture for effectively implementing the strategy. Utilizes a combination of lectures, group discussions, and case analysis to raise and examine the key issues. Recommended for the final semester in the program. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., All preparatory courses or their equivalents and all MBA core courses.

**BUAD 661-3. Managing Technology for Strategic Advantage.** This course provides managers with the knowledge necessary to adopt technology to advance an organization's goals. The course is divided into three segments: (1) an overview of existing technologies and the value each offers to an organization, (2) valuing technology and developing technology-based strategy, and (3) developing a business model to implement a technology-based strategy. The progression is from the general to the specific and from principles to applications.

**BUAD 669-3. Managing Technology for Strategic Advantage.** Provides managers with the knowledge necessary to adopt technology to advance an organization's goals. The course is divided into three segments: (1) an overview of existing technologies and the value each offers to an organization, (2) valuing technology and developing technology-based strategy, and (3) developing a business model to implement a technology-based strategy. The progression is from the general to the specific and from principles to applications. Distance MBA course. Tuition schedule differs from on-campus courses.

**BUAD 670-3. World Class Service Management.** Effective service management requires a multi-disciplinary approach involving marketing, management, human resource management, and information and production/operations management. Provides a foundation in these areas as they pertain to service management. Content for each area will include a conceptual overview of its importance to service quality, specific tools representative of the area, and exercises

to demonstrate practical application. The focus is on the integrative requirements of service quality.

**BUAD 671-3. Transforming Technology Organizations and Employees.** Addresses three major issues facing technology organizations today: 1) How to motivate technical people, 2) How to design the technology-based organization of the future, and 3) How to implement effective change. The purpose of this course is to link academic theory with practical examples from many global organizations concerning best practices of technology organizations and work forces.

**BUAD 679-3. World Class Service Management.** Effective service management requires a multi-disciplinary approach involving marketing, management, human resource management, and information and production/operations management. Provides a foundation in these areas as they pertain to service management. Content for each area will include a conceptual overview of its importance to service quality, specific tools representative of the area, and exercises to demonstrate practical application. The focus is on the integrative requirements of service quality. Distance MBA course. Tuition schedule differs from on-campus courses.

**BUAD 680-3. New Venture Management.** Identifies unique features of new ventures (including start-up companies or internal ventures of established firms), high uncertainty, a newly formed management team, and a shortage of resources. Covers business plan development, recruiting the start-up team, legal and financial issues, start-up operations, managing growth, forming alliances, and exit strategies. Students, working in teams, will develop a business plan for a new venture.

**BUAD 690-3. Managing in Global Markets.** Designed to prepare students to anticipate global forces that impact present management. Briefly reviews the economic, the social-cultural, and the political/legal context of global management. Also reviews various concepts related to the internationalization process of the firm and frameworks related to global strategy.

**BUAD 691-3. Regional Business Environment Europe.** A series of international business seminars conducted abroad by management personnel of European companies. Insight is provided into the cultural, social, and political environments of each country

visited. This is an intensive international business and travel experience. Prer., Instructor approval.

**BUAD 695-1 to 3. Topics in Business - Graduate.** Experimental course offered at the graduate level for the purpose of presenting new subject matter in a particular business field.

**BUAD 696-1 to 3. Internship in General Business.** Graduate internship in business. Open only to MBA degree students. Prer., Instructor and Dean approval.

**BUAD 699-3. Regional Business Environment Europe.** Short study abroad. A series of international business seminars conducted abroad by management personnel of European companies. Insight is provided into the cultural, social, and political environments of each country visited. This is an intensive international business and travel experience. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., Instructor approval.

**BUAD 940-1 to 4. Independent Study in Business Administration - Undergraduate.** Independent study at the undergraduate level with the prior consent of the instructor under whose direction the study is undertaken and the dean.

**BUAD 950-1 to 3. Independent Study in Business Administration - Graduate.** Independent study at the graduate level with prior consent of the instructor under whose direction the study is undertaken and the dean. Prer., Consent of instructor and dean.

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## ENTREPRENEURSHIP

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**ENTP 295-1 to 3. Topics in Entrepreneurship.** Experimental course offered for the purpose of presenting new subject matter in entrepreneurship. Course prerequisites will vary depending upon topics covered.

**ENTP 395-1 to 3. Topics in Entrepreneurship.** Experimental course offered for the purpose of presenting new subject matter in entrepreneurship. Course prerequisites will vary depending on topics covered.

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## FINANCE

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**FNCE 305-3. Basic Finance.** An introduction to the financial management of the firm and the function of finance. Topics include the study of money and capital markets; time value of money; techniques of financial analysis, planning

and control; capital budgeting techniques and analysis; management of short and long-term sources of financing; management of working capital; and capital structure theory. Emphasis is placed on the interpretation, analysis and use of accounting measures in making financial decisions. \*\*\*Students are encouraged to take QUAN 202 prior to or in the same semester.\*\*\* Prer., ECON 101, ECON 202, ACCT 201, and QUAN 201.

**FNCE 330-3. Investments and Personal Finance.** The study of the basic problems concerning development and implementation of a personal investment program. Includes analysis of investment risk and return, alternative types of investments, obtaining and interpreting investment information, and designing and executing an investment program. No credit given toward degree for finance majors. Students may not receive credit for both FNCE 330 and FNCE 420. Pre/coreq., Junior standing.

**FNCE 340-3. Risk and Insurance Principles.** Risk management is an important element of individual and corporate financial plans. Probability, theory of the firm under uncertainty, insurance carriers and contracts, underwriting, and regulation are covered. Types of insurance including life, health, homeowners, auto, other property liability, and individual employee benefits are discussed. Pre/coreq., Junior standing.

**FNCE 400-3. Advanced Corporate Finance.** The comprehensive study of how corporations make investment decisions, raise capital to finance their investments, and manage their financial affairs to create shareholder value. Topics covered include capital budgeting and the cost of capital, dividend policy, capital structure and financial distress. Emphasis on developing analytical tools and problem solving. Prer., FNCE 305, QUAN 202. Second semester junior. Completion of all skills courses or COB Director permission.

**FNCE 410-3. Cases and Concepts in Finance.** The development of analytical and decision-making skills of students in relation to problems that confront financial managers. Areas include planning, control and financing of both current operations and longer term capital commitments, management of income, evaluation of income-producing property, and expansion and contraction. Case method of instruction. Prer., FNCE 400.

**FNCE 420-3. Investment and Portfolio Management.** The study of the investments industry and instruments.

Topics include the investment setting, portfolio theory, risk and return, and valuation of common and preferred stocks, bonds, options and futures. The course discusses investment problems and policies and the methodology for implementing them. Students may not receive credit for both FNCE 330 and FNCE 420. Prer., FNCE 305. Completion of all skills courses or COB Director permission.

**FNCE 430-3. Bank Management.** An examination of the particular problems of managing a financial intermediary. The analytical tools for addressing the issues of regulatory requirements, the acquisition and management of funds, loan policies and procedures, capital adequacy, liquidity and solvency are developed. Prer., FNCE 305 and working knowledge of Excel. Second semester junior or senior standing.

**FNCE 440-3. International Financial Management.** Examines the opportunities and risks of firms doing business in a global economy. International capital movements, balance of payment problems, foreign and international institutions, foreign exchange markets, and global investment and financing strategies are explored. Prer., FNCE 305. Completion of all skills courses or COB Director permission.

**FNCE 450-3. Money and Banking.** The study of the interaction between financial markets and the Federal Reserve system. The course emphasizes how the Federal Reserve Bank conducts monetary policy to promote a stable banking system and strong economic growth while minimizing inflation and unemployment. Topics covered include interest rates, inflation and the money supply and the effect of these variables on the business cycle. Prer., FNCE 305. Completion of all skills courses or COB Director permission.

**FNCE 460-3. Financial Modeling.** An introduction to advanced financial modeling techniques using spreadsheets. The tool of the financial analyst is Excel. This is a project class where students develop modeling capabilities. Students will learn to build effective dynamic models to analyze capital budgeting, ratios, risk, financial plans, budgets and portfolio allocation. Students will also be introduced to other important financial databases used in financial analysis. Prer., ACCT 202 and FNCE 400.

**FNCE 470-1 to 3. Practicum and Research in Security Markets.** The PRISM class is a hands-on learning lab for students interested in making investment

decisions. Thanks to a partnership with D.A. Davidson, the class will manage a portfolio account with real funds. FNCE 470/SIFE 300 is a 3-credit course that requires a commitment over both the Fall and Springs semesters. Those students who complete the class successfully will be eligible for a paid, summer internship with D.A. Davidson. Admissions into the course is by application only. Applications are available through the College of Business. Prer., FNCE 305 or equivalent. Permission of instructor required. Meets with SIFE 300 and FNCE 670.

**FNCE 480-3. Entrepreneurial Finance.** This is a hands-on class on entrepreneurship. Students learn how to apply the techniques of finance to starting and growing a business. Students will gain practical financial knowledge that will be useful in starting a business and also practical entrepreneurial skills that could be used within a larger organization. Coursework will focus on the application of financial theory to real settings. Prer., FNCE 305 or instructor permission.

**FNCE 495-1 to 3. Topics in Finance - Undergraduate.** Experimental courses offered irregularly at the undergraduate level for the purpose of presenting new subject matter in finance. Second semester Junior or Senior standing required. Course prerequisites will vary depending upon topics covered. Prer., Junior/Senior standing.

**FNCE 496-1 to 3. Internship in Finance.** Undergraduate internship in finance. Prer., Junior/senior business students only.

**FNCE 600-3. Corporate Financial Management.** Concerned with the optimal allocation of a company's financial resources and a working knowledge of financial terminology and concepts. Capital market history, time value of money, valuation of securities, risk and return, capital budgeting principles and techniques, financial statement analysis, financial planning, raising capital, and cost of capital. Emphasizes techniques necessary to create and maximize the value of the firm. Prer., ACCT 600, BUAD 550 and QUAN 550.

**FNCE 609-3. Corporate Financial Management.** Concerned with the optimal allocation of a company's financial resources and a working knowledge of financial terminology and concepts. Capital market history, time value of money, valuation of securities, risk and return, capital budgeting principles and techniques, financial statement analysis, financial planning, raising capital, and cost of capital. Emphasizes techniques

necessary to create and maximize the value of the firm. Distance MBA course. Tuition schedule differs from on-campus course. Prer., BUAD 559, QUAN 559, and ACCT 609.

**FNCE 610-3. Problems and Policies in Financial Management.** Application of financial analysis to new product evaluation, project finance, working capital management, new issues of debt and equity, acquisitions and divestitures, and financial distress/ turnarounds. Prer., FNCE 600.

**FNCE 620-3. Investment Management and Analysis.** The theory of investment management and security values is presented. Topics include portfolio management; the analysis of investment risks and constraints on investment policies and objectives; the analysis and use of investment information; the development and application of the tools for determining value; the analysis of common stock, bonds, options and futures. Prer., FNCE 600.

**FNCE 629-3. Investment Management and Analysis.** The theory of investment management and security values is presented. Topics include portfolio management; the analysis of investment risks and objectives; the analysis and use of investment information; the development and application of the tools for determining value; and analysis of common stock, bonds, options, and futures. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., FNCE 609.

**FNCE 640-3. International Financial Management.** Uses the fundamental tools of financial analysis to assess the risks and opportunities for firms operating in an increasingly global economy. Special emphasis will be placed on the opportunities that arise from both market imperfections and the increasing integration of financial markets worldwide. Focuses on the international financial environment, the measurement and management of foreign exchange rate risk, and global funding and investment opportunities using both quantitative and qualitative decision tools to exploit opportunities and control risk. Prer., FNCE 600.

**FNCE 649-3. International Financial Management.** Uses the fundamental tools of financial analysis to assess the risks and opportunities for firms operating in an increasingly global economy. Special emphasis will be placed on the opportunities that arise from both market imperfections and the increasing

integration of financial markets worldwide. Focuses on the international financial environment, the measurement and management of foreign exchange rate risk, and global funding and investment opportunities using both quantitative and qualitative decision tools to exploit opportunities and control risk. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., FNCE 609.

**FNCE 650-3. Managerial Economics and the Business Cycle.** Study of forces affecting the US and global business cycle. Interpretation of business cycle indicators and their implications for financial planning and decision-making. Topics include interest rates and inflation, the conduct of monetary policy, aggregate supply and demand, and employment levels. Presents concepts, tools, and methods of economic analysis relevant to decision-making within the firm. Prer., FNCE 600.

**FNCE 659-3. Managerial Economics and the Business Cycle.** Study of forces affecting the US and global business cycle. Interpretation of business cycle indicators and their implications for financial planning and decision making. Topics include interest rates and inflation, the conduct of monetary policy, aggregate supply and demand, and employment levels. Presents concepts, tools, and methods of economic analysis relevant to decision making within the firm. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., FNCE 609.

**FNCE 660-3. Financial Engineering and Corporate Risk Management.** Examines "derivative" securities such as options, futures, swaps as instruments for controlling fluctuations in interest rates, exchange rates, and business conditions. Develops common methods for valuing derivative securities and applies these methods to representative cases. Prer., FNCE 600.

**FNCE 670-1 to 3. Practicum and Research in Security Markets.** The PRISM class is a hands-on learning lab for students interested in making investment decisions. Thanks to a partnership with D.A. Davidson, the class will manage a portfolio account with real funds. FNCE 600/FNCE 470 is a 3-credit course that requires a commitment over both the Fall and Spring semesters. Those students who complete the class successfully will be eligible for a paid, summer internship with D.A. Davidson. Admissions into the course is by application only. Applications are available through the College of Business. Prer., FNCE 305 or equivalent. Permission of instructor required. Meets

with FNCE 470.

**FNCE 695-1 to 3. Topics in Finance - Graduate.** Experimental course in finance offered at the graduate level for the purpose of presenting new subject matter.

**FNCE 696-1 to 3. Internship in Finance.** Graduate internship in finance. Prer., Instructor and Dean approval.

**FNCE 940-1 to 3. Independent Study in Finance - Undergraduate.** Independent study in finance at the undergraduate level given with the consent of the instructor who directs the study and the dean. Prer., Junior/senior standing only and consent of instructor and dean.

**FNCE 950-1 to 3. Independent Study in Finance - Graduate.** Independent study in Finance at the graduate level given with the consent of the instructor who directs the study and the dean.

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## HEALTH CARE ADMINISTRATION

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**HCAD 619-3. Health Care Administration.** Examines the social, political and economic influences on health care administrators in the health care system. Analyzes leadership management and organizational theories, human resource management, strategic management and professional development issues. Distance MBA course. Tuition schedule differs from on-campus courses.

**HCAD 629-3. Health Care Policy.** Focuses on the knowledge and skills needed to effect change in health care policy and delivery. Explores the health care system, focusing on financing, delivery and reimbursement models, regulatory issues, and the legal/ethical parameters. Emphasis is placed on empowerment and the development of leadership skills within the social/political context of health care. Building collaborative interactions within systems is stressed as the policy-making process is studied. Distance MBA course. Tuition schedule differs from on-campus courses.

**HCAD 639-3. Health Care Ethics and Law.** A theoretical basis for ethical/legal decision-making as applied to contemporary situations encountered in health care settings. Distance MBA course. Tuition schedule differs from on-campus courses.

**HCAD 649-3. Health Care Budget and Finance.** Introduces systems of resource management in health care delivery. Emphasis on strategies of finance

and budget, personnel management, management research, and information systems as tools used by health care administrators to impact the health care environment. Individual, societal, and political influences which may alter the process of management will be examined. It is recommended that FNCE 609 be completed prior to taking this class. Distance MBA course. Tuition schedule differs from on-line courses.

**HCAD 659-3. Clinical Research Application.** Develops skills in scientific inquiry through an understanding and utilization of research in practice. It requires the student to apply the research process in a practice setting using different evaluation techniques. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., HCAD 619, HCAD 629, HCAD 639, and HCAD 649.

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## HUMAN RESOURCE MANAGEMENT

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**HRMG 434-3. Labor Relations and Negotiation.** Examines the dynamic relationships between labor unions and employers. Topics include the history of labor relations in the United States, labor laws, organizing campaigns, collective bargaining, and conflict resolution. A major focus of this course is the development of students' negotiation skills, a key competency that is necessary for success in the world of business. Legal and ethical practices are emphasized. The course is appropriate for all majors. Prer., Junior standing. ORMG 330 or equivalent recommended. Completion of all skills courses or COB Director permission. Meets with MGMT 650.

**HRMG 438-3. Human Resource Management.** Presents an overview of the entire Human Resource (HR) function. Topics include recruiting, staffing, human resource planning, employee separation and retention, training and development, career planning, pay and benefits, and human resource information systems. Prer., Junior standing. ORMG 330 recommended. Completion of all skills courses or COB Director permission.

**HRMG 439-3. Legal and Social Issues in Human Resources Management.** Covers the myriad of legal and social issues facing Human Resources (HR) and other managers today. Major emphasis is placed on equal employment opportunity, affirmative action, safety, and health. Other topics may include sexual harassment, drug testing programs, employing the disabled, employee privacy rights, and wrongful termination.



Prer., Junior standing. ORMG 330 recommended. Completion of all skills courses or COB Director permission.

**HRMG 441-3. Motivating, Rewarding, and Developing Employees.** Examines practices by which organizations and employees can maximize the mutual benefits that accrue to each other. Emphasis is placed on developing and applying skills in compensation and benefits. Other topics include training and development, performance management systems, strategic human resource management (HRM), and international HRM. Prer., Junior standing. ORMG 330 recommended. Completion of all skills courses or COB Director permission. Meets with MGMT 660.

**HRMG 485-3. Directed Research Projects in Human Resources and Management.** A comprehensive human resources or management research, analysis, and planning project. Students work with a local business under the supervision of the course instructor to perform a literature review, conduct analysis, present information, and put together a comprehensive project on some aspect of human resource management or organizational management. Prer., ORMG 330. Completion of all skills courses or COB Director permission.

**HRMG 496-1 to 3. Internship in Human Resources.** Undergraduate internship in human resources. Prer., Junior/senior business students only.

## **INFORMATION SYSTEMS**

**INFS 100-3. Information Technology and Business Problem Solving.** Intro to information technologies and business information processing. Students will learn about careers in the rapidly expanding high-tech arena and how they use information systems skills to help companies be more efficient. The course will enhance the students' personal knowledge of computers. May be taken as a business elective for students who have no experience of computers. Otherwise, Business Students should take the required INFS 110.

**INFS 110-3. Information-based Decision Making.** Topics include general problem solving techniques for individuals and groups. Students will learn about information systems, including but not limited to: what they are, how they work, how they are created, how they help the different functions of business and problems with information systems. The different aspects of a business are discussed. Students will

complete assignments using spread sheets, databases and word processing software, and will also learn some basic trouble-shooting techniques for the internet. Students will learn how to apply information systems to solving various business problems.

**INFS 205-3. Introduction to Information Technology.** Key technology concepts for information system majors are introduced and applied. Topics include computer hardware, client-server architectures, operating systems, program design, analysis and design, and databases. The course provides the elementary concept concepts required in subsequent INFS classes. Prer., INFS 110; or equivalent; or instructor permission.

**INFS 251-3. Managing Network Interconnections.** This is a lab-based course dedicated to working with networking devices. The principles and practice of configuring local and wide area networks are covered with a focus on business practices, software and hardware technologies, and internetworking standards. Prer., INFS 205. Sophomore standing.

**INFS 295-1 to 3. Topics in Information Systems.** Experimental course offered for the purpose of presenting new subject matter in information systems. Course prerequisites will vary depending on topics covered.

**INFS 308-3. Business Programming.** Provides comprehensive understanding of beginning programming topics. The emphasis is on structured and object-oriented programming methodologies, procedural abstraction, and top-down design. Introduces file input/output and simple data structures. Proficiency is developed as students design codes, compile, and debug programs. May take as a second semester sophomore. Prer., INFS 205; or instructor permission.

**INFS 310-3. Business Programming II.** Business program design and development from the perspective of visual programming technologies. Object-oriented programming is the primary focus. Emphasis is on advanced concepts such as database interfaces, GUIs, and web development. An integrative programming project is required. Prer., INFS 308; or instructor permission.

**INFS 340-3. Database Concepts and Application.** Students are introduced to the fundamental concepts of database design and implementation including high level entity-relationship and object modeling, design, and coding via a

Structured Query Language. This class involves heavy computer tools use and is regularly scheduled in a computer lab. Prer., INFS 205; or instructor permission.

**INFS 370-3. Computer Networks and Telecommunications.** Introduces students to the hardware, topology, and terminology aspects of computer networks and telecommunications. Students differentiate between the different networks, learn how they work, and learn business applications for networks. Includes the basics of data transmission and LAN protocols. Prer., INFS 205; or instructor permission.

**INFS 380-3. Web Development.** Topics include using HTML, creating web pages, creating applets with JAVA, server development, server applications, and the web server/database interface. No credit for Information Systems majors.

**INFS 395-1 to 3. Topics in Information Systems - Juniors.** Experimental courses offered irregularly at the undergraduate level for the purpose of presenting new subject matter in information systems. Junior standing is required. Course prerequisites will vary depending upon topics covered.

**INFS 410-3. Systems Analysis and Design.** Provides an introduction to systems analysis and design concepts, methodologies, techniques, tools, and perspectives essential for systems analysts to successfully develop information systems. Students will be exposed to both structured and object oriented methodologies of analysis, design, and implementation. Prer., INFS 205, Pre/coreq, INFS 340, or instructor permission.

**INFS 440-3. Emerging Technologies.** Each year, many new technologies enter the development arena, bringing new advantages and new risks, new benefits and new challenges. Looks at the most recent developments and provides an overview of their place in the industry. Will focus on helping participants gain an insight into these technologies and understand their place in organizational settings. An integrative project is required. Prer., INFS 410.

**INFS 450-3. Information Systems Project Management.** A capstone course for IS majors. Covers all aspects of planning, tracking and controlling projects involving the development of realistic applications using all IS technology and concepts covered in earlier courses. Students are expected to apply techniques in this course to a project. Critical to

success will be the demonstration of the ability to determine the actual expected cost and schedule for an in-house development and be able to contrast it with a "buy option." Prer., INFS 370 and INFS 410. Completion of all skills courses or COB Director permission.

**INFS 485-3. Directed Research Project.**

Different phases of research investigating key issues in information systems. Students conduct a variety of analyses using spss-pc and work on real research projects. Focus on descriptive statistics, frequencies, crosstabs and measures of association, correlation analysis, regression analysis, and X-Y plotting. Knowledge of statistical methods and interest in information systems required. Prer., INFS 100 or INFS 110 and QUAN 201. Junior/senior standing.

**INFS 495-1 to 3. Topics in Information Systems - Seniors.**

Experimental courses offered irregularly at the undergraduate level for the purpose of presenting new subject matter in information systems. Second semester Junior or Senior standing required. Course prerequisites will vary depending upon topics covered. Prer., INFS 308; or instructor permission.

**INFS 496-1 to 3. Internship in Information Systems.** Undergraduate internship in information systems. Prer., Junior/senior business students only.

**INFS 600-3. Information Systems.**

Introductory course. Students will learn what information systems are, how they work, and what purposes they serve. Students will also learn about data and information, decision making and the value of information. This course touches on such topics as trends in hardware and software, telecommunications, and databases. Also covered will be the integration of information with the organization, and what is required to manage the creation of information systems.

**INFS 609-3. Information Systems.**

Introductory course. Students will learn what information systems are, how they work, and what purposes they serve. Students will also learn about data and information, decision making and the value of information. This course touches on such topics as trends in hardware and software, telecommunications, and databases. Also covered will be the integration of information with the organization, and what is required to manage the creation of systems. Distance MBA course. Tuition schedule differs from on campus courses.

**INFS 630-3. Principles of Programming.**

Provides introductory understanding of structured and object-oriented programming. The emphasis on structured programming includes methodology, procedural abstraction, and top-down design. The primary concepts of objects, inheritance, polymorphism, and data hiding are stressed as valuable components of object-oriented programming. Introduces file input/output and simple data structures. Visual techniques for design are included. Proficiency in programming developed as students designs, codes, compiles, and debugs programs.

**INFS 639-3. Principles of Programming.**

Provides introductory understanding of structured and object-oriented programming. The emphasis on structured programming includes methodology, procedural abstraction, and top-down design. The primary concepts of objects, inheritance, polymorphism, and data hiding are stressed as valuable components of object-oriented programming. Introduces file input/output and simple data structures. Visual techniques for design are included. Proficiency in programming is developed as students design, code, compile, and debug programs. Distance MBA course. Tuition schedule differs from on campus courses.

**INFS 640-3. Development of Information Systems.**

Planning, analysis, design, and implementation phases of information systems development projects. Provides an overview of a variety of information systems development concepts, methodologies, techniques, tools, and the criteria for choosing between those approaches. Emphasizes the skills needed to plan, analyze, and design information systems. Prer., INFS 600 or INFS 609; INFS 630/639 or equivalent.

**INFS 649-3. Development of Information Systems.**

Planning, analysis, design, and implementation phases of information systems development projects. Provides an overview of a variety of information systems development concepts, methodologies, techniques, tools, and the criteria for choosing between those approaches. Emphasizes the skills needed to plan, analyze, and design information systems. Distance MBA course. Tuition differs from on campus courses. Prer., INFS 600 or INFS 609; INFS 630/639 or equivalent.

**INFS 650-3. E-commerce Practice.**

Focus on the breadth of aspects making e-commerce the driving force of business initiatives. Technology infrastructure

issues are examined in detail with an added look at the traditional infrastructure required to be a player in the expanding e-marketplace. Prer., INFS 600.

**INFS 659-3. E-commerce Practice.**

Focus on the breadth of aspects making e-commerce the driving force of business initiatives. Technology infrastructure issues are examined in detail with an added look at the traditional infrastructure required to be a player in the expanding e-marketplace. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., INFS 600 or INFS 609.

**INFS 660-3. Database Principles.**

Design, management, and implementation of data - oriented systems on all organizational levels including individual, departmental, corporate, distributed and international are covered. The course focuses on theories of data modeling and operational implementation of those models. Topics include systems and database planning, entity-relationships and object oriented data modeling, data normalization, data administration, SQL, client server processing, and distributed databases. This class involves computer use and is regularly scheduled in a computer lab. Prer., INFS 600/609; INFS 630/639 or equivalent.

**INFS 661-3. Data Warehouse Implementation and Applications.**

An examination of the business case for data warehouse. Alternative designs for data warehouses are critically examined including architectures of distribution, data models and data marts. Policies for the protection and utilization of the data are discussed. Current systems to use the data warehouse in decision settings are explored, including data mining and OLAPs. Prer., INFS 660 or instructor permission.

**INFS 669-3. Database Principles.**

Design, management, and implementation of data oriented systems on all organizational levels including individual, departmental, corporate, distributed and international are covered. The course focuses on theories of data modeling and operational implementation of those models. Topics include systems and database planning, entity-relationships and object oriented data modeling, data normalization, data administration, SQL, client server processing, and distributed databases. This class involves computer use. Distance MBA course. Tuition schedule differs from on campus courses. Prer., INFS 600 or INFS 609; INFS 630/639 or equivalent.

**INFS 670-3. Systems Development Project.** Students will work through a real-world industry information systems project to build development and research skills. Explores business problems, identifies areas where information technology can have an impact, implements re-engineering techniques, assesses and uses key project tools, and develops systems for those areas. Students will be exposed to the different phases of research investigating key issues in information systems. Prer., INFS 640.

**INFS 671-3. Enterprise Systems.** Systems that integrate the multiple functional areas of an organization are examined in depth. The emphasis is on the reduction and replacement of complex legacy systems to improve data quality and build competitive advantage. Comparisons are made of enterprise systems and models of complete systems are developed to foster creative development of future integrative information systems. Prer., INFS 640 or instructor permission.

**INFS 673-3. IT Portfolio Management.** The focus is on making investment decisions about the organizational technology infrastructure in order to create value. Detailed components of an information technology infrastructure are examined in light of contribution to the enterprise. Perspectives of investment include identification of risk and value while the balance of components includes hardware, software, services and personnel. Prer., INFS 600 or instructor permission.

**INFS 681-3. Telecommunications and Networking Principles.** This course provides a background in telecommunications technologies, hardware and software architectures, topologies, protocols, and standards. Students will study telecommunication devices, media systems, network hardware and software; network configuration; network applications; coding of data; cost-benefit analysis; distributed versus centralized systems; performance analysis; privacy, security, reliability, installation of networks, monitoring and management of telecommunication. The last quarter of this class will focus on managing networks, supporting customers, and the latest topics in this area. Prer., INFS 600 or INFS 609.

**INFS 683-3. Building Virtual Organizations.** Using computer and communications technology to achieve a physically unbounded enterprise. The technology structures required to achieve anywhere, anytime operations

are fully explored as are current business practices, social barriers, and legal issues associated with implementing global practices. Prer., INFS 681 or instructor permission.

**INFS 689-3. Telecommunications & Networking Principles.** This course provides a background in telecommunications technologies, hardware and software architectures, topologies, protocols, and standards. Students will study telecommunication devices, media systems, network hardware and software; network configuration; network applications; coding of data; cost-benefit analysis; distributed versus centralized systems; performance analysis; privacy, security, reliability, installation of networks, monitoring and management of telecommunication. The last quarter of this class will focus on managing networks, supporting customers, and the latest topics in this area. Distance MBA course. Tuition schedule differs from on campus courses. Prer., INFS 600 or INFS 609.

**INFS 690-3. Special Topics in Information Technology.** For IS majors and for persons who want to manage IT activities within a functional area, such as marketing or finance. Topics include the changing nature of information technology, managing information, strategic value of information systems, business process redesign, ensuring effective interaction of IS and client organizations, information technology planning, managing systems development and computer operations, managing end-user computing, decision support, group support and executive information systems, project management, recruitment, selection, placement, motivation, and performance evaluation, and the expanding universe of computing. Prer., INFS 600.

**INFS 696-1 to 3. Internship in Information Systems.** Graduate internship in information systems. Prer., Instructor and Dean approval.

**INFS 940-1 to 3. Independent Study in Information Systems - Undergraduate.** Independent study in Information Systems at the undergraduate level given with the consent of the instructor who directs the study and the dean. Prer., Junior/senior standing only and consent of instructor and dean.

**INFS 950-1 to 3. Independent Study in Information Systems - Graduate.** Independent study in Information Systems at the graduate level given with the consent of the instructor who directs the study and the dean.

## INTERNATIONAL BUSINESS

**INTB 360-3. International Business.** An introduction to international business. Examines economic, political and cultural systems and provides a broad overview of how these effect business management. Addresses managerial issues related to all the functional areas of business. Provides an overview of major aspects of planning, organizing and controlling international business ventures. Prer., ORMG 330 and MKTG 300. Junior standing.

**INTB 461-3. Regional Business Environment Europe.** A series of international business seminars conducted abroad by management personnel of European companies. Insight is provided into the cultural, social, and political environments of each country visited. This is an intensive international business and travel experience. Prer., Instructor approval.

**INTB 480-3. International Management.** Provides an overview of management issues related to international markets. Major topics covered are organizing operations, decision making and controlling, motivation and leadership across cultures, international labor relations, human resource selection and repatriation, and human development across cultures. Prer., ORMG 330. Completion of all skills courses or COB Director permission.

**INTB 496-1 to 3. Internship in International Business.** Undergraduate internship in international business. Prer., Junior/senior business students only.

**INTB 619-3. Managing in Global Markets.** Designed to prepare students to anticipate global forces that impact present management. Briefly reviews the economic, the social-cultural, and the political/ legal context of global management. Also reviews various concepts related to the internationalization process of the firm and frameworks related to global strategy. Distance MBA course. Tuition schedule differs from on-campus program.

**INTB 660-3. Contemporary Topics in International Business.** This seminar examines major contemporary issues in international business. It takes a global view and particularly assesses key US, European, and Asian events and processes in a managerial context. Prer., Completion of all MBA preparatory courses.

**INTB 670-3. International Field Project.** May be an independent student research project, an international internship, or an international field study. Offered on an ad hoc basis and occasionally with a specific focus. Students must get instructor's approval prior to registration. Prer., B AD 690 or instructor permission.

**INTB 696-1 to 3. Internship in International Business.** Graduate internship in international business. Prer., Instructor and Dean approval.

**INTB 950-1 to 3. Independent Study in International Business.** With the consent of the instructor who directs the study and the dean.

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## MANAGEMENT

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**MGMT 600-3. Leading and Managing in Changing Times.** This course is designed to help students succeed personally and professionally in a rapidly changing, global world. The course begins with a focus on our changing environment and the need for personal and organizational excellence. The remainder of the course focuses on developing leadership and management skills and applying them with an understanding of individual, group, and organizational behavior. Students will also lead and manage change. The course concludes with a discussion of one or more contemporary organizational issues.

**MGMT 609-3. Leading and Managing in Changing Times.** This course is designed to help students succeed personally and professionally in a rapidly changing, global world. The course begins with a focus on our changing environment and the need for personal and organizational excellence. The remainder of the course focuses on developing leadership and management skills and applying them with an understanding of individual, group, and organizational behavior. Students will also learn how to develop high performance teams and to lead and manage change. The course concludes with a discussion of one or more contemporary organizational issues. Distance MBA course. Tuition schedule differs from on-campus courses.

**MGMT 610-3. Development of Groups and Organizations.** An introductory study of the dynamics involved in managing and facilitating change in groups and organizations by application of behavioral science knowledge. Emphasis is placed on both cognitive and experiential learning.

**MGMT 620-3. Managing Organization Development and Change.** In an environment of dynamic, non-stop change and ever increasing competition, the

organizations that have the best skills in managing change and developing healthy, high performance organizations will have a significant competitive advantage. The problem is that few people are trained in these important skills. Those who are can significantly increase their value to organizations. This is an applied course that provides sound theory and practical training in how to develop high performing individuals, teams, and organizations and how to successfully manage organization changes. Prer., MGMT 600.

**MGMT 629-3. Managing Organizational Change.** This course provides students with an understanding of how they can serve as proactive participants in the many organizational changes occurring today and can develop a feel for what works and what does not. Difficulties, obstacles, and resistance will be addressed and, while there are no pat answers, the more successful paths for bringing about change in complex organizations will be explored. Distance MBA course. Tuition schedule differs from on-campus courses.

**MGMT 630-3. Managing Human Resources for Competitive Advantage.** Presents an overview of contemporary human resource management. Topics include job analysis, staffing, performance appraisal and development, training, compensation, career planning, equal employment opportunity and affirmative action, and ethics. Application of human resource management principles is emphasized through discussion and in-class cases and exercises.

**MGMT 639-3. Managing Human Resources for Competitive Advantage.** This course probes the underlying values and techniques associated with employee recruitment, selection, motivation, training, affirmative action, compensation, benefits, performance appraisal, and related topics. Distance MBA course. Tuition schedule differs from on-campus courses.

**MGMT 640-3. Legal Issues in Managing Human Resources.** Examines the profusion of legal, social, and ethical issues confronting human resource managers, though the course is appropriate for all majors. Emphasis is on equal employment opportunity, affirmative action, and safety and health. Other topics include sexual harassment, drug testing programs, employing the disabled, employee privacy rights, wrongful termination, and honesty testing. Application of principles are emphasized with in-class cases and exercises. The overall objective for the course is to

explain how organizations can manage employees legally and ethically, while still maintaining a productive work force.

**MGMT 650-3. Labor Relations and Negotiation.** Examines the dynamic relationships between labor unions and employers. Topics include the history of labor relations in the United States, labor laws, organizing campaigns, collective bargaining, and conflict resolution. A major focus of this course is the development of students' negotiation skills, a key competency that is necessary for success in the world of business. Legal and ethical practices are emphasized. Meets with HRMG 434.

**MGMT 660-3. Compensation.** Examines practices by which organizations and employees can maximize the mutual benefits that accrue to each other. Emphasis is placed on developing and applying skills in compensation and benefits. Other topics include training and development, performance management systems, strategic human resource management (HRM), and international HRM. Meets with HRMG 441.

**MGMT 696-1 to 3. Internship in Management.** Graduate internship for business students. Prer., Admitted MBA students only. Instructor and Dean approval.

**MGMT 950-1 to 3. Independent Study in Management.** Management-Graduate. With the consent of both the instructor who directs the study and the dean.

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## MARKETING

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**MKTG 300-3. Principles of Marketing.** Analytical survey of issues involved with the development and exchange of goods and services. Takes a marketing management approach in attacking problems related to product planning, channels of distribution, pricing and promotion. Emphasizes the role of marketing in responding to changing environmental conditions. Prer., ENGL 131. Junior standing.

**MKTG 330-3. Marketing Research.** Course emphasizes marketing research as a decision-making tool with special attention to creativity and innovation. Practical experience in evaluating and using the following research methodology: planning an investigation, questionnaire design, sampling, experimentation, interpretation of results, and report preparation. Prer., INFS 100 or INFS 110, QUAN 201, and MKTG 300. Junior standing.

**MKTG 431-3. Introduction to Marketing Information Systems.** This applied course reviews the principles of gathering and organizing information about customers. Gives students a survey of design of marketing information systems. Proven practical ways to introduce successful marketing information systems into for-profit and not-for-profit organizations. Prer., MKTG 330. Junior standing.

**MKTG 440-3. Service Management and Marketing.** The service component of business requires a distinctive approach to marketing strategy both in development and execution. In addition, quality service cannot be delivered without understanding and developing the organizational and human resources of the firm. The course builds and expands on the introductory marketing course by showing adaptations and applications of marketing ideas to the service setting. Designed for those students who are interested in working in either traditional service industries or in the service areas of manufacturing industries. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 450-3. Retail Merchandising, Management and Promotion.** Prepares PGM students to work within and manage a successful retailing operation in the golf industry. Topics include inventory management, buying, supply chain issues, display, promotion and pricing strategies. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 451-3. Sports Marketing.** Prepares PGM students to market golf and other sports activities. Topics include the practical and legal aspects of providing spectator events and participative golf events. Involves extensive contact with successful sports marketers and several site visits. Prer., MKTG 300. Junior standing. Pre/coreq., BUAD 300.

**MKTG 455-3. Contemporary Issues in Marketing.** Course provides a comprehensive review of important marketing issues. The topics vary between semesters. Course uses a seminar format allowing in-depth discussion and exploration of topics. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 460-3. Business Marketing Management.** A detailed description of commercial, institutional and governmental markets with emphasis on analyzing and understanding organizational buyer behavior. Major differences between business-to-business marketing and consumer marketing are

examined and implications to marketing management of these differences are discussed. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 465-3. Promotion Management and Strategy.** Emphasis on the management and integration of the promotion mix (advertising, personal selling, sales promotion and publicity). The impact of buyer behavior variables on promotional strategy is examined and several communication models are described. The relationship between the organization's marketing communications program and its marketing strategy is also explored. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 466-1. Lab for Promotion Management and Strategy.** Experiential, learning lab project to complement MKTG 465 - Promotion Management and Strategy. Students will apply what they learn in MKTG 465 to create an integrated marketing communications (IMC) plan. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 470-3. E-Commerce.** The focus of this class is on the expanding role of e-commerce (electronic commerce) and direct marketing in contemporary business settings. Both consumer oriented and business-to-business aspects of e-commerce will be explored. Prer., MKTG 300, Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 480-3. Marketing Policies and Strategies.** Detailed consideration of the process of formulating and implementing marketing policies. Major emphasis on market analysis, product/brand management, promotion, distribution and pricing. Case analyses used to develop analytical abilities and to integrate all major areas of marketing. It is recommended that students take two required marketing courses in addition to MK 300 before enrolling in this course. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 485-3. Marketing Analysis and Planning Project.** A comprehensive marketing research and planning project. Students work with a local business, under the supervision of the course instructor, to analyze a marketing opportunity and to develop a comprehensive plan to exploit that opportunity. Prer., MKTG 300 and 465 or instructor's permission. Junior standing.

**MKTG 490-3. International Marketing.** Provides an overview of marketing issues related to international markets. Major topics covered are description of major world markets, market analysis including cultural and political assessment, target market selection, market entry modes, marketing strategy, program management and implementation issues. Prer., MKTG 300. Junior standing. Completion of all skills courses or COB Director permission.

**MKTG 496-1 to 3. Internship in Marketing.** Undergraduate internship in marketing. Prer., Junior/senior business students only.

**MKTG 600-3. Marketing Strategy.** A concentrated examination of fundamental principles of marketing including product and service development, positioning, distribution, promotion, and pricing.

**MKTG 609-3. Marketing Strategy.** A concentrated examination of fundamental principals of marketing including product and service development, positioning, distribution, promotion, and pricing. Distance MBA course. Tuition schedule differs from on-campus courses.

**MKTG 610-3. MBA Seminar in Contemporary Topics in Marketing.** An in-depth examination of selected topics in marketing. Course topics are chosen based on their current importance to the theory and practice of marketing. This study of advanced marketing material is accomplished through various activities including presentation, discussion groups, and experiential learning activities.

**MKTG 630-3. Marketing Research and Decision Making.** The acquisition, organization, and dissemination of information for the purposes of making better decisions. Alternative approaches for accomplishing these tasks will be evaluated with special emphasis being placed on emerging information systems. Gives students the knowledge and tools to conduct business research and to use that information in developing marketing plans and assist in making other critical marketing decisions. Prer., MKTG 600.

**MKTG 640-3. Service Marketing.** Focuses on customer needs, expectations, and decision processes as they relate to the purchase and evaluation of services. Topics include service quality, assessment of customer satisfaction, marketing planning for services, internal marketing, and customer evaluation of services.

**MKTG 650-3. Marketing Communications.** Theories of communication and buyer behavior are

applied to the process of communicating with critical constituencies. The emphasis is on the practical aspects of creating and managing effective marketing communication programs with special attention being placed on business-to-business environments. Prer., MKTG 600.

**MKTG 660-3. Marketing Field Project.**

A comprehensive field project. Students will work with local businesses on a project emphasizing development and implementation of a marketing program. Prer., MKTG 600.

**MKTG 670-3. E-Commerce.** The focus is on advanced topics in e-commerce (electronic commerce) and direct marketing including the integration of internet and traditional promotions, service quality, and pricing strategies. This class will examine these issues within both consumer and business-to-business environments.

**MKTG 690-3. International Marketing and Export Management.** Provides an overview of international marketing issues. It provides detailed analysis of international market entry modes and strategy. Modes such as exporting, licensing, franchising, management contracts, alliances and partnerships, joint ventures, and the establishment and management of foreign sales subsidiaries are discussed. A major portion of the course is concerned with managing the export function. Prer., MKTG 600.

**MKTG 696-1 to 3. Internship in Marketing.** Graduate internship in marketing. Prer., Instructor and Dean approval.

**MKTG 940-1 to 3. Independent Study in Marketing - Undergraduate.** With the consent of the instructor who directs the study and the dean. Prer., Junior standing.

**MKTG 950-1 to 3. Independent Study in Marketing - Graduate.** Independent study in Marketing at the graduate level given with the consent of the instructor who directs the study and the dean. Prer., Consent of instructor and dean.

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## **OPERATIONS MANAGEMENT**

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**OPTM 300-3. Fundamentals of Operations Management.** Intro to the design and analysis of production systems in manufacturing, service and public organizations. Topics include facility location and layout, job design and work standards, production and inventory planning and control, quality control, forecasting, simulation, waiting

line analysis, linear programming, and productivity and competitiveness. Prer., QUAN 201. Co-req., ACCT 202.

**OPTM 339-3. Managing Projects for Competitive Advantage.** Covers the fundamental project management topics necessary for implementation of and excellence in project management. Emphasis will be from a management perspective that addresses the basic nature of managing projects for business, information systems and the public. Students will deal with the problems of selecting projects, initiating them, operating them and controlling them. Also covered are the issues associated with terminating a project and with conducting a project that involves what project managers like to call the 'real world'.

**OPTM 449-3. Organizational Skills for Project Management.** Through a team experience, students learn both theory and practice of teamwork, with an emphasis on negotiation and mediation. Students learn how to adapt communication media to achieve management goals both inside and outside the team. Additionally, the course emphasizes the need to develop human resources as capital and intellectual assets to effectively manage projects within a dynamic organization.

**OPTM 459-3. Project Estimation and Risk Management.** Management of successful projects includes estimation and proactive risk management in areas of project scope, cost, resource allocation, schedule, and financial planning. Uncertainty is reduced when project risks, both technical and non-technical, are identified, quantified, and mitigation strategies implemented. Included will be tools, techniques, and methodologies commonly used by successful project managers.

**OPTM 469-3. Bridging Strategy and Tactics in Project Management.** Managers of project managers operate in the broad context of a business, unlike project managers who generally need to complete a project on time, within budget and within quality constraints. This course covers a broad range of topics including managing multiple projects, motivating project managers, make-vs.-buy decisions, outsourcing, project assessment, portfolio management, running project offices, maturity monitoring, and communication.

**OPTM 600-3. Operations: Competing Through Capabilities.** Operations management focuses on the strategies and processes involved in providing goods and services to customers. This

course will provide students with the ability to evaluate key factors in the design of an effective operations system and to align an operations system with an organization's business strategy. The course provides the tools to effectively design, analyze, and manage operations systems in manufacturing, service, and public entities. Prer., ACCT 600 and QUAN 550.

**OPTM 609-3. Operations: Competing Through Capabilities.** Operations management focuses on the strategies and processes involved in providing goods and services to customers. This course will provide students with the ability to evaluate key factors in the design of an effective operations system and to align an operations system with an organization's business strategy. The course provides the tools to effectively design, analyze, and manage operations systems in manufacturing, service, and public entities. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., ACCT 609 and QUAN 559.

**OPTM 610-3. Customer Focused Processes: Quality Management and Metrics.** Customer satisfaction provides the critical link of operations to the marketplace. This course examines service and manufacturing processes and their impact on quality. Students are provided with tools to document processes, diagnose problems, develop innovative process improvements solutions, and design metrics for process analysis. Through strategic quality management programs and techniques, students will develop an understanding of the critical link between productive systems and success in the marketplace. Prer., OPTM 600.

**OPTM 620-3. Managing Supply Chains.** As companies seek to provide their products and services to customers faster, cheaper, and better than the competition, the need for cooperation between suppliers, manufacturers, and markets becomes increasingly important. Addresses the strategic implications of an integrated supply chain and the management of functional activities required to make a supply chain successful. Develops the integration of functional activities within the company and between supply chain partners with the help of textbooks, cases, and selected readings. Prer., OPTM 600.

**OPTM 630-3. Managing Projects for Competitive Advantage.** Covers the fundamental project management topics necessary for implementation of and excellence in project management.

Emphasis will be from a management perspective that addresses the basic nature of managing projects for business, information systems and the public. Students will deal with the problems of selecting projects, initiating them, operating them and controlling them. Also covered are the issues associated with terminating a project and with conducting a project that involves what project managers like to call the 'real world'. Prer., ACCT 600 and QUAN 550.

**OPTM 639-3. Managing Projects for Competitive Advantage.** Covers the fundamental project management topics necessary for implementation of and excellence in project management. Emphasis will be from a management perspective that addresses the basic nature of managing projects for business, information systems and the public. Students will deal with the problems of selecting projects and initiating them and operating and controlling them. Also covered are the issues associated with terminating a project and with conducting a project that involves what project managers like to call the 'real world'. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., ACCT 609 and QUAN 559.

**OPTM 649-3. Organizational Skills for Project Management.** Through a team experience, students learn both theory and practice of teamwork, with an emphasis on negotiation and mediation. Students learn how to adapt communication media to achieve management goals both inside and outside the team. Additionally, the course emphasizes the need to develop human resources as capital and intellectual assets to effectively manage projects within a dynamic organization. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., OPTM 639.

**OPTM 659-3. Project Estimation and Risk Management.** Management of successful projects includes estimation and proactive risk management in areas of project scope, cost, resource allocation, schedule, and financial planning. Uncertainty is reduced when project risks, both technical and non-technical, are identified, quantified, and mitigation strategies implemented. Included will be tools, techniques, and methodologies commonly used by successful project managers. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., FNCE 609 and OPTM 639.

**OPTM 669-3. Bridging Strategy and Tactics in Project Management.** Managers of project managers operate in

the broad context of a business, unlike project managers who generally need to complete a project on time, within budget and within quality constraints. This course covers a broad range of topics including managing multiple projects, motivating project managers, make-vs.-buy decisions, outsourcing, project assessment, portfolio management, running project offices, maturity monitoring, and communication. Distance MBA course. Tuition schedule differs from on-campus courses. Prer., OPTM 639, OPTM 649, and OPTM 659.

**OPTM 696-1 to 3. Internship in Operations.** Graduate Internship for Business Students in operations. Prer., Admitted MBA students only. Instructor and Dean Approval.

**OPTM 950-1 to 3. Independent Study in Operations and Technology Management.** With the consent of both the instructor who directs the study and the dean. Prer., Instructor consent.

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## ORGANIZATIONAL MANAGEMENT

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### ORMG 330-3. Introduction to Management and Organization.

An introductory study of management fundamentals and organizational behavior. How individuals adapt to organizations; how managers motivate and lead in work situations; how organizations are designed and managed. Students are urged to complete PSY 100 and SOC 111 before taking this course. Prer. Junior standing. .

**ORMG 411-3. Experiences in Leadership.** Through lectures, videos, exercises, case studies and a major project, students learn the needed skills to become effective leaders. Topics covered include building relationships, dealing with conflict, planning, change, teams and the major leadership theories that have been developed. Prer., Junior standing, ORMG 330. Completion of all skills courses or COB Director permission.

**ORMG 437-3. Organizational Development and Change.** Introduction to the field of organization development. Provides practical skills for managers and human resource professionals in understanding, developing and changing individuals, teams and whole organizations. Students will also learn how to manage organization changes and increase the probability of successful change. Prer., Junior standing, ORMG 330 or equivalent. Completion of all skills courses or COB Director permission.

### ORMG 496-1 to 3. Internship in Organizational Management.

Undergraduate Internship in Organizational Management or Human Resources Management. Prer., Junior/senior business students only.

**ORMG 940-1 to 3. Independent Study in Organizational Management.** With the consent of the instructor who directs the study and the dean.

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## PROFESSIONAL GOLF MANAGEMENT

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**PGMT 100-2. Orientation to Professional Golf Management.** Course objective is to immerse PGM students into the culture of the golf professional, including expectations of ethics and integrity, courtesy, concern for others, conscientiousness, game skills and knowledge, trustworthiness, and dependability.

**PGMT 101-3. Introduction to PGA/PGM Level 1.** Course objective is to initiate PGM students' involvement in the Golf Professional Training Program, including the requirements of the training program and the checkpoints. Class includes a lab. Prer., PGMT 100.

**PGMT 105-2. Golf for Business and Life.** Golf for Business and Life is a PGA of America initiative, designed to teach and improve the golf skills of beginning students through instruction provided by PGA professionals, and to suggest ways in which the students can use golf as a business tool as they enter the professional world.

**PGMT 110-1. Cooperative Internship I.** Provides the PGM student with practical knowledge and experience of golf operations through employment at a golf facility or other suitable organization. Prer., PGMT 101.

**PGMT 200-3. Introduction to PGM/PGA (Level 2).** Course objective is to advance PGM students' progress in the PGM/PGA training program, including preparation for the second checkpoint. Also includes a lab for player development. Prer., PGMT 101.

**PGMT 201-3. Food and Beverage Management.** Prepares PGM students to manage the offering and sale of food and beverages to customers in individual and group settings. It covers broad principles, practical experiences, and legal requirements. Includes a hands-on work experience. Prer., PGMT 400.

**PGMT 210-1. Cooperative Internship IIa.** Provides PGM students with practical knowledge and experience of golf

operations through employment at a golf facility or other suitable organization. Prer., PGM 110.

**PGMT 211-1. Cooperative Internship IIb.** Provides the PGM student with practical knowledge and experience of golf operations through employment at a golf facility or other suitable organization. Prer., PGM 210.

**PGMT 300-3. PGA/PGMTM Level 3.** Course objective is to prepare PGM students to be effective instructors by describing various learning and teaching theories, by allowing them to assess the style displayed by their students, and by adapting their teaching strategy to fit the situation. Prer., QUAN 201. Co-req., ACCT 202.

**PGMT 400-3. Turf Grass Management.** Prepares PGM students to supervise the management of turf grass features of golf facilities for economy, efficiency, playability, attractiveness, durability, safety, legality, and environmental protection. Topics include biology of turf grass, its cultivation and maintenance, and equipment. Prer., PGM 411.

**PGMT 410-1. Cooperative Internship IIIa.** Provides the PGM student with practical knowledge and experience of golf operations through employment at a golf facility or other suitable organization. Prer., PGM 211.

**PGMT 411-1. Cooperative Internship IIIb.** Provides the PGM student with practical knowledge and experience of golf operations through employment at a golf facility or other suitable organization. Prer., PGM 410.

## QUANTITATIVE METHODS

**QUAN 201-3. Business Statistics.** Statistical applications in business. Includes descriptive statistics, probability distributions, sampling theory, estimation, hypothesis testing, and simple and multiple regression. Prer., INFS 110 or equivalent, MATH 104 or Math 111.

**QUAN 202-3. Process and Statistics-Based Decisions.** The course covers advanced problem solving techniques required in upper division business classes. Decision tools, including application software and custom programs are stressed as devices to study advanced decision, process, and organizational models. The techniques are applied to managerial settings. Prer., MATH 111, INFS 110 (or equivalent), and QUAN 201. Coreq., ACCT 201 and MATH 112.

**QUAN 550-3. Fundamentals of Business Statistics.** An introductory course in business statistics. Includes descriptive statistics and such topics as frequency distributions, graphs, and tables. Also, the essential elements of experimental design and common inferential statistics such as correlation, regression analysis, t-tests, and analysis of variance.

**QUAN 559-3. Fundamentals of Business Statistics.** An introductory course in business statistics. It covers descriptive statistics and such topics as frequency distributions, graphs, and tables. It also teaches the essential elements of experimental design and common inferential statistics such as correlation, regressions, t tests, and analysis of variance. Distance MBA course. Tuition schedule differs from on-campus courses.

**QUAN 619-3. Research Tools for Managers.** Business statistics with an emphasis on techniques for data analysis and inference in management. Students are assumed to be familiar with basic descriptive statistics, probability theory, and probability distributions from the prerequisite statistics course. Presentation of technical material is combined with hands-on analysis of data to aid managerial decision making. Course objectives are to develop a conceptual understanding of statistics and the role of data analysis in management, and to master the mechanics of applied statistics using Microsoft Excel. Distance MBA course. Tuition schedule differs from on-campus program. Prer., QUAN 559.

## COLLEGE OF EDUCATION COUNSELING

**COUN 483-1 to 3. Workshop in Professional Counseling.** Explores selected topics in-depth in professional counseling including conflict resolution, human resource development, child abuse or topics in counseling research. Counts toward masters degree with advisor approval only. Prer., upper division standing.

**COUN 498-1 to 4. Special Topics in Counseling.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. May apply toward a degree program at the University of Colorado at Colorado Springs with permission of advisor and department chairperson.

**COUN 499-1 to 9. Special Topics in Counseling.** Extended Studies offering. Designed to allow specific topics and

issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**COUN 500-3. Introduction to Counseling and Human Services.** Provides an overview of the field of counseling and human services. Students will learn about career opportunities in this field and the roles and functions of professional counselors in various settings. The history of the field and future trends will be presented.

**COUN 501-3. Theories and Techniques of Individual Counseling.** Major theories of individual counseling and their philosophic bases will be studied in this course. Techniques used in the application of theory to practice in counseling and consultation will be presented. Basic and advanced counseling skills will be introduced in this course and practiced in COUN 502, taken concurrently. Prer., Admitted to counseling program.

**COUN 502-2 to 3. Lab and Practicum in Individual Counseling.** Provide basic interviewing, assessment and counseling skills and characteristics of counselors and counsees that impact the counseling and consulting process. Students engage in self-examination of characteristics that may affect them as professional counselors. Core counseling/consultation skills are practiced and refined. Prer., Admission to CHS program. Coreq., COUN 501.

**COUN 504-3. Human Growth and Development.** Provides a broad understanding of life span theories of human development; understanding of the nature and needs of individuals at all developmental levels; normal and abnormal human behavior indicators; personality theory and development; and learning theory with cultural contexts.

**COUN 505-3. Introduction to Play Therapy.** Provides a developmental and systems approach to play therapy with content areas including history, theory, techniques, methods applications to special settings or populations. Also included is sandplay therapy which is based on the work of Jung.

**COUN 506-3. Issues and Trends in College Student Development.** Examines theories of college student development to include: intellectual, moral, ethical, ego, psychosocial, and systems and career development. Contemporary issues and trends in providing services to traditional and non-traditional students will be presented.



**COUN 507-3. Adventure Education.** This training is designed for educators looking for ways to help students/clients develop trust, enhance teamwork and encourage cooperation. Participants will develop a comprehensive, experientially-based adventure program including initiatives, activities, games and processing skills.

**COUN 508-3. Counseling and Student Affairs in Higher Education.** Studies the philosophy and history of counseling and student services in higher education. Examines models for designing, managing, and evaluating student affairs programs, including use of information technology. Explores current trends, issues, and challenges in service delivery.

**COUN 509-3. Spiritual Dimensions of Counseling.** An experiential and analytic investigation of our spiritual dimension as persons, and of methods of assessment and intervention regarding spiritual and religious issues in counseling and psychotherapy.

**COUN 510-3. Theories and Techniques of Group Counseling.** Includes studies that provide a broad understanding of group development, group dynamics, group leadership styles and group counseling theories. Core group counseling skills and techniques will be studied in this course and practiced in COUN 511, a small group laboratory experience taken concurrently. Prer., COUN 501 and COUN 502.

**COUN 511-2 to 3. Laboratory and Practicum in Group Counseling.** Taken in conjunction with COUN 510, this course provides the student with experiences as both a group member and leader. Students will apply group counseling skills and techniques and evaluate the effectiveness of several group counseling strategies. Students also complete a 100 hour field experience. Prer., COUN 501 and COUN 502; must be admitted to CHS program. Co-req., COUN 510.

**COUN 512-3. Practicum in Professional Counseling.** Provides students with experience in counseling and consultation. Introduces the counselor and client characteristic that may affect the counseling process. Students complete 100 clock hours of supervised field experience of which 40 hours must be in direct service to clients. Prer., COUN 501, COUN 502 and admission to CHS program.

**COUN 513-3. Introduction to Marriage and Family Counseling.** Introduction to marriage and family therapy with a focus on the transition from individual and group theories to systems theories. Students

will learn to think in systems terms and gain an appreciation for the multiple levels of systemic functioning. A treatment of the nuclear family and alternate family forms will be included in this course. Prer., COUN 501 and COUN 510 or consent of instructor.

**COUN 514-3. Advanced Theories and Techniques of Family Counseling.** Examines the following theories of family counseling: strategic, structural, experiential, object relations, communication and behavioral. Students will become familiar with the differences and similarities of these theories as well as consider the techniques for change associated with each. Prer., COUN 513 or consent of instructor.

**COUN 515-3. Conflict Resolution Training.** This workshop course presents a win-win approach to conflict resolution that can be utilized with individuals, families, groups and organizations. Participants will be asked to examine their personal conflict resolution strategies and change any win-lose strategies into win-win strategies. Prer., Open only to students enrolled in Counseling and Human Services program.

**COUN 525-3. Systems Leadership.** An exploration of the complex phenomenon of systems leadership based on formal organizational theory and a fundamental belief that students will become more effective leaders once they have developed the art of reading and understanding organizational life. Prer., Admission into the Counseling program.

**COUN 526-1. Practicum in Counseling and Leadership.** Provides students with experience in counseling and leadership and introduces the counselor and client characteristics that may affect the counseling process. Students complete 100 clock hours of supervised field experience of which 40 hours must be in direct service to clients; the balance is indirect service. May be repeated 3 times. Prer., Concurrent with COUN core courses.

**COUN 530-3. Laboratory and Practicum in Professional Counseling.** Provides students with skills in rapport building; information gathering and giving; structuring the session; reflecting and summarizing content and feeling; self disclosure; confrontation; and session closure for use in professional counseling sessions. Prer., COUN 501 and COUN 511. Co-req., COUN 513.

**COUN 533-3. Issues, Ethics and Trends in Professional Counseling.** A comprehensive study of professional

roles and functions, professional goals and objectives, professional organizations and associations, professional history and trends, professional preparation standards and professional credentialing.

**COUN 535-3. Adult Leadership Development.** Explores the development of leadership, emphasizing entry level leadership skills for college-aged students. It surveys social and peer group influences, strategies for developing character, diversity issues and leading change in a college environment. Prer., Admission into the Counseling program.

**COUN 540-3. Research in Counseling and Human Services.** A comprehensive study of types of research, basic statistics, research project development, program evaluation, needs assessment, and ethical and legal considerations. A thorough review of the recent research literature in the student's area of emphasis is required for this course. Prer., COUN 501 and COUN 502 or instructor consent.

**COUN 541-3. Measurement and Appraisal.** A comprehensive study of group and individual educational and psychometric theories and approaches to appraisal, data and information-gathering methods, validity and reliability, psychometric statistics, factors influencing appraisals, and use of appraisal results in helping processes. Prer., COUN 513 and COUN 540 or instructor consent.

**COUN 543-3. Career Development.** A comprehensive study of career development theories, occupational and educational information sources and systems, career and leisure counseling, guidance and education, lifestyle and career decision-making, career development program planning and resources, and effectiveness evaluations.

**COUN 544-3. Advanced Psychopathology and Diagnosis.** An intensive survey of the major theories, research findings and behavioral characteristics associated with mental illness and behavior disorders. Requires thorough working knowledge of the DSM IV and related diagnostic tools. Prer., COUN 513 or instructor consent.

**COUN 550-3. Advanced Play Therapy.** Builds on the basic concepts presented in Intro to Play Therapy and includes using play to help children and families communicate through symbols, metaphors and stories. Puppet play, the hero/heroine's journey, family art and games are highlighted. Prer., COUN 505 or consent of instructor.

**COUN 570-3. Internship in School Counseling.** To complete the school counselor program the student must complete a 600 clock hour internship in an appropriate school setting under the supervision of a licensed school counselor. The intern will perform a variety of activities that a regularly employed school counselor would be expected to perform. The intern must complete 240 hours of direct service as part of the 600 clock hour internship. Direct service may include but is not limited to individual counseling, group work, developmental classroom guidance and consultation with faculty, staff and parents. May be repeated for credit three times. A minimum of two semesters of internship is required for graduation from the CHS program. Prer., Completion of core sequence and instructor consent.

**COUN 572-3. Internship in Community Counseling.** Graduation from the counseling and human services program requires students to complete an appropriate supervised internship of six hundred (600) clock hours. The internship must include a minimum of two hundred forty (240) hours of direct service work with clientele appropriate to the program emphasis area. Students must be enrolled in the internship while working toward completion of this requirement. Direct service may include but is not limited to individual counseling, group work, developmental classroom guidance and consultation with faculty, staff and parents. May be repeated for credit three times. A minimum of two semesters of internship is required for graduation from the CHS program. Prer., Completion of core sequence and instructor consent.

**COUN 574-3. Internship in Student Affairs.** To complete the student affairs in higher education program, students must complete a 600 hour internship; 40% in direct service, 60% indirect. May be repeated three times. Prer., Completion of core courses and instructor consent.

**COUN 575-3. Internship in Counseling and Leadership.** To complete the Leadership track in the Counseling program students must complete a 300 hour Internship; 40% direct service, 60% indirect. May be repeated 3 times to meet licensure requirements. Prer., COUN core courses.

**COUN 580-3. Roles and Functions of the School Counselor.** Studies include but are not limited to the following: history/philosophy of the school counseling profession; ethical standards and laws; developmental programming; comprehensive guidance services;

standards-based services; surveys/interviews to design, implement, and manage/evaluate a comprehensive developmental standards-based program.

**COUN 581-3. Organization/Administration of the School Counseling Program.** Studies include, but are not limited to: learning theories, classroom motivation/management, and effective instruction; interrelationships/collaborations with school and community; characteristics and interventions for at-risk youth; special education process; educational strategies for assessment, transition, and advising students; and program leadership/advocacy. Prer., COUN 580 or instructor consent.

**COUN 583-1 to 4. Topics in Counseling.** Explores selected topics in professional counseling in depth including conflict resolution, human resource development, or advanced topics in counseling research. Prer., Consent of instructor.

**COUN 584-3. Advanced Workshop in Counseling.** In-depth study of selected counseling topics based on directed readings. For example, examination of original writings of major counseling theorists.

**COUN 585-3. Advanced Theories and Techniques of Marriage Counseling.** Presents marriage counseling from perspectives of psychodynamic, behavioral and systems theories. Introduces mate-selection, pre-marital counseling, marriage enrichment, sex therapy, counseling blended families and divorce mediation. Prer., COUN 513.

**COUN 586-3. Social and Cultural Foundation of Professional Counseling.** Examines socioeconomic trends in society including sources of conflict and methods of conflict resolution, trends and changes in human roles, multicultural and pluralistic trends including characteristics and concerns of subgroups, and major societal concerns including discrimination on the basis of human characteristics such as age, race, religious preference, physical condition, sexual preference, ethnicity or gender, and methods for alleviating these concerns.

**COUN 587-3. School Counseling Techniques.** Course teaches counselors practical skills in the school setting. Studies include but are not limited to: applying counseling theories to the school setting; professional advocacy practices/techniques for diverse student populations; and essential services school counselors provide. Prer., COUN 580 and COUN 581.

**COUN 588-3. Gender Issues in Counseling.** Course will explore personal and cultural biases about gender, ethnicity, stereotypes and cultural differences. Discussion, research and investigation into socialized bias, prejudice, and sexual harassment concerns will offer students an expanded view of gender issues prevalent in our society.

**COUN 592-3. Role and Function of the Community Counselor.** Broad examination of the context of the mental movement with focus on the role and functions of the community counselor. Students will engage in studies that examine the clinical, administrative and specialized skills that community counselors must develop to serve as effective members of the health care team.

**COUN 598-1 to 4. Special Topics in Counseling.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. May apply toward a degree program at the University of Colorado at Colorado Springs. Prer., Undergraduate degree.

**COUN 599-1 to 9. Special Topics in Counseling.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**COUN 950-1 to 3. Independent Study in Counseling.** Independent investigation of topics of specific interest to the student and completed under the direction of a faculty member. The specifics of the investigation and the topic are a joint decision by the student and faculty member. Meeting times, expectations and evaluation are arranged with the faculty member. Students must have written consent of instructor to participate. Students using the independent study for degree purposes should also have written consent of their advisor. Prer., Consent of instructor.

**COUN 999-0. Candidate for Degree.** To be used only by those students who will not be registered for coursework or independent study during the semester in which the student will take comprehensive examinations for the master's degree. Registration as candidate for degree will fulfill the requirement for registration during the semester in which comprehensives are taken. No credit will be earned and the fee is that of a one-semester credit hour course. Prer., Consent of advisor is required.

## **CURRICULUM AND INSTRUCTION**

### **CURR 3199-1 to 3. Educational Technology Laboratory.**

A series of self-paced modules including operating systems, word processing, graphics, gradebooks, presentation programs, e-mail, multimedia, and the internet available for both MAC and PC. Number of credits to be arranged with instructor. Prer., This course is open only to those admitted to and participating in TEP.

### **CURR 4051-1. Language Essentials for Teachers of Reading and Spelling: Speech Sounds of English Phonemes and How to Teach Them.**

Participants will receive training using the Language Essentials for Teachers of Reading and Spelling (LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course covers phonological processing, phonetics, phoneme awareness, and phonics. Meets with CURR 5051.

### **CURR 4052-1. Language Essentials for Teachers of Reading and Spelling: Teaching Phonics, Word Study and Alphabetic Principle.**

Participants will receive training using the Language Essentials for Teachers of Reading and Spelling (LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course will focus on phonological and phoneme awareness, reading fluency, vocabulary, and text comprehension. Meets with CURR 5052.

### **CURR 4053-1. Language Essentials for Teachers of Reading and Spelling: The Mighty Word: Building Vocabulary and Oral Language.**

Participants will receive training using the Language Essentials for Teachers of Reading and Spelling (LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum

designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course focuses on word meanings and how they are learned from direct definition and exposure to contextual use as well as other key ideas. Meets with CURR 5053.

### **CURR 4054-1. Language Essentials for Teachers of Reading and Spelling: Getting Up to Speed: Developing Fluency.**

Participants will receive training using the Language Essentials for Teachers of Reading & Spelling (LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course covers the definition of automaticity and fluency, how children become fluent readers, and other related topics. Meets with CRURR 5054.

### **CURR 4055-1. Language Essentials for Teachers of Reading and Spelling: Digging for Meaning: Teaching Text Comprehension.**

Participants will receive training using the Language Essentials for Teachers of Reading and Spelling (LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course will specifically cover techniques and strategies that are tailored for use before, during, and after reading as well as other factors that contribute to comprehension. Meets with CURR 5055.

### **CURR 4060-3. TeachSpecialEd.com:**

Foundations in Special Education. This course places the history of special education in context of current principles and practices. Presents contributions of advocacy groups relative to legislative accomplishments and addresses important issues, federal laws, and resources for beginning teachers in determining their legal responsibilities. Meets with SPED 443.

### **CURR4061-3. TeachSpecialEd.com:**

Development and Characteristics of Learners with Exceptional Learning Needs. Focuses on individuals with high-incidence disabilities, including mild mental retardation, learning disabilities, ADHD, and behavioral disorders. Teachers are also introduced to the attributes of students from low-incidence groups. Meets with SPED 444.

### **CURR 4062-3. TeachSpecialEd.com:**

Assessment for Instructional Planning and Decision Making. Foundations of assessment are addressed from the perspective of instructional planning and decision making. Legal and ethical principles are covered along with the processes of screening, pre-referral, referral and classifications. Attention is given to assessments in IEP development. Meets with SPED 446.

### **CURR 4063-3. TeachSpecialEd.com:**

Instructional Strategies: Creating Environments that Promote Learning Appropriate Social Interactions and Behavior. Development of positive learning environments as a strategy for enhancing teaching and learning. Preventive measures in the context of approaches to building positive behavior support. Intervention strategies for problem behavior, along with techniques for promoting social interactions and behaviors. Meets with SPED 447.

### **CURR 4064-3. TeachSpecialEd.com:**

Instructional Strategies: Teaching for Results. Planning for effective instruction is the central focus of this course. Instructional planning, organizing and designing instruction, student outcomes instructional principles, and assessing outcomes of effective instruction. Curriculum-based assessment is covered along with the communication of student outcomes. Meets with SPED 448.

### **CURR 4065-3. TeachSpecialEd.com:**

Instructional Strategies: Improving Basic Reading Skills. Emphasizes teaching beginning reading and developing reading fluency. Is applicable to teaching students with exceptional learning needs in varied instructional settings. Meets with SPED 456.

### **CURR 4066-3. TeachSpecialEd.com:**

Instructional Strategies: Improving Reading Comprehension. Provides an overview of reading comprehension with emphasis on teaching students with exceptional learning needs. Attention is given to building a knowledge base and analyzing text to enable comprehension skills and teaching comprehension strategies. Meets with SPED 457.

**CURR 4067-3. TeachSpecialEd.com:** Language and Communication in Diverse Learners. Places the needs of exceptional learners in the larger context of cultural differences and diversity with a focus on language and communication. Language development and communication styles are covered. Teaching second language learners. Augmentative, alternative and assistive communication development is addressed. Meets with SPED 458.

**CURR 4068-3. TeachSpecialEd.com:** Collaboration and Instructional Planning in the IEP Process. Emphasizes developing standards-based IEPs in accordance with IDEA requirements. Introduces models of collaboration and highlights developing collaboration skills to enhance the effectiveness of the beginning teacher in development and implementation of IEPs. Meets with SPED 486.

**CURR 4069-3. TeachSpecialEd.com:** Professional and Ethical Practices. Focuses on the ethical standards and principles of the profession. Ethical issues related to assessment, decision making, instruction, working with agencies, and families/guardians of children with exceptional learning needs are covered. Meets with SPED 487.

**CURR 4100-2. Introduction to Technology in Education.** Covers the fundamental concepts of computer uses in education. The course is designed for practicing or prospective educators who wish to explore computer uses in the classroom. Demonstrations of classroom activities, modern applications, and electronic mail will be conducted. Coreq., CURR 4101.

**CURR 4102-1 to 4. Selected Topics in Education Technology.** Offered by guest lecturers to the university or by regular faculty where special topics or special needs arise. Examples of appropriate topics include the study of hypermedia, desktop publishing in educational settings, the application of microcomputers to a field or subject area, or the study of advanced technologies such as a videodisk integration. Topics and prerequisites to be announced.

**CURR 4103-3. Technology for the Learner with Special Needs.** Participants will review and synthesize literature on a broad variety of technological solutions that meet the needs of special learners (with different school-based disabilities). Students will also conduct investigations into the use of adaptive devices and assistive technologies, demonstrate their use, and design learning environments to support the learner's needs for education

in the least restrictive environment. Meets with CURR 5122.

**CURR 4131-1 to 3. Web-Based Delivery of Training.** This series of six half-credit modules addresses a range of topics relating to web-based delivery of training. The topic mix for the modules evolves as the technology evolves. Students must take modules in multiples of two. Meets with CURR 5131.

**CURR 4440-1 to 6. Selected Topics in Reading Education.** Selected topics and issues in reading education will be explored in depth. Examples of special topics include: Introduction to Whole Language; Whole Language and Phonics Instruction; Reading; Writing and Spelling Connections; and others as issues arise. Prer., Bachelor's degree in Education or related field.

**CURR 4498-1 to 4. Special Topics in Curriculum.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. May apply toward a degree program at the University of Colorado at Colorado Springs with permission of advisor and department chairperson.

**CURR 4499-1 to 4. Special Topics in Curriculum.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**CURR 4504-1 to 4. Topics in Teaching Science.** Explores selected topics in science teaching. Topics will vary each time course is offered. Meets with CURR 5504.

**CURR 4599-1 to 9. Special Topics in Curriculum.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**CURR 5002-3. Issues, Strategies and Models in Curriculum Design.** Designed to prepare students to write challenging, differentiated, and effective curricula for a variety of learners. A variety of curriculum models and strategies will be explored.

**CURR 5011-3. Education Profession: Its Bases and Contexts.** Philosophical and historical bases of current educational issues, the role of education in a democratic society, reciprocal rights and responsibilities in teaching, the ethics of teacher decision-making, fostering effective home-school and community-school relationships. Prer., Acceptance into COE Alternative Licensure Program.

**CURR 5012-3. Understanding Learners and Learning.** Understanding human developmental processes and variations; understanding how factors in the home, school, and the community may affect learners; understanding diverse student populations; understanding learning processes and strategies that foster student learning. Prer., Acceptance into COE Alternative Licensure Program.

**CURR 5013-3. Instructional/Classroom Management Strategies I - Elementary.** Instructional methods, standards-based curriculum, materials classroom management and discipline, reading and writing literacy teaching and learning, assessment, and integrating curriculum across content and with technology. Prer., Admission into ALP program.

**CURR 5014-3. Instructional/Classroom Management Strategies I - Secondary.** General teaching strategies designed to promote learning and the use of literacy in secondary content areas. Specific strategies for developing standards-based curriculum and methods in particular subject areas. Technological supports; developing assessment and evaluation strategies, classroom management strategies. Prer., Acceptance into COE Alternative Licensure Program.

**CURR 5015-2 to 4. Instructional/Classroom Management Strategies II - Elementary.** Continuation of CURR 5013 with emphasis on math and reading methods, analyzing results, and reflecting on the teaching process. Prer., Acceptance into COE Alternative Licensure Program.

**CURR 5016-3. Instructional/Classroom Management Strategies II - Secondary.** Continuation of CURR 5014 with emphasis on applying strategies, analyzing results, and reflecting on the teaching process. Prer., Acceptance into the COE Alternative Licensure Program.

**CURR 5017-3 to 6. School Residency and Teaching Seminar - Elementary.** Full-time service in a school as a resident teacher planning, delivering, and evaluating instruction, managing the classroom environment and student behavior, developing collaborative relationships with parents and colleagues. Prer., Acceptance into COE Alternative Licensure Program.

**CURR 5018-3 to 6. School Residency and Teaching Seminar - Secondary.** Full-time service in a school as a resident teacher planning, delivering, and evaluating instruction, managing the classroom environment and student

behavior, developing collaborative relationships with parents and colleagues. Prer., Acceptance into COE Alternative Licensure Program.

**CURR 5019-3. Teaching Seminar in Elementary Education.** Exploration of learning from theory and practice; developing and presenting a teaching portfolio; developing a problem-based approach to teaching; self-analysis and reflection on teaching. Prer., Acceptance into the COE Alternative Licensure Program. \$25.00 additional course fee required.

**CURR 5020-3. Teaching Seminar in Secondary Education.** Exploration of learning from theory and practice; developing and presenting a teaching portfolio; developing a problem-based approach to teaching; self-analysis and reflection on teaching. Prer., Acceptance into COE Alternative Licensure Program. \$25 additional course fee required.

**CURR 5050-1 to 4. Workshop in Curriculum.** Contemporary national, state, and local issues in education. An overview of current issues and trends in elementary and secondary education is developed for reference, discussion, and debate.

**CURR 5051-1. Language Essentials for Teachers of Reading and Spelling: Speech Sounds of English Phonemes and How to Teach Them.** Participants will receive training using the Language Essentials for Teachers of Reading and Spelling(LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course covers phonological processing, phonetics, phoneme awareness, and phonics. Meets with CURR 4051.

**CURR 5052-1. Language Essentials for Teachers of Reading and Spelling: Teaching Phonics, Word Study and Alphabetic Principle.** Participants will receive training using the Language Essentials for Teachers of Reading and Spelling(LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study,

the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course will focus on phonological and phoneme awareness, reading fluency, vocabulary, and text comprehension. Meets with CURR 4052.

**CURR 5053-1. Language Essentials for Teachers of Reading and Spelling: The Mighty Word: Building Vocabulary and Oral Language.** Participants will receive training using the Language Essentials for Teachers of Reading and Spelling(LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course focuses on word meanings and how they are learned from direct definition and exposure to contextual use as well as other key ideas. Meets with CURR 4053.

**CURR 5054-1. Language Essentials for Teachers of Reading and Spelling: Getting Up to Speed: Developing Fluency.** Participants will receive training using the Language Essentials for Teachers of Reading & Spelling (LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course covers the definition of automaticity and fluency, how children become fluent readers, and other related topics. Meets with CURR 4054.

**CURR 5055-1. Language Essentials for Teachers of Reading and Spelling: Digging for Meaning: Teaching Text Comprehension.** Participants will receive training using the Language Essentials for Teachers of Reading and Spelling(LETRS) curriculum adapted from Sopris West Educational Services by Houghton Mifflin. LETRS is a comprehensive curriculum designed to enrich and extend program-specific professional development in the area of reading instruction. Topics covered include phonemes, phonics, word study, the alphabetic principle, comprehension, vocabulary, oral language, and fluency. These topics are covered in five - 1-credit hour courses. This course will specifically

cover techniques and strategies that are tailored for use before, during, and after reading as well as other factors that contribute to comprehension. Meets with CURR 4055.

**CURR 5060-3. TeachSpecialEd.com: Foundations in Special Education.** Places the history of special education in context of current principles and practices. Presents contributions of advocacy groups relative to legislative accomplishments, and addresses important issues, federal laws, and resources for beginning teachers in determining their legal responsibilities. Prer., Bachelor's degree or instructor's approval. Meets with SPED 543

**CURR 5061-3. TeachSpecialEd.com: Development and Characteristics of Learners with Exceptional Learning Needs.** Focuses on individuals with high-incidence disabilities including mild mental retardation, learning disabilities, ADHD, and behavioral disorders. Teachers are also introduced to the attributes of students from low incidences groups. Meets with SPED 544.

**CURR 5062-3. TeachSpecialEd.com: Assessment for Instructional Planning and Decision Making.** Foundations of assessment are addressed from the perspective of instructional planning and decision making. Legal and ethical principles are covered along with the processes of screening, pre-referral, referral and classifications. Attention is given to assessments in IEP development. Meets with SPED 546.

**CURR 5063-3. TeachSpecialEd.com: Instructional Strategies: Creating Environments that Promote Learning, Appropriate Social Interactions, and Behavior.** Development of positive learning environments as a strategy for enhancing teaching and learning. Preventive measures in the context of approaches to building positive behavior support. Intervention strategies for problem behavior, along with techniques for promoting social interactions and behaviors. Meets with SPED 547.

**CURR 5064-3. TeachSpecialEd.com: Instructional Strategies: Teaching for Results.** Planning for effective instruction is the central focus of this course. Instructional planning, organizing and designing instruction, student outcomes, instructional principles, and assessing outcomes of effective instruction are included. Curriculum-based assessment is covered along with the communication of student outcomes. Meets with SPED 548.

**CURR5065-3. TeachSpecialEd.com:**

Instructional Strategies: Improving Basic Reading Skills. Emphasizes teaching beginning reading and developing reading fluency. Is applicable to teaching students with exceptional learning needs in varied instructional settings. Prer., Bachelor's degree or instructor's approval. Meets with SPED 556.

**CURR 5066-3. TeachSpecialEd.com:**

Instructional Strategies: Improving Reading Comprehension. Provides an overview of reading comprehension, with emphasis on teaching students with exceptional learning needs. Attention given to building knowledge base, analyzing text to enable comprehension skills, and teaching comprehension strategies. Prer., Bachelor's degree or instructor's approval. Meets with SPED 557.

**CURR 5067-3. TeachSpecialEd.com:**

Language and Communication in Diverse Learners. Places the needs of exceptional learners in the larger context of cultural differences and diversity with a focus on language and communication. Language development is covered and communication styles. Teaching second language learners. Augmentative, alternative, and assistive communication development is addressed. Meets with SPED 558.

**CURR 5068-3. TeachSpecialEd.com:**

Collaboration and Instructional Planning in the IEP Process. Emphasizes developing standards-based IEPs in accordance with IDEA requirements. Introduces models of collaboration and highlights developing collaboration skills to enhance the effectiveness of the beginning teacher in development and implementation of IEPs. Prer., BA or instructor's approval. Meets with SPED 586.

**CURR 5069-3. TeachSpecialEd.com:**

Professional and Ethical Practices. Focuses on the ethical standards and principles of the profession. Ethical issues related to assessment, decision making, instruction, working with agencies, and families/guardians of children with exceptional learning needs. Meets with SPED 587.

**CURR 5090-3. Research Project.** During this course the student will complete a research paper/project which investigates a topic of specific interest to the student under the guidance of the faculty member. This project serves as the comprehensive exam for the C & I masters. Prer., Graduate acceptance in Curriculum and Instruction Masters Degree and LEAD 570.

**CURR 5100-2. Introduction to**

**Technology in Education.** Introduction to the fundamentals of microcomputer use in the classroom. The course covers a variety of educational applications including information processing, teacher utilities, problem solving in various programming environments, selection of software and management of hardware, and other relevant topics. Coreq., CURR 5101.

**CURR 5101-1. Introduction to Technology in Education Laboratory.**

Accompanies CURR 5100. Participants will individually use microcomputers to experience the methods and outcomes of hands-on activities. Coreq., CURR 5100. \$20 lab fee required.

**CURR 5110-3. Evaluation of Computer-Based Training and Education Programs.**

Instructional designers are responsible for validating the effectiveness of their training or educational programs. This course covers the design of a program evaluation, design and application of measures and instruments, presentation of formative and summative evaluation reports, and the evaluation of cost effectiveness. Prer., CURR 5001.

**CURR 5120-3. Project.** Students will be required to design and implement a project involving the practical application of the principles and techniques addressed by the degree program. Details will be arranged through the student's advisor. Projects based on activities in the field are encouraged. Prer., CURR 5212 and CURR 5213.

**CURR 5121-1 to 3. Selected Topics in**

**Educational Technology.** Graduate level courses to be offered by guest lecturers to the university or by regular faculty where special topics or special needs arise. Examples of appropriate topics include the study of hypermedia, desktop publishing in educational fields or settings, the application of microcomputers to a field or subject area, or the study of advanced technologies such as videodisk integration. Topics and prerequisites to be announced. Course cannot be used to satisfy graduate degree requirements.

**CURR 5122-3. Technology for the Learner with Special Needs.**

Students will synthesize literature on a variety of technological solutions that meet the needs of special learners, conduct investigations into the use of adaptive devices and assistive technologies, demonstrate their use, and design learning environments that support the learner in the least restrictive environment. Meets with CURR 4103.

**CURR 5123-1 to 4. Field-based Practicum in Educational Computing and Technology.**

Students will develop and complete under the direction of a faculty member an in-depth field experience involving educational technology in an educational setting. The specifics of the investigation and the topic are a joint decision by the student and the faculty member. The meeting times, expectations, and evaluation are arranged with the faculty member. Students must have written consent of the instructor. Students using field experience for degree purposes should have the written consent of their advisor. Students are expected to submit a written proposal of their work to the instructor involved. Suggested examples of field experiences are as follows: (1) Work with students in lab situations to acquire computer skills, (2) develop, design, and evaluate curricular programs for implementation of computer skills at the district, school, or classroom level, (3) develop, design, and field test educational computer software in an educational setting.

**CURR 5130-3. Multimedia Development.**

This series of six half-credit modules addresses a range of topics relating to multimedia development. The topic mix for the modules evolves as the technology evolves. Students must take modules in multiples of two. Graduate credit will involve a review of research literature on multimedia use in training. Prer., CURR 5131. Meets with CURR 4130.

**CURR 5131-1 to 3. Web-Based Delivery of Training.**

This series of six half-credit modules addresses a range of topics relating to web-based delivery of training. The topic mix for the modules evolves as the technology evolves. Students must take modules in multiples of two. A review of the literature on web applications of media analysis will be required for graduate credit. Meets with CURR 4131.

**CURR 5140-1 to 3. Graphics Design.**

This series of six half-credit modules addresses a range of topics relating to graphics design. The topic mix includes graphics design, desktop publishing, and a variety of graphics applications. Students must take modules in multiples of two. An instruction design/visual literacy submission will be required for graduate credit. Meets with CURR 4140.

**CURR 5150-3. Instructional Message Design.**

Design of instructional environments that support effective learning. Environments may include computer-based instruction, web designs and computer-augmented classrooms.

**CURR 5151-3. Instructional Design**

**I.** Provides an introduction to the major theories and principles of systematic instructional design and evaluation. Students will be required to create, field test, and evaluate their own instructional designs. Prer., CURR 5150.

**CURR 5152-3. Instructional Design II.**

Building upon the theories and principles of instructional design introduced in CURR 5151, this course will explore the application of ID in a broad spectrum of environments. Field work may be required. Prer., CURR 5151.

**CURR 5153-3. Authoring.** Students will learn to use software tools for media integration and the development of Computer Based Training. Topics include navigation design coding, CMI, and Cross platform integration. The primary application used is AUTHORWARE. Prer., CURR 5130 or instructor's permission.

**CURR 5154-3. Technologies for Computer-Based Training and Assisted Instruction.** Hardware and software technologies that support computer-based training and computer-assisted instruction. Students will be required to present their findings in class.

**CURR 5162-6. Practicum Instructional Technology.** Students will meet with course instructor to design a CBT project (corporate) or classroom interventions for both students and teachers (educator). Prer., CURR 5152.

**CURR 5170-3. Introduction to Technology in Education.** This course emphasizes lesson planning, assessment, and hands-on computer activities. Readings, technology-based activities, assignments, and discussions are designed to develop a broad professional knowledge base on teaching and learning with technology across the K-12 curriculum.

**CURR 5171-3. K-12 Web-Based Educational Resources.** Students will read current literature involving using the Internet in the K-12 curriculum as well as evaluate various web-based educational resources to use in educational settings. Students will design and develop several lessons/units involving web-based resources in this hands-on class.

**CURR 5172-3. Multimedia Development for K-12 Educators.** This course is designed for educators who want to develop interactive multimedia technology through a hands-on approach. The course provides students with an overview of multimedia/hypermedia technology, devoted primarily to interactive,

collaborative, multi-disciplinary and student-centered hands-on activities.

**CURR 5201-3. Seminar: Current Research Issues in Gifted Education.**

Students enrolled in this seminar explore contemporary research related to the identification of gifted students, programs for the gifted, affective needs of gifted students, and other related educational issues. Meets with SPED 590.

**CURR 5202-3. Methods and Materials for Teaching Multiple Intelligence.**

Focuses upon the examination of giftedness through the lens of Howard Gardner's theory of multiple intelligences. Participants will examine educational research and practice relative to multiple intelligence theory. Methods for infusing multiple intelligence teaching strategies into the curriculum will be studied. Meets with SPED 533.

**CURR 5210-3. Arts for the Gifted.**

Explores a variety of arts activities for the elementary and middle grades. There will be a focus on a multi-faceted approach to teaching arts within creative, stimulating environments where the gifted student can evolve and thrive. Creativity, hemisphericity, problem solving, and practical applications of visual arts, music, dance, drama, and creative writing are addressed. Meets with SPED 559.

**CURR 5211-3. Curriculum Strategies for the Gifted and Talented.** Prepares participants to write challenging, effective, and differentiated curricula for gifted learners. A variety of curriculum models and strategies will be explored. Participants will create curriculum units for gifted students in content areas of their choice.

**CURR 5212-3. Reading and Language Arts for the Gifted.** Explores a wide variety of reading and writing activities for gifted learners. Children's and adolescent literature, biography, independent study, creative dynamics and expository and creative writing are among the many topic areas addressed. Meets with SPED 562.

**CURR 5213-3. Social Studies and Humanities for the Gifted.** Addresses the teaching of social studies and the humanities to gifted and talented students, grades K-12. An integrated, holistic approach to social studies is emphasized. Meets with SPED 563.

**CURR 5214-3. Differentiated Instruction for Gifted Learner.** Designed to prepare teachers to implement various differentiated instructional strategies for gifted learners.

**CURR 5220-3. Creative Problem Solving and Future Problem Solving for Gifted Learners.**

Covers four areas: creativity, problem solving, future studies, and future problem solving. Course content will focus on both the theoretical frameworks underlying each topic as well as concomitant teaching strategies. Meets with SPED 564.

**CURR 5230-1 to 3. Supervised Practicum - Gifted/ Talented Education.**

Practicum credit may be obtained through selected, supervised field placements in teaching of supervisory roles in gifted education.

**CURR 5301-3. Mathematical Connections and Concepts.**

Exploration of current mathematics curriculum topics in ways which will allow students to develop deeper conceptual knowledge and a better understanding of the connections between various mathematical topics. Applications of mathematics to other disciplines. Historical background of secondary curriculum.

**CURR 5302-3. Mathematics for Today's Teacher: Standards-Based Teaching, Technology, and Testing.**

Current perspectives on effective, standards-driven mathematics teaching in K-12 classrooms will be studied. Mathematical inquiry, exploration with manipulatives, integration of oral and written mathematical communication, problem solving approaches and integration of technology to enhance K-12 test preparation will be emphasized.

**CURR 5303-3. Quantitative Literacy in American Schools.**

An overview of essential standards-based mathematics in today's schools to include effects of building a strong sense of number (number sense), real-world application, and discipline integration on becoming mathematically literate will be surveyed including developing teaching and planning strategies for enhancing quantitative literacy and deep mathematical understanding.

**CURR 5304-3. Mathematics & Cognition.**

How students' approach, process, and apply mathematical tasks based on current cognitive theories and brain research will lead this course. Problem solving and reasoning, via Cognitively Guided Instruction, will be emphasized, including incorporation of concrete manipulatives, interactive technologies, and higher-order thinking.

**CURR 5305-3. Teaching & Assessing Manipulative-Based Mathematical Inquiry.**

Using, integrating, and assessing

K-12 students' explorations with manipulatives through performance-based, alternative assessments will be emphasized. Students will be encouraged to create concrete strategies and assessment tools, ask questions, and encourage synthesis while gathering useful information about how K-12 students think and feel about mathematical skills and tasks.

**CURR 5400-3. Teaching Reading and Writing in Content Areas.** Format variations from content area to content area, materials, equipment, readability of content materials, vocabulary, variations in comprehension, and variations in study procedures.

**CURR 5401-3. Teaching Reading in the Elementary School.** Comparative analysis of predominant current philosophies/methodologies of reading instruction, current organizational procedures, skill development, and comprehension activities in the elementary school.

**CURR 5402-3. Teaching the Basal.** Application of current instructional techniques in reading to basal readers in use. Focus on the instruction of average to below average readers.

**CURR 5403-3. Introduction to Clinical Experiences.** Introduction to diagnostic, evaluative, prescriptive and remedial principles. Tutorial approach.

**CURR 5404-2 to 3. Facilitating Reading in the Preschool and Kindergarten Classroom.** Historical background of reading readiness and strategies for advancing literacy in the preschool and kindergarten classroom. Workshop approach.

**CURR 5410-3. Informal Diagnostic and Remedial Techniques of Reading.** Causes of low reading ability and techniques employed in teaching the poor reader, diagnosis, motivation, and skills.

**CURR 5411-3. Psycholinguistics and Reading.** An analysis of the reading process from a psycholinguistic orientation. Emphasis on research studies and selected readings dealing with linguistic development and appropriate implications for reading acquisition. Prer., CURR 5401 or CURR 5410.

**CURR 5412-3. The Reading-Writing Connection.** Explores the relationships that exist between reading (decoding) and writing (encoding). Both reading and writing are viewed as inseparable parts of the complete language arts complex. Reading to write and writing to read are both important focus areas of this course.

**CURR 5413-3. Developing and Implementing Literacy programs.** Procedures involving organization of programs which include selection of staff, materials, scheduling, budgeting, and evaluation. Prer., 6 hours of instruction in reading or consent of instructor.

**CURR 5420-3. Children's and Adolescents' Literature.** Reading and evaluation of books for children, information about children's books, children's interests in reading, important authors and illustrators, and problems in the guidance of reading.

**CURR 5421-3. Literature for Adolescents.** Reading and evaluation of literature for adolescents. Emphasis on modern literature as well as literature by female and minority group authors. Meets with SPED 545.

**CURR 5430-4. Reading Clinical Procedures I (Elementary).** Supervised diagnosis of reading problems; evaluation instruments; pertinent research; case study approach. Prer., CURR 5410 or consent of instructor. Meets with CURR 5431.

**CURR 5431-4. Reading Clinic Procedures II (Secondary).** Supervised remediation of reading problems; methods and teaching materials; use of readability measures. Prer., CURR 5410 or consent of instructor. Meets with CURR 5430.

**CURR 5432-3. Supervised Practicum in Reading: Elementary.** For advanced students working toward reading certification at the elementary level. Supervised field placements focusing on the application of program planning components. Prer., CURR 5410 and consent of instructor.

**CURR 5433-3. Supervised Practicum in Reading: Secondary.** For advanced students working toward reading certification at the secondary level. Supervised field placements focusing on the application of program components. Prer., CURR 5410, CURR 5431, and consent of instructor.

**CURR 5440-1 to 6. Selected Topics in Reading Education.** Selected topics and issues in reading education will be explored in depth. Examples of special topics include: Introduction to Whole Language; Whole Language and Phonics Instruction; Reading, Writing, and Spelling Connections; and others as issues arise. Prer., Bachelor's degree in Education or related field.

**CURR 5462-3. Elementary Literacy Methods.** Elementary reading and writing literacy practice and strategies,

and materials with emphasis on Colorado Model Content Standards. Prer., Acceptance in ALP program.

**CURR 5464-3. Elementary Mathematics Methods.** Elementary mathematics strategies to successfully implement mathematics instruction with emphasis on problem solving; thinking; and addressing Colorado Content Math Standards. Prer., Acceptance into ALP program.

**CURR 5491-3. Secondary English Methods.** Secondary English Methods gives an overview of instructional theory, methods, and materials in English and helps the students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to and participating in ALP. Meets with T ED 491 and T ED 591.

**CURR 5492-3. Secondary Math Methods.** Secondary Math Methods gives an overview of instructional theory, methods, and materials in math and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to and participating in ALP. Meets with T ED 492 and T ED 592.

**CURR 5493-3. Secondary Science Methods.** Secondary Science Methods gives an overview of instructional theory, methods, and materials in science and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those students admitted to and participating in ALP. Meets with T ED 493 and T ED 593.

**CURR 5494-3. Secondary Social Studies Methods.** Secondary Social Studies Methods gives an overview of instructional theory, methods, and materials in social studies and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to and participating in ALP. Meets with T ED 494 and T ED 594.

**CURR 5495-3. Secondary Spanish Methods.** Secondary Spanish Methods gives an overview of instructional theory, methods, and materials in Spanish and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to and participating in ALP. Meets with T ED 495 and T ED 595.

**CURR 5501-3. Exploring the Science Curriculum.** Explores the curriculum, instructional strategies, and foundations for teaching science K-12. The course presents a variety of strategies for creating and implementing science



curriculum. Participants will acquire knowledge and skills necessary to implement a holistic approach to science teaching that considers knowledge, process skills, scientific attitudes, and mandated standards.

**CURR 5502-3. Developing Manipulative Materials for Science Teaching.**

Designed to enable teachers at all levels to develop manipulative science materials from easily available resources. Participants will develop and demonstrate materials for teaching science in a contemporary fashion on a limited budget.

**CURR 5503-3. Integrating Reading and Science.**

Familiarizes teachers with contemporary practices in science and reading education. Particular emphasis is placed on integrating “learning-cycle” procedures from science education with “marginal gloss” and other “whole language” techniques from reading education. Many activities with direct application to classroom practice will be presented.

**CURR 5504-1 to 4. Topics in Teaching Science.**

Explores selected topics in science teaching. Topics will vary each time course is offered. Prer., Bachelor’s degree in Education or related field. Meets with CURR 4504.

**CURR 5510-3. Science and Environmental Education for Gifted Students.**

Designed for K-12 educators interested in developing their ability to work with gifted and talented students in science education and environmental education. The course emphasizes using and developing science resources for gifted and talented students. It also explores contemporary methodology for teaching science to gifted and talented students. Prer., Teaching experience.

**CURR 5511-3. Teaching Energy and Environment.**

Focuses on contemporary energy and environmental topics and issues. It is designed for elementary through secondary teachers. Emphasis is placed on clarifying environmental issues; showing relationships between energy, environment, and society.

**CURR 5512-3. Energy and Environmental Activities.**

Focuses on developing and utilizing activities, games, and role playing simulations in the area of energy, environment and conservation. This course is designed to enable classroom teachers at all levels to present and clarify various related concepts.

**CURR 5513-2. Activities for Teaching Earth Science.**

Focuses on using and developing classroom activities for anyone

teaching earth science topics. Most activities presented are adaptable from preschool through high school. The course will cover five main topics including: space, land, water, air, and the earth’s past.

**CURR 5514-3. Activities for Teaching Weather.**

Provides many classroom activities demonstrating various aspects of weather and weather prediction. Topics include aspects of weather ranging from local up-slope caused by an “Albuquerque Low” to global warming. Activities presented will be applicable for elementary through high school grades.

**CURR 5520-3. Activities for Teaching Physical Science.**

Designed for teachers at all levels and includes a wide variety of activities for teaching physical science concepts. Contemporary science teaching methods will be modeled to develop physical science concepts through manipulative and inquiry experiences.

**CURR 5521-2. Activities for Teaching Electricity and Magnetism.**

Provides classroom activities involving electricity and magnetism for teachers. Activities are designed for use with materials easily available from local sources. The course covers a wide variety of activities ranging from simple interactions of magnets to generation of electricity.

**CURR 5522-1. Teaching Cosmology - Explaining the Universe.**

Utilizes the PBS series “Stephen Hawking’s Universe” as a basis for presenting an overview of the universe from its theoretical origins to its ultimate demise. The course will focus on understanding the broad principles and incorporating cosmology into classroom instruction.

**CURR 5530-3. Cutting Edge Science for Cutting Edge Teachers.**

Focuses on the readings from contemporary journals, magazines, databases, etc. It will bring participants up-to-date with recent developments in science and technology. It allows teachers to explore current scientific information along with strategies for including new information in their science teaching from K-12.

**CURR 5540-3. Earth Systems Science.**

This course for middle and high school teachers will include field work utilizing terrain and geological formations to compare and contrast Earth with other planets. MEETS WITH GES 539.

**CURR 5541-3. Rocketry and Biology of Living in Space.**

This course explores the many facets of rocketry, including rocketry designing. This course also explores how humans deal with living in space. This

course can only be used in the Science Curriculum degree. Meets with ENGR 508.

**CURR 5542-3. Biological and Physical Research.**

Search with the experts for the answers to how humans can expand beyond home to maximize the benefits from space exploration. Discover fundamental laws of nature. Learn how the human body functions in space. Meets with BIOL 510.

**CURR 5543-3. Astronomy Principles for the Classroom.**

Focus on NASA’s Enterprise for Space Science. Study of solar systems, galaxies, stars and sky identification and the physics of space. View the night sky at the Air Force Academy Observatory. Meets with PHYS 501.

**CURR 5544-3. Space Technologies for the Classroom.**

This course explores concepts such as fundamentals of orbital mechanics, satellite operations and global positioning systems. This course can only be used in Science Curriculum degree. Meets with ENGR 507.

**CURR 5545-3. Rocketry and the Biology of Living in Space: Space Law.**

Learn about history that blends fiction, science, international relations, economics and technology. Study the effects of human space flight. Discover space concepts and their helpful classroom applications.

**CURR 5598-1 to 4. Special Topics in Curriculum.**

Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. May apply toward a degree program at the University of Colorado at Colorado Springs. Prer., Undergraduate degree.

**CURR 5599-1 to 9. Special Topics in Curriculum.**

Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**CURR 5670-3. Philosophy, Organization, and Current Issues in Middle Level Schools.**

Philosophy and goals of middle level education and current issues in middle level education: testing and test results, grouping students, staffing and staffing design, teaming structures, new and innovative programs effecting middle level schools.

**CURR 5671-3. Introduction to Middle Level Schools.**

Overview of the middle school: definition of terms, organization of the middle school, philosophy, staffing and staffing design, teaming, interdisciplinary teaching, programs that are unique to middle level schools, and scheduling.

**CURR 5672-3. Curriculum, Instruction, and Assessment for Middle Level Schools.** Effective middle school curriculum that is responsive to the needs of the early adolescent will be the focus of this course. Topics that will be covered include the components of middle level curriculum, instructional delivery techniques and strategies, and multifaceted evaluation methods. Various models will be presented and practitioners will provide their insight into curriculum models.

**CURR 5673-3. Communication and Technology in the Middle Level School.** Communication in a middle level school is unique in terms of parent, peer, and student communication. Technology and how it has affected communication in middle level schools will be explored.

**CURR 5675-3. Interdisciplinary Teaming for Middle Level Teachers.** Creating a classroom atmosphere where maximum learning can take place. Topics will include: team organization, teaching through thematic units, block scheduling, guidelines for teaching middle level learners through teaming and interdisciplinary approaches.

**CURR 5676-3. Leadership in the Middle Level School.** The course will examine the role of teachers and administrators in the middle level school. Topics that will be covered include: organization of the middle level school, philosophy, staffing and staffing design, role of the team leader, teaming, site-based management, transition programs, school/community relations, school climate, instructional leadership, decision-making, and providing for a safe learning environment.

**CURR 5700-3. Introduction to ESL/Multicultural Education.** Provides comprehensive survey of ESL and multicultural education programs. Includes history and legislation of bilingual/ESL education, instructional models, philosophies, theories of bilingual/ESL education, the culture of ESL classroom, instructional strategies and important considerations for teaching the LEP student. Meets with T ED 370.

**CURR 5701-3. Materials and Methods in ESL/Multi-Cultural Education.** Provides an in-depth study of curriculum options available for the ESL classroom. Presents, reviews and critiques specific methods and strategies for teaching language minority students. Emphasizes methods for implementing cooperative learning strategies among students. Meets with T ED 371.

**CURR 5702-3. Literacy for Linguistically Different Learners.** Presents current and emerging philosophies and methods on teaching reading to culturally diverse second language learners. Includes review of materials, strategies for teaching reading and writing skills, and important considerations for transference from L1 to L2 reading, and field based assignments. Prer., CURR 5700. Meets with T ED 372.

**CURR 5703-3. Assessment: Methods, Materials, and Theories for ELL's.** Prepares teachers to assess and evaluate ESL students in a field-based setting. Includes particular assessment instruments, mediation strategies and materials, and formal and informal diagnostic strategies. Covers both theoretical and applied aspects of assessing language learning and teaching. Prer., T ED 370/CURR 5700. Meets with T ED 373.

**CURR 5704-3. Practicum in ESL/Multicultural Education.** A field-based, standards-based course that provides at least 150 hours of site-based work in addition to in-school work. Students are placed into classrooms with ELLs if they do not already have such classrooms. Instructors supervise the placements. Prer., CURR 5703. Meets with T ED 374.

**CURR 5707-3. Second Language Acquisition: Capstone.** Presents broad survey of second language acquisition research. Stresses theoretical concerns, research findings, practical applications to teaching second languages. Gives emphasis to applied second language acquisition, cultural awareness, social and economic factors that contribute to ELL's success in schools. Prer., CURR 5704. Meets with T ED 375.

**CURR 5706-3. Curriculum for Multicultural Education.** Analyzes curriculum programs used in the classrooms and applies principles and innovation for education of ethnic minority and majority students in the elementary grades. Meets with T ED 376.

**CURR 5707-3. Pro-Seminar: Parent and Community Involvement Focuses on models and strategies for improving parent and community involvement in the schools.** Discusses administrative concerns, such as parent advisory councils, instructional concerns, such as helping children with school assignments, and family literacy issues and programs. Field-based assignments are required. Prer., CURR 5704. Meets with T ED 377.

**CURR 5708-3. Research Issues in ESL/Multicultural Education.** Offers

practical experience in review, critique and conceptualization of contemporary research studies in second language acquisition. Provides experiences in the design of classroom-based evaluation systems. Prer., CURR 5704, CURR 5705.

**CURR 5709-3. Theories of Learning and Development.** Examines current theory and research on child development, learning and motivation. Emphasizes the relationship between and among development, learning, motivation, and how theory and research can inform instructional decisions in the elementary classroom. Prer., CURR5705.

**CURR 5710-3. Education and Sociolinguistics.** Examines current theory and research on child development, learning and motivation. Emphasizes the relationship between and among development, learning, motivation, and theory and research can inform instructional decisions in the elementary classroom. Prer., CURR5705.

**CURR 5711-3. Introduction to Research and Statistics.** Introduces measures of central tendency, variability, percentiles, standard scores, and correlation. Explores basic concepts in statistical inference by evaluating, designing, and analysis of education research. A minor research project will be completed. Prer., CURR5709, CURR5710.

**CURR 5712-3. Ethnographic Methods in Educational Research.** Explores the history of ethnography in cultural anthropology and its translation into educational research. Students learn about and practice participant observation, interviewing, journal writing artifact searches, data processes, strategies for qualitative analysis and interpretation and styles of reporting. Prer., CURR5709, CURR5710.

**CURR 5740-2 TO 6. English as a Second Language Professional Development Courses for Special Education Teachers.** The purpose of these course modules is to present professional development modules that will train special education teachers to effectively serve the needs of English language learners with disabilities. Each module is for two credit hours.

**CURR 7000-1 to 6. Master's Thesis.**

**CURR 9500-1 to 5. Independent Study in Reading.** Independent investigation of topics of specific interest to the individual student and completed under the direction of a faculty member. The specifics of the investigation and the topic are a joint decision by the student and faculty member. The meeting times,,

expectations, and evaluation are arranged with the faculty member. Students must have written consent off the instructor. Students using independent study for degree purposes should have the written consent of their advisors.

**CURR 9600-1 to 3. Independent Study in Curriculum.** Independent investigation of topics of specific interest to the individual student and completed under the direction of a faculty member. The specifics of the investigation and the topic are a joint decision between the student and faculty member. The meeting times, expectations, and evaluation are arranged with the faculty member. Students must have written consent of the instructor.

**CURR 9601-1 to 3. Independent Study in Junior High/ Middle School Curriculum.** Independent investigation of topics of specific interest to the individual student and completed under the direction of a faculty member. The specifics of the investigation and the topics are a joint decision between the student and the faculty member. The meeting times, expectations, and evaluation are arranged with the faculty member. Students must have written consent of the instructor.

**CURR 9602-1 to 3. Independent Study in Gifted/ Talented.** Independent investigation of topics of specific interest to the individual student and completed under the direction of a faculty member. The specifics of the investigation and the topic are a joint decision between the student and faculty member. The meeting times, expectations, and evaluation are to be arranged with the faculty member. Students must have written consent of the instructor.

**CURR 9603-1 to 3. Independent Study in Educational Computing and Technology.** Designed to accommodate students who wish to pursue study of a special topic of interest. Approval must be sought from the instructor prior to registration. A proposal outlining the planned study, including readings and written reports to be submitted, should be filed during the first week of the semester. Sample topics for study: computers and the handicapped; research on computing in education; emerging technologies; artificial intelligence; hypermedia; desktop publishing; advanced graphics; and telecommunications in education.

**CURR 9604-1 to 3. Independent Study in Reading.** Independent investigation of topics of specific interest to the individual student and completed under the direction of a faculty member. The specifics of the investigation and the topic are a

joint decision by the student and faculty member. The meeting times, expectations and evaluation are arranged with the faculty member. Students must have written consent of the instructor. Students using independent study for degree purposes should have the written consent of their advisors.

**CURR 9999-0. Candidate for Degree.**

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## EDUCATIONAL PSYCHOLOGY

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**EPSY 507-3. Educational Applications of Learning Theory.** A seminar designed to introduce a spectrum of current theories of learning including elements of cognitive psychology, social learning theory and behaviorism. Students will be expected to read extensively and lead discussion of their areas of investigation.

**EPSY 510-3. Human Growth and Development.** Provides a broad understanding of life span theories of human development; understanding the nature and needs of individuals at all developmental levels; normal and abnormal human behavior indicators; personality theory and development; and learning theory within cultural contexts. Meets with COUN 504.

**EPSY 525-3. Teaching the Gifted and Creative Student.** This introductory course explores the nature and nurture of gifted children and adolescents. Characteristics, identification, program alternatives, and teaching strategies are addressed as is the gifted child movement.

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## LEADERSHIP

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**LEAD 105-3. Self-Leadership: Developing Competency and Character.** Provides an opportunity to explore the nature of leadership and to identify personal leadership abilities. Through various experiences, students discover the expectations of leaders, explore and expand competencies in communication and collaboration, apply skills in leadership projects, and plan for future leadership roles.

**LEAD 106-3. Leadership Communication.** Students discover the relationship between their communication styles, attitudes, and responses within the context of formal and informal groups. They will explore methods of solving problems, dealing with conflict, and communicating their ideas to others.

**LEAD 150-2. Personal Management and Community Service.** This course

imparts a basic knowledge of financial planning and provides for a service learning education project. Topics include fundamentals of money management, insurance, investments, tax planning, retirement planning, and estate planning. Culminates with a service learning education project in the student's community.

**LEAD 151-2. Character Education and Community Service.** This course imparts a basic knowledge of identifying, acquiring and matching crucial personal behaviors and provides for a service learning education project in the student's local community. The course is designed to empower students to identify their present behavioral communication strengths, identify behaviors required to meet personal objectives, and provide concrete strategies for facilitating career choices.

**LEAD 152-2. Citizenship and Community Service.** This course is designed to have students better understand the development of the United States' system of government, learn the mechanics of how government works in the United States through hands-on exercises and experiences, and develop interpersonal skills that will assist them throughout their personal and professional lives. The course culminates with a service learning education project in the student's local community.

**LEAD 211-3. Profiles of Leadership.** Creates insight relative to the breadth and depth of leadership potential within a multicultural society. Students are challenged to develop personal profiles of leadership based upon multiple factors including leadership theory and non-traditional forms of leadership. Prer., COMM 111 or equivalent.

**LEAD 400-3. Principles of Student Leadership.** Designed as a participatory class with a focus on leadership theories, styles of leadership, and strategies for successful student leadership. Topics included are conflict management, strategic planning, goal setting, leading leaders, leadership ethics and other related topics. Meets with LEAD 500.

**LEAD 411-3. Experiences in Leadership.** Leadership in the context of organizational management, the political arena, and social causes. Students organize expert discussion panels. Special issues include women and minorities in leadership. Students research and prepare their own leadership development programs with emphasis on application and skill development. Prer., COMM 111 and LEAD 211 or equivalent.

**LEAD 415-1 to 3. Foundations of an Integrative Learning System.**

Designed to develop new knowledge and applications of innovated teaching and learning strategies which significantly increase student performance. Extended Studies course offering. May be used toward a degree program.

**LEAD 450-1 to 3. Student Leadership Seminar.**

Offers opportunities for undergraduate students to discuss problems of practice in leadership, plan and implement service projects and coordinate student leadership development activities.

**LEAD 453-1 to 4. Workshop in Leadership.**

Contemporary national, state, and local issues in education from the perspective of the education leader. An overview of current issues and trends in elementary and secondary education will be developed for reference, discussion debate, and policy purposes.

**LEAD 498-1 to 6. Special Topics in Leadership.**

Extended Studies offering. General topics taught in Educational Leadership. May apply toward a degree at the University of Colorado at Colorado Springs with permission of advisor and department chairperson.

**LEAD 499-1 to 9. Special Topics in Leadership.**

Extended Studies course offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**LEAD 500-3. Introduction to Leadership Studies.**

Meets with LEAD 400.

**LEAD 502-2. Vision, Values and Leadership in a Democratic Society.**

Students explore leadership theory, values, and assumptions inherent in public education within a democratic society, and personal beliefs relative to education and democracy. Personal educational philosophy and strategies facilitating vision, community, and common purpose are developed. Field work required.

**LEAD 507-3. Human Resources Development.**

Personnel practices, policy development, employee- employer relationships, employee contracts, due process procedures, collective bargaining, performance appraisal, hiring and dismissal processes, staff development, induction of new employees, legal implications of ADA, affirmative action, and sexual harassment are explored. Field work required.

**LEAD 515-1 to 3. Foundations of an Integrative Learning System.**

Designed to develop new knowledge and applications of innovated teaching and learning strategies which significantly increase student performance. Extended Studies course offering. May be used toward a degree program. Prer., Bachelor's degree or instructor approval.

**LEAD 516-2. Curriculum Leadership in a Multicultural Society.**

Study of the nature of curriculum, the historical evolution of curriculum, conflicting philosophical perspectives on curriculum, and current issues and trends affecting curriculum implementation and change. Emphasis placed upon creating congruent curriculum amidst competing forces. Field work required.

**LEAD 522-2. Program Evaluation and Curriculum Assessment.**

Designed to be taken with LEAD 523. Offers students an opportunity to explore various methods of evaluating school programs and assessing the effectiveness of curriculum. Field work is included in the requirements for this course. Prer., LEAD 516 or equivalent.

**LEAD 523-1. Action Research Laboratory.**

Designed to be taken concurrently with LEAD 522. Offers students an opportunity to apply methods in program evaluation and curriculum assessment to actual school problems. Students apply methods completing a school-based action research project.

**LEAD 524-1. Leadership and Management of Programs for Special Populations.**

Students explore challenges and needs placing students at risk of school failure. Emphasis placed on the legal and educational requirements of special programs including Title I, Special Education, Gifted and Talented, ESL, Section 504, ADA, and IDEA. Field work required.

**LEAD 525-2. Creative Communication for School Leaders.**

Strategies for effective communication and its role in group process, organizational effectiveness, persuasion, and conflict including criteria for effectiveness in communication are examined. Emphasis placed upon the role of technology and creativity in communication for leaders. Field work required.

**LEAD 545-3. The Principalship.**

Examination of the principalship at elementary, middle, and high school levels based upon research and recommended practices. Analysis of instructional, organizational, political, and leadership challenges. Assessment of policies and

principles guiding coordination of the instructional program. Field work required.

**LEAD 553-1 to 4. Workshop in Leadership.**

Contemporary national, state, and local issues in education from the perspective of the education leader. An overview of current issues and trends in elementary and secondary education will be developed for reference, discussions, debates, and policy purposes.

**LEAD 554-1 to 4. Advanced Topics in Leadership.**

In-depth analysis and application of leadership principles related to contemporary school issues.

**LEAD 560-3. Social Foundations of Education Trends.**

Addresses the relationship of schooling to society by focusing on the question of whether the schools can significantly reduce the environmentally related inequalities in achievement which exist in America. Zeros in on relationships between the federal government and education. Various speakers will present and discuss these and other issues.

**LEAD 570-3. Introduction to Research and Statistics.**

Introduces measures of central tendency, variability, percentiles, standard scores, and correlation. Covers basic concepts in statistical inference, evaluating and using research, design and analysis of educational research, and critical evaluation of published research. Completion of research project required.

**LEAD 598-1 to 6. Special Topics in Leadership.**

Extended Studies offering. General topics taught in Educational Leadership. May apply toward a degree program at the University of Colorado at Colorado Springs, with permission of advisor and department chairperson. Prer., Undergraduate degree.

**LEAD 599-1 to 9. Special Topics in Leadership.**

Extended Studies course offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**LEAD 604-2. Developing Collaborative School Communities.**

Leadership principles, change process research, and organizational theory applied to school research, and administration. Strategies for facilitating collaborative decision making and change processes, building community, and including and motivating diverse population of stakeholders in program planning and evaluation. Field work required.

**LEAD 605-3. Financing Schools and Programs.** Funding sources for public schools, procedures in financial planning, budgeting implications, and the relationship between costs and effectiveness explored including resource procurement, control of funds, accounting requirements, and payment procedures. Emphasis on management of building level budgets. Field work required.

**LEAD 612-3. Educational Politics in a Democratic Society.** A study of models, concepts, and processes regarding the organization of the American public school system at the federal, state, intermediate, and local school district levels including the values, resources, and power structures of the local community. Field work required.

**LEAD 614-3. Supervision and Evaluation of Instruction.** The role of instructional leader facilitating instructional effectiveness toward student success. Evaluation and supervision strategies included are: data collection, data analysis, legal aspects, evaluation report writing, conferencing, goal setting, motivation, and focusing on student outcomes. Field work required.

**LEAD 640-3. Legal Issues for School Leaders.** Federal and state laws from statutes, key court decisions, and recent legal developments are studied. Governance challenges of American education with emphasis on the legal duties, rights, and restraints of principals and administrators are explored. Field work required.

**LEAD 670-3. Methods of Qualitative Inquiry.** Prepares students to conduct field research employing qualitative methods and perspectives. Students analyze qualitative studies from various fields of study. A field research project is required. Prer., Introductory course in research.

**LEAD 671-3. Applications of Qualitative Inquiry.** Builds upon the basic foundations of qualitative inquiry and is designed to assist doctoral level students in designing and implementing research studies and analyzing data. Prer., LEAD 670 or equivalent.

**LEAD 675-3. Intermediate Statistics.** Advanced methods of analyzing data with an emphasis on the use and interpretation of descriptive and inferential techniques. Topics covered include one-way and two-way ANOVA, power, multiple correlation and regression, ANCOVA, and selected packaged statistical programs. Prer., Introduction to Statistics or equivalent.

**LEAD 682-3. Practicum in School Leadership: The Principalship.** A minimum of 300 clock hours of administration activities at the elementary, middle, and high school levels supervised by site mentors in varied settings with educationally, culturally, and socioeconomically diverse populations. Professional portfolio documents competencies required for program completion.

**LEAD 686-3. Superintendent as Transformational Leader.** Exploration of leadership challenges of the superintendency and central office administrators. Content is based upon Colorado licensure standards, NCATE curriculum standards, and AASA professional standards for the superintendency. Field work is required. Prer., Completion of Approved Principal Licensure Program.

**LEAD 687-3. The Superintendent as Manager of Quality Systems.** Exploration of management challenges of the superintendency and central office administrators. Content is based upon Colorado licensure standards, NCATE curriculum standards, and AASA professional standards for the superintendency. Field work is required. Prer., Completion of approved Principal Licensure Program or consent of instructor.

**LEAD 688-3. Practicum in Central Office Leadership and the Superintendency.** A minimum of 300 clock hours of central office administration activities supervised by site mentors in varied settings with educationally, culturally, and socioeconomically diverse populations. Professional portfolio documents required competencies. Prer., LEAD 686 and 687.

**LEAD 700-1 to 6. Master's Research Laboratory in Leadership.** Laboratories organized by professors to engage students in on-going research projects. Students extend and apply knowledge and skills developed in coursework. Student complete portfolio requirements and/or work on thesis. Prer., Admission to Master's Program or consent of instructor.

**LEAD 750-1 to 6. Doctoral Research Laboratory in Leadership.** Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in coursework. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prer., Only students enrolled in the UCD/ UCCS PhD program may enroll.

**LEAD 755-1 to 3. Readings in Leadership.** Selected readings for advanced study in a specific area of Educational Leadership or Leadership Studies. Prer., Admission to Master's or Ph.D. program or consent of instructor.

**LEAD 950-1 to 6. Independent Research in Educational Leadership.** Independent investigation of topics of specific interest completed under guidance of a faculty member. Specifics of the investigation are a joint decision requiring a written research proposal. Used for degree purposes only upon written consent of an advisor. Prer., Consent of instructor.

**LEAD 999-0. Candidate for Degree.** Used only by students not registered for course work or independent research during the semester in which the student takes the comprehensive examination. Fulfills requirement for registration during the semester in which comprehensive is taken. No credit is earned.

## SPECIAL EDUCATION

**SPED 300-3. Introduction to Special Education.** An overview of the physical, cognitive, and affective characteristics and development of exceptional individuals in relation to normal development is presented. The course examines why students succeed or fail, the teaching-learning process, individualized instruction, service delivery, ethics, and how general educators, special educators, and parents work together to maximize student development in the least restrictive environment. Participants are introduced to the historical, legal, and financial aspects of special education. Understanding and appreciating multicultural influences on educational practices are also discussed. Variable credit is only available for students in TEP. Additional outside class work is required. Meets with SPED 500.

**SPED 3001-3. Introduction to Special Education.** This course provides an overview of Special Education. The course emphasizes the history of special education; legislation; implementation of IDEA, current issues; and a survey of exceptionalities. This course is designed to support the Performance-based Standards for Colorado teachers. 30 hours of field experience required. Prer., Background check, fingerprinting. Meets with SPED 5001.

**SPED 3002-3. Professional Seminar in Special Education.** Familiarizes students with professional issues in special education. The areas include: (a) professional dispositions, (b) student

diversity, (c) instructional/assistive technology, and (d) professional writing. Teachers must understand academic and professional standards and their relationship to the work environment. Prer., Background check; fingerprinting. Meets with SPED 5002.

**SPED 3003-3. Classroom and Instructional Management.** This course will examine evidence-based approaches for providing classroom and instructional management. The emphasis is on (a) effective instructional procedures, (b) individual and classroom behavior management strategies, and (c) principles of applied behavior analysis. 15 hours of field experience is required. Meets with SPED 5003.

**SPED 3004-3. Self-determination and Transition.** This course presents self-determination and development, implementation, and evaluation of self-management instructional programs for students. Service delivery models, issues, and intervention approaches are examined in light of efficacy research. Emphasis is upon using self-management and learning strategies to facilitate self-determination. 15 hours of field experience is required. Prer., SPED 3001, SPED 3003. Meets with SPED 5004.

**SPED 401-3. Special Education Policies and Procedures.** Examines current special education law and procedures, financial structures, and delivery systems. Additionally, students discuss educational problems and discuss potential solutions. Students are introduced to current research and foundational concepts that are studied in depth in future coursework. These include examining multicultural influences on educational practice, framing special education services in a problem solving model, and constructing a unified system for delivering educational services to all students. Prer., SPED 300, SPED 405, SPED 432, and SPED 455. Meets with SPED 502.

**SPED 4010-3. Multisensory Structured Language Education.** Theory and practice of instruction for students at risk for reading failure is introduced in this course. The course content includes a review of the sources of difficulties and direct instruction in multisensory structured language education based on ongoing student assessment. 30 hours of field experience required. Prer., SPED 3001, SPED 3003. Meets with SPED 5010.

**SPED 4011-3. Assessment and Instructional Monitoring.** This course examines evaluation concepts and

assessments attending to curriculum-based individual-referenced measures, standardized assessments, and large-scale criterion-referenced tests characteristic of most statewide programs. Emphasis will be placed on aligning curriculum, instruction, and assessment. 15 hours of field experience is required. Prer., SPED 3001, SPED 3003. Meets with SPED 5011.

**SPED 4012-3. Differentiated Instruction.** The focus of this course is on expanding one's knowledge of teaching individuals who struggle with reading, writing, and mathematics. Topics include reading and spelling strategies for multisyllabic base words and derivatives, Latin affixes, and Greek combining forms; written composition; and mathematics. 30 hours of field experience is required. Prer., SPED 3001, SPED 3003, SPED 4010. Meets with SPED 5012.

**SPED 4013-2. Direct Instruction Practicum.** This course is for the teacher-in-training to learn and practice effective instructional teaching behaviors (e.g., pacing, transitions, data collection, correction procedures, organization of classroom materials) in school settings and demonstrate proficiency in the planning, delivering, and evaluating reading instruction. Field experience is required. Prer., SPED 4010.

**SPED 4020-3. Significant Support Needs.** This course presents the development, implementation, and evaluation of instructional programs for students with severe cognitive and physical needs at the elementary and secondary levels. Service delivery models, issues, and intervention approaches are examined in light of efficacy research. 30 hours of field experience is required. Prer., SPED 3001, SPED 3003. Meets with SPED 5020.

**SPED 4021-3. Positive Behavioral Intervention and Support.** This course examines positive behavior support from philosophical, theoretical, individual, and systemic perspectives. Emphasizes characteristics of students with challenging behavior, functional behavioral assessment, school-wide, classroom, and non-classroom PBS models and interventions, and models for family and community positive behavioral support. 20 hours of field experience is required. Prer., SPED 3001, SPED 3003. Meets with SPED 5021.

**SPED 4022-3. Consultation and Collaboration.** This course critically analyzes issues, research, implementation approaches, and recommended practices for employing collaborative models to

support learning across diverse school and community settings. Students will access and evaluate community resources, develop and maintain interdisciplinary and interagency partnerships. 20 hours of field experience is required. Prer., SPED 3001, SPED 3003. Meets with SPED 5022.

**SPED 4031-4. Elementary/Secondary Student Teaching.** Students are required to apply and integrate research-based practices in an educational setting. Student teachers will work with a wide range of students with special needs in programs that utilize practices congruent with the UCCS special education program. Prer., Tier 1, Tier 2, Tier 3. Meets with SPED 5031.

**SPED 405-3. Applied Behavior Analysis.** Examines applied behavior analysis principles and techniques, including observational analysis, databased instruction, and social validity. These concepts are emphasized as means to increase or decrease target behavior, and to facilitate behavior maintenance and generalization. Additionally, students are exposed to current research findings related to applied behavior analysis. APA writing style, ethics, legal issues, and materials are also covered. Prer., SPED 300. Meets with SPED 505.

**SPED 406-2. Mathematics Instruction.** Students will learn specific procedures for designing mathematics lessons for students with mild and moderate disabilities. Students will learn procedures for evaluating, selecting, and modifying mathematics curricula to meet the needs of students in diverse instructional environments. Current research findings and instructional delivery systems such as cooperative learning and precision teaching will also be discussed. Meets with SPED 506.

**SPED 407-3. Language Arts Instruction.** Introduction to the design of curriculum and the use of effective instructional practices for students with mild and moderate disabilities. Students will learn specific procedures for designing reading and written language lessons, practice applying teacher presentation techniques to improve student achievement outcomes. The Colorado Language Arts Standards will also be discussed. Prer. or coreq., SPED 405. Meets with SPED 507.

**SPED 410-3. Assessment and Instructional Monitoring.** Provide the skills necessary to plan and conduct systematic assessments of students who are at risk for academic failure in educational environments. Class lectures, activities, and assignments will focus on

how to select assessment procedures for: a) planning prereferral interventions, b) determining eligibility for special education services, c) planning efficient instructional programs, and d) monitoring student progress. The linkage of assessment data to intervention planning and effective instructional practices will be emphasized throughout the course. Additionally, current research findings and contemporary issues in educational assessment will be addressed. Prer., SPED 405 and 407. Meets with SPED 510.

**SPED 414-3. Self-Determination and Transition II.** Elementary and secondary career education and transition concepts including history, legal issues, IEP transition planning, assessment, labor laws, and community-based instructions are presented. Coordination of post-school services is discussed in relation to supported and competitive employment and community agencies. Prer., SPED 300/SPED 500. Meets with SPED 514.

**SPED 416-3. Significant Support Needs.** Focus on the development, implementation, and evaluation of instructional programs for students with severe cognitive and physical needs in elementary and secondary settings. Prer., SPED 300 and SPED 405. Meets with SPED 516.

**SPED 420-3. Behavioral and Social Skills I.** Focus on the development, implementation, and evaluation of instructional programs for students with challenging behaviors. Course content focuses on defining characteristics of children and youth with emotional and behavioral disorders across educational settings. Prer., SPED 405. Meets with SPED 519.

**SPED 421-3. Behavioral and Social Skills II.** Focus on the development, implementation, and evaluation of instructional programs for students with challenging behaviors. Course content includes behavioral assessment, social skills instruction, and techniques for managing aggressive behavior. Prer., SPED 300, SPED 405 and SPED 420. Meets with SPED 539.

**SPED 428-3. Self-Determination and Transition I.** Presents self-determination instructional methodology including assessment and instructional programs. Focus is upon teaching students how to choose goals, express goals through learning to actively participate in the IEP meeting, and taking action on achieving their own goals. Prer., SPED 300. Meets with SPED 528.

**SPED 429-3. Consultation and Collaboration.** Emphasizes data-based consultation models and collaborative problem solving techniques that are effective across learning environments. Meets with SPED 530.

**SPED 431-2. Consultation and Collaboration II.** Emphasizes data-based consultation and the design, implementation, monitoring, and evaluation of interventions to improve students' opportunities to benefit from their learning and social environments. Strategies for coordinating and managing educational staff and programs in a variety of environments will also be presented. Prer., SPED 430; Coreq., SPED 476 or 477.

**SPED 432-3. Mathematics Instruction.** Students will learn procedures for evaluating, selecting, modifying, and teaching mathematics curricula to meet the learning needs of students with mild and moderate disabilities. Prer., SPED 300 and SPED 405. Meets with SPED 532.

**SPED 436-6. Elementary Student Teaching: Moderate, Affective, Cognitive Needs.** This supervised student teaching experience provides students with the opportunity to apply and integrate principles and techniques learned in previous course in elementary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Prer., SPED 300/SPED 500 through SPED 550. Meets with SPED 536.

**SPED 437-6. Secondary Student Teaching: Moderate, Affective, Cognitive Needs.** This supervised student teaching experience provides students with the opportunity to apply and integrate principles and techniques learned in previous course in secondary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Prer., SPED 300/SPED 500 through SPED 550. Meets with SPED 537.

**SPED 443-3. TeachSpecialEd.com:** Foundations in Special Education. This course places the history of special education in context of current principles and practices. Presents contributions of advocacy groups relative to legislative accomplishments and addresses important issues, federal laws, and resources for beginning teachers in determining their legal responsibilities. Meets with CURR 4060.

**SPED 444-3. TeachSpecialEd.com:** Development and Characteristics of Learners with Exceptional Learning

Needs. Focuses on individuals with high-incidence disabilities, including mild mental retardation, learning disabilities, ADHD, and behavioral disorders. Teachers are also introduced to the attributes of students from low-incidence groups. Meets with CURR 4061.

**SPED 446-3. TeachSpecialEd.com:** Assessment for Instructional Planning and Decision Making. Foundations of assessment are addressed from the perspective of instructional planning and decision making. Legal and ethical principles are covered along with the processes of screening, pre-referral, referral and classifications. Attention is given to assessments in IEP development. Meets with CURR 4062.

**SPED 447-3. TeachSpecialEd.com:** Instructional Strategies: Creating Environments that Promote Learning Appropriate Social Interactions and Behavior. Development of positive learning environments as a strategy for enhancing teaching and learning. Preventive measures in the context of approaches to building positive behavior support. Intervention strategies for problem behavior, along with techniques for promoting social interactions and behaviors. Meets with CURR 4063.

**SPED 448-3. TeachSpecialEd.com:** Instructional Strategies: Teaching for Results. Planning for effective instruction is the central focus of this course. Instructional planning, organizing and designing instruction, student outcomes instructional principles, and assessing outcomes of effective instruction. Curriculum-based assessment is covered along with the communication of student outcomes. Meets with CURR 4064.

**SPED 450-3. Teaching Secondary Students in Content Classes.** Provides participants with procedures and techniques teachers may use to increase student achievement in content area courses. Participants will learn effective strategies for planning, implementing, and evaluating complex content area instruction. A variety of ways to deliver instruction including cooperative learning, peer tutoring, and coteaching will also be addressed. Meets with SPED 540.

**SPED 455-3. Language Arts II.** Provides participants with procedures and techniques to increase student achievement in content area courses. Participants will learn effective strategies for planning, implementing, and evaluating complex content. A variety of ways to deliver instruction will also be addressed. Prer., SPED 300, SPED 405 and SPED 407. Meets with SPED 555.

**SPED 456-3. TeachSpecialEd.com:**

Instructional Strategies: Improving Basic Reading Skills. Emphasizes teaching beginning reading and developing reading fluency. Is applicable to teaching students with exceptional learning needs in varied instructional settings. Meets with CURR 4065.

**SPED 457-3. TeachSpecialEd.com:**

Instructional Strategies: Improving Reading Comprehension. Provides an overview of reading comprehension with emphasis on teaching students with exceptional learning needs. Attention is given to building a knowledge base and analyzing text to enable comprehension skills and teaching comprehension strategies. Meets with CURR 4066.

**SPED 458-3. TeachSpecialEd.com:**

Language and Communication in Diverse Learners. Places the needs of exceptional learners in the larger context of cultural differences and diversity with a focus on language and communication. Language development and communication styles are covered. Teaching second language learners. Augmentative, alternative and assistive communication development is addressed. Meets with CURR 4067.

**SPED 471-3. Practicum II.** Participants will develop skills to implement an effective, research-based language arts reading program for low achieving students and students with disabilities in a variety of educational settings. Meets with SPED 585.

**SPED 476-7. Elementary Student**

**Teaching: Moderate, Affective, Cognitive Needs.** Provides students the opportunity to apply and integrate the principles and techniques learned in previous courses in an elementary setting. Students will work with children with moderate, affective, and cognitive disabilities under the supervision of a cooperating teacher. Competency assignments and current issues are discussed during student teaching seminars. Coreq., SPED 430 or 431 and permission of instructor.

**SPED 477-7. Secondary Student Teaching: Moderate, Affective Cognitive**

**Needs.** Provides students the opportunity to apply and integrate the principles and techniques learned in previous courses in a secondary setting. Students will work with adolescents with moderate, affective, and cognitive disabilities under the supervision of a cooperating teacher or district supervisor. Competency assignments and current issues are discussed during student teaching

seminars. Coreq., SPED 430 or 431 and permission of instructor.

**SPED 481-4. Elementary Student**

**Teaching.** Supervised student teaching that provides the opportunity to apply and integrate principles and techniques learned in previous courses in elementary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Meets with SPED 581.

**SPED 482-4. Secondary Student**

**Teaching.** Supervised student teaching that provides the opportunity to apply and integrate principles and techniques learned in previous course in secondary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Meets with SPED 582.

**SPED 486-3. TeachSpecialEd.com:**

Collaboration and Instructional Planning in the IEP Process. Emphasizes developing standards-based IEPs in accordance with IDEA requirements. Introduces models of collaboration and highlights developing collaboration skills to enhance the effectiveness of the beginning teacher in development and implementation of IEPs. Meets with CURR 4068.

**SPED 487-3. TeachSpecialEd.com:**

Professional and Ethical Practices. Focuses on the ethical standards and principles of the profession. Ethical issues related to assessment, decision making, instruction, working with agencies, and families/guardians of children with exceptional learning needs are covered. Meets with CURR 4069.

**SPED 491-1 to 4. Workshop.** Designed to allow specific topics and issues to be explored in-depth. Prer., Permission of instructor.

**SPED 495-2 to 3. Summer Institutes.**

Provides participants with a variety of training opportunities that specifically relate to programs, policies, and procedures for working with at-risk students. Participants will have multiple opportunities to reflect on knowledge learned and develop practical application plans. Meets with SPED 595.

**SPED 498-1 to 4. Special Topics in**

**Special Education.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. May apply toward a degree program at the University of Colorado at Colorado Springs with permission of advisor and department chairperson.

**SPED 499-1 to 9. Special Topics in**

**Special Education.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**SPED 500-3. Introduction to Special**

**Education.** An overview of the physical, cognitive and affective characteristics and development of exceptional individuals in relation to normal development is presented. The course examines why students succeed or fail, the teaching-learning process, individualized instruction, service delivery, ethics, and how general educators, special educators and parents can work together to maximize student development in the least restrictive environment. Students are introduced to the historical, legal, and financial aspects of special education. Understanding and appreciating multicultural influences on educational practices are discussed also. Additional outside class work is required. Meets with SPED 300.

**SPED 5001-3. Introduction to Special**

**Education.** This course provides an overview of Special Education. The course emphasizes the history of special education; legislation; implementation of IDEA, current issues; and a survey of exceptionalities. This course is designed to support the Performance-based Standards for Colorado teachers. 30 hours of field experience required. Prer., Background check, fingerprinting. Meets with SPED 3001.

**SPED 5002-3. Professional Seminar in Special Education.**

Familiarizes students with professional issues in special education. The areas include: (a) professional dispositions, (b) student diversity, (c) instructional/assistive technology, and (d) professional writing. Teachers must understand academic and professional standards and their relationship to the work environment. Prer., Background check; fingerprinting. Meets with SPED 3002.

**SPED 5003-3. Classroom and Instructional Management.**

This course will examine evidence-based approaches for providing classroom and instructional management. The emphasis is on (a) effective instructional procedure, (b) individual and classroom behavior management strategies, and (c) principles of applied behavior analysis. 15 hours of field experience is required. Meets with SPED 3003.

**SPED 5004-3. Self-determination and Transition.**

This course presents



self-determination and development, implementation, and evaluation of self-management instructional programs for students. Service delivery models, issues, and intervention approaches are examined in light of efficacy research. Emphasis is upon using self-management and learning strategies to facilitate self-determination. 15 hours of field experience is required. Prer., SPED 5001, SPED 5003. Meets with SPED 3004.

**SPED 501-1. Trends and Legal Issues.**

Examines current special education trends and special education law, procedures, financial structures, and delivery systems. Additionally, students discuss educational problems and discuss potential solutions. Students are introduced to current research and foundational concepts that are studied in depth in future and foundational concepts that are studied in depth in future courses. These include examining multicultural influences on educational practice, framing special education services in a problem-solving model, and constructing a unified system for delivering educational services to all children. Meets with SPED 401.

**SPED 5010-3. Multisensory Structured Language Education.**

Theory and practice of instruction for students at risk for reading failure is introduced in this course. The course content includes a review of the sources of difficulties and direct instruction in multisensory structured language education based on ongoing student assessment. 30 hours of field experience required. Prer., SPED 5001, SPED 5003. Meets with SPED 4010.

**SPED 5011-3. Assessment and Instructional Monitoring.**

This course examines evaluation concepts and assessments attending to curriculum-based individual-referenced measures, standardized assessments, and large-scale criterion-referenced tests characteristic of most statewide programs. Emphasis will be placed on aligning curriculum, instruction, and assessment. 15 hours of field experience is required. Prer., SPED 5001, SPED 5003. Meets with SPED 4011.

**SPED 5012-3. Differentiated Instruction.**

The focus of this course is on expanding one's knowledge of teaching individuals who struggle with reading, writing, and mathematics. Topics include reading and spelling strategies for multisyllabic base words and derivatives, Latin affixes, and Greek combining forms; written composition; and mathematics. 30 hours of field experience is required. Prer., SPED 5001, SPED 5003, SPED 5010. Meets with SPED 4012.

**SPED 502-3. Special Education Policies and Procedures.**

Examines current special education laws, including IDEA, Section 504, and ADA. In addition, students learn how to develop legally correct and educationally useful Individualized Education Programs. Prer., SPED 500 and SPED 505. Meets with SPED 401.

**SPED 5020-3. Significant Support Needs.**

This course presents the development, implementation, and evaluation of instructional programs for students with severe cognitive and physical needs at the elementary and secondary levels. Service delivery models, issues, and intervention approaches are examined in light of efficacy research. 30 hours of field experience is required. Prer., SPED 5001, SPED 5003. Meets with SPED 4020.

**SPED 5021-3. Positive Behavioral Intervention and Support.**

This course examines positive behavior support from philosophical, theoretical, individual, and systemic perspectives. Emphasizes characteristics of students with challenging behavior, functional behavioral assessment, school-wide, classroom, and non-classroom PBS models and interventions, and models for family and community positive behavioral support. 20 hours of field experience is required. Prer., SPED 5001, SPED 5003. Meets with SPED 4021.

**SPED 5022-3. Consultation and Collaboration.**

This course critically analyzes issues, research, implementation approaches, and recommended practices for employing collaborative models to support learning across diverse school and community settings. Students will access and evaluate community resources, develop and maintain interdisciplinary and interagency partnerships. 20 hours of field experience is required. Prer., SPED 5001, SPED 5003. Meets with SPED 4022.

**SPED 5031-4. Elementary/Secondary Student Teaching.**

Students are required to apply and integrate research-based practices in an educational setting. Student teachers will work with a wide range of students with special needs in programs that utilize practices congruent with the UCCS special education program. Meets with SPED 4031.

**SPED 505-3. Applied Behavior Analysis.**

Examines applied behavior analysis principles and techniques including observational analysis, databased instruction, and social validity. These concepts are emphasized as means to increase or decrease target behavior,

and to facilitate behavior maintenance and generalization. Additionally, students are exposed to current research findings related to applied behavior analysis. APA writing style, ethics, legal issues and materials are also covered. Prer., Concurrently with SPED 500. Meets with SPED 405.

**SPED 506-2. Mathematics Instruction.**

Specific procedures for designing mathematics lessons for students with mild and moderate disabilities. Students will learn procedures for evaluating, selecting, and modifying mathematics curricula to meet the needs of students in diverse instructional environments. Prer., SPED 505. Meets with SPED 406.

**SPED 507-3. Language Arts Instruction.**

Design of curriculum and the use of effective instructional practices for students with mild and moderate disabilities. Students will learn specific procedures for designing reading and written language lessons, and practice applying teacher presentation techniques to improve student achievement outcomes. Prer., SPED 500 and SPED 505. Meets with SPED 407.

**SPED 5090-3. Applied Research Project.**

The basic premise of this seminar is that applied behavior analysis and the teacher as a researcher-scientist are integral components of an effective educational setting. Based on individual interests, students will design a research project for the purpose of evaluation interventions in their own setting. Students will (a) develop a research proposal in APA format, (b) conduct the research, and (c) submit a final research paper to the special education faculty. All papers will be evaluated by the research review committee consisting of three university faculty members. This course is required to fulfill the MA comprehensive exam requirement. Prer., All graduate coursework completed.

**SPED 5091-3. Current Topics in Special Education.**

Current issues/topics in special education related to instruction, advocacy, policy, service delivery, and training are addressed in this course. Students will investigate an area of interest based on empirical literature. Open to graduate students only.

**SPED 510-3. Academic Assessment and Instruction.**

Provides the skills necessary to plan and conduct systematic assessments of students who are at risk for academic failure in educational environments. Class lectures, activities, and assignments will focus on how to select assessment procedures for: a)

planning prereferral interventions, b) determining eligibility for special education services, c) planning efficient instructional programs, and d) monitoring student progress. The linkage of assessment data to intervention planning and effective instructional practices will be emphasized throughout the course. Additionally, current research findings and contemporary issues in education will be addressed. Prer., SPED 500, SPED 505, and SPED 507. Meets with SPED 410.

**SPED 516-3. Significant Support Needs.** Focus on the development, implementation, and evaluation of instructional programs for students with severe cognitive and physical needs in elementary and secondary settings. Prer., SPED 500, SPED 505 and CURR 5122. Meets with SPED 416.

**SPED 519-3. Behavioral and Social Skills I.** Focus on the development, implementation, and evaluation of instructional programs for students with challenging behaviors. Course content focuses on defining characteristics of children and youth with emotional and behavioral disorders across educational settings. Prer., SPED 500 and SPED 505. Meets with SPED 420.

**SPED 528-3. Self-Determination and Transition I.** Self-determination instructional methodology including assessment and instructional programs. Focus is upon teaching students how to choose goals, express goals through learning to actively participate in the IEP meeting, and taking action on achieving their own goals. Prer., SPED 300/SPED 500. Meets with SPED 428.

**SPED 530-3. Consultation.** Focus on collaborative consultation services as framed in an ecological, problem-solving model for delivering educational services to students. Consultation models, theory and techniques will include group process and teamwork, collaborative problem solving, ongoing monitoring of the effectiveness of interventions, and conflict resolution. The course will emphasize databased consultation and the use of learning strategies with other educators across environments. The student's regular curriculum and social environment is the focal point for intervention. Prer., SPED 510, 512, 513 and 516.

**SPED 532-3. Mathematics Instruction.** Procedures for evaluating, selecting, modifying, and teaching mathematics curricula to meet the learning needs of students with mild and moderate disabilities. Prer., SPED 500 and SPED 505. Meets with SPED 432.

**SPED 533-3. Multiple Intelligence and Gifted Students.** Focus upon the creation and development of teaching materials to assist school personnel charged with meeting the instructional needs of gifted, creative, and talented students in both regular and special education classrooms, Grades K-12. Participants will examine existing educational research to determine the most effective ways and means of instructing gifted students. They will study and evaluate existing methods and materials designed for the target population, and they will design new materials to utilize in the teaching of gifted students. Meets with CURR 5202.

**SPED 536-6. Elementary Student Teaching: Moderate, Affective, Cognitive Needs.** Supervised student teaching that provides the opportunity to apply and integrate principles and techniques learned in previous course in elementary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Prer., SPED 300/SPED 500 through SPED 550. Meets with SPED 436.

**SPED 537-6. Secondary Student Teaching: Moderate, Affective, Cognitive Needs.** Supervised student teaching that provides the opportunity to apply and integrate principles and techniques learned in previous courses in secondary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Prer., SPED 300/SPED 500 through SPED 550. Meets with SPED 437.

**SPED 539-3. Behavioral and Social Skills II.** Focus on the development, implementation, and evaluation of instructional programs for students with challenging behaviors. Course content includes behavioral assessment, social skills instruction, and techniques for managing aggressive behavior. Prer., SPED 500, SPED 505 and T ED 552. Meets with SPED 421.

**SPED 540-3. Teaching Secondary Students in Content Area.** Participants will learn effective strategies for planning, implementing, and evaluating complex content area instruction. A variety of ways to deliver instruction including cooperative learning, peer tutoring, and co-teaching will also be addressed. Prer., SPED 405/505. Meets with SPED 450.

**SPED 543-3. TeachSpecialEd.com:** Foundations in Special Education Places the history of special education in context of current principles and practices. Presents contributions of advocacy groups relative to legislative accomplishments, and addresses important issues, federal

laws, and resources for beginning teachers in determining their legal responsibilities. Prer., Bachelor's degree or permission of instructor. Meets with CURR5060.

**SPED 544-3. TeachSpecialEd.com:** Development and Characteristics of Learners with Exceptional Learning Needs. Focuses on individuals with high-incidence disabilities including mild mental retardation, learning disabilities, ADHD and behavioral disorders. Teachers are also introduced to the attributes of students from low incidences groups. Meets with CURR 5061.

**SPED 545-3. Literature for gifted adolescents.** Reading and evaluation of literature for gifted and talented adolescents. Emphasis is on contemporary literature, especially literature by and about female, minority and gifted and talented persons. Meets with CURR 5421.

**SPED 546-3. TeachSpecialEd.com:** Assessment for Instructional Planning and Decision Making. Foundations of assessment are addressed from the perspective of instructional planning and decision making. Legal and ethical principles are covered along with the processes of screening, pre-referral, referral and classifications. Attention is given to assessments in IEP development. Meets with CURR 5062.

**SPED 547-3. TeachSpecialEd.com:** Instructional Strategies: Creating Environments that Promote Learning, Appropriate Social Interactions, and Behavior. Development of positive learning environments as a strategy for enhancing teaching and learning. Preventive measures in the context of approaches to building positive behavior support. Intervention strategies for problem behavior, along with techniques for promoting social interactions and behaviors. Meets with CURR 5063.

**SPED 548-3. TeachSpecialEd.com:** Instructional Strategies: Teaching for Results. Planning for effective instruction is the central focus of this course. Instructional planning, organizing, organizing and designing instruction, student outcomes, instructional principles, and assessing outcomes of effective instruction are included. Curriculum-based assessment is covered along with the communication of student outcomes. Meets with CURR 5064.

**SPED 555-3. Language Arts II.** Procedures and techniques to increase student achievement in content area courses. Participants will learn effective

strategies for planning, implementing, and evaluating complex content. A variety of ways to deliver instruction will also be addressed. Prer., SPED 500, SPED 505 and SPED 507. Meets with SPED 455.

**SPED 556-3. TeachSpecialEd.com:** Instructional Strategies: Improving Basic Reading Skills. Emphasizes teaching beginning reading and developing reading fluency. Is applicable to teaching students with exceptional learning needs in varied instructional settings. Prer., Bachelor's degree or permission of instructor. Meets with CURR 5065.

**SPED 557-3. TeachSpecialEd.com:** Instructional Strategies: Improving Reading Comprehension. Provides an overview of reading comprehension, with emphasis on teaching students with exceptional learning needs. Attention given to building knowledge base, analyzing text to enable comprehension skills, and teaching comprehension strategies. Prer., Bachelor's degree or instructor's approval. Meets with CURR 5066.

**SPED 558-3. TeachSpecialEd.com:** Language and Communication in Diverse Learners. Places the needs of exceptional learners in the larger context of cultural differences and diversity with a focus on language and communication. Language development is covered and communication styles. Teaching second language learners. Augmentative, alternative, and assistive communication development is addressed. Meets with CURR 5067.

**SPED 559-3. Arts for the Gifted.** Explores a variety of arts activities for the elementary and middle grades. There will be a focus on a multifaceted approach to teaching arts within creative, stimulating environments where the gifted student can evolve and thrive. Creativity, hemisphericity, problem solving, and practical applications of visual arts, music, dance, drama, and creative writing are addressed. Meets with CURR 5210.

**SPED 560-2 to 3. Teaching the Gifted and Creative Student.** This introductory course explores the nature and nurture of gifted children and adolescents. Characteristics, identification, program alternatives and teaching strategies are addressed as is the history of the gifted child movement. Meets with EPSY 525.

**SPED 561-3. Curriculum Strategies for Gifted and Talented.** Prepares participants to write challenging, effective and differential curricula for gifted learners. A variety of curriculum

models and strategies will be explored. Participants will create curriculum units for gifted students in content areas of their choice. Meets with CURR 5211.

**SPED 562-3. Reading and Language Arts for the Gifted.** Explores a wide variety of reading and writing activities for gifted learners. Children's and adolescent literature, biography, independent study, creative dramatics and expository and creative writing are among the many topic areas addressed. Meets with CURR 5212.

**SPED 563-3. Social Studies and Humanities for the Gifted.** Addresses the teaching of social studies and the humanities to gifted and talented students, grades K-12. An integrated, holistic approach to social studies is emphasized. Meets with CURR 5213.

**SPED 564-3. Creative Problem Solving and Future Problem Solving for Gifted Learners.** Covers four areas: creativity, problem solving, future studies, and future problem solving. The course content will focus on both the theoretical frameworks underlying each topic, as well as concomitant teaching strategies. Meets with CURR 5220.

**SPED 569-3. Supervised Practicum - Gifted/Talented Education.** Practicum credit may be obtained through selected, supervised field placements in teaching or supervisory roles in gifted education.

**SPED 5740-1. Students Learning English Who have Cognitive Disabilities.** The purpose of this course is to present a proposal for professional development modules that will train special education teachers to effectively serve the needs of English language learners with disabilities.

**SPED 576-3. Elementary Student Teaching: Moderate, Affective, Cognitive Needs.** Supervised student teaching or on-the-job teaching experience provides the opportunity to apply and integrate principles and techniques learned in previous courses in an elementary setting. Applications are due March 15 for Fall semester and October 15 for Spring semester. Prer., SPED 500-550.

**SPED 577-3. Secondary Student Teaching: Moderate, Affective, Cognitive Needs.** Supervised student teaching or on-the-job teaching experience provides the opportunity to apply and integrate principles and techniques learned in previous courses in a secondary setting. Applications are due March 15 for Fall semester and October 15 for Spring semester. Prer., SPED 500-550.

**SPED 581-4. Elementary Student Teaching.** Supervised student teaching that provides the opportunity to apply and integrate principles and techniques learned in previous courses in secondary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Meets with SPED 481.

**SPED 582-4. Secondary Student Teaching** Supervised student teaching that provides the opportunity to apply and integrate principles and techniques learned in previous courses in elementary school settings. Student teaching application due dates: Fall (October 15) and Spring (March 15). Prer., All course work completed. PLACE test must be passed. Meets with SPED 482.

**SPED 585-3. Practicum II.** Participants will develop skills to implement an effective, research-based language arts reading program for low achieving students and students with disabilities in a variety of educational settings. Prer., SPED 500 and SPED 505. Meets with SPED 471.

**SPED 586-3. TeachSpecialEd.com:** Collaboration and Instructional Planning in the IEP Process. Emphasizes developing standards-based IEPs in accordance with IDEA requirements. Introduces models of collaboration and highlights developing collaboration skills to enhance the effectiveness of the beginning teacher in development and implementation of IEPs. Prer., BA or instructor's approval. Meets with CURR 5068.

**SPED 587-3. TeachSpecialEd.com:** Professional and Ethical Practices. Focuses on the ethical standards and principles of the profession. Ethical issues related to assessment, decision making, instruction, working with agencies, and families/guardians of children with exceptional learning needs. Meets with CURR 5069.

**SPED 590-3. Seminar: Current Research Issues in Gifted Education.** Students explore contemporary research related to the identification of gifted student, programs and other related educational issues. Meets with CURR 5201.

**SPED 591-1 to 4. Workshop.** Designed to allow specific topics and issues to be explored in-depth.

**SPED 593-2. Step Up to Writing: Basic, Practical and Helpful Writing Instruction.** Participants will receive training using the Step Up to Writing curriculum published by Sopris West. This program provides training in how to organize ideas and information, write

topic sentences and thesis statements, connect main ideas, write conclusions, think creatively, and other components of effective writing.

**SPED 594-3. Language! Professional Development Course for Reading Educators.** Uses Language! curriculum published by Sopris West. A comprehensive intervention curriculum for students who lack age or grade level mastery in reading, writing and spelling. Participants will be trained using integrated strands that include decoding, spelling, comprehension, grammar, vocabulary, mechanics, usage, figurative language, expository and narrative writing, and literature.

**SPED 595-2 to 3. Summer Institutes.** The institute provides participants with a variety of training opportunities that specifically relate to programs, policies, and procedures for working with at-risk students. Participants will have multiple opportunities to reflect on knowledge learned and develop practical application plans. Prer., Bachelors degree. Meets with SPED 495.

**SPED 598-1 to 4. Special Topics in Special Education.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. May apply toward a degree program at the University of Colorado at Colorado Springs, with permission of advisor and department chairperson. Prer., Undergraduate degree.

**SPED 599-1 to 9. Special Topics in Special Education.** Extended Studies offering. Designed to allow specific topics and issues to be explored in-depth. Will not apply toward a degree program at the University of Colorado at Colorado Springs.

**SPED 945-1 to 4. Independent Study.** Independent investigation of topics of specific interest to the student and completed under the direction of a faculty member. The specifics of the investigation are a joint decision by the student and faculty member. The meeting times, expectations, and evaluation are arranged. Courses leading to licensure are seldom completed through an independent study. Prer., Permission of instructor.

**SPED 950-1 to 4. Independent Study in Special Education.** Independent investigation of topics of specific interest to the student and completed under the direction of a faculty member. The specifics of the investigation are a joint decision by the student and faculty member. The meeting times, expectations

and evaluation are arranged. Certification and/or endorsement courses are seldom completed through an independent study.

**SPED 955-1 to 4. Independent Study in Gifted and Talented Education.** Independent research, study and planning in gifted education may be completed under the direction of a faculty member. The specifics of the investigation and the topic are a joint decision by the student and faculty member. The meeting times, expectations and evaluation are arranged with the faculty member. Students must have written consent of the instructor.

**SPED 999-0. Candidate for Degree.** To be used only by those students who will not be registered for course work during the semester in which the comprehensive examination for the master's degree is taken. Consent of advisor is required.

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## TEACHER EDUCATION

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**T ED 201-1. Beginning School Field Experience.** This course provides an overview of curriculum, instruction, operation and the culture of area public schools through a combination of structured field experience and seminars. For undergraduates this is a prerequisite to T ED 300 and T ED 301.

**T ED 300-3. Contemporary American Education.** Provides an introduction to contemporary American education for anyone interested in today's schools as well as for potential teachers. Meets with T ED 500.

**T ED 301-1 to 3. Early School Experience.** Provides early school experience for potential teachers in public school classrooms. This experience focuses on the roles, responsibilities and qualities of the professional teacher through practical experience. Prer., T ED 300, prior or concurrent.

**T ED 370-3. Introduction to ESL/Multicultural Education.** Provides comprehensive survey of ESL and multicultural education programs. Includes history and legislation of bilingual/ESL education, instructional models, philosophies, theories of bilingual/ESL education, the culture of ESL classroom, instructional strategies and important considerations for teaching the LEP student. Meets with CURR 5700.

**T ED 371-3. Materials and Methods in ESL/Multi-Cultural Education.** Provides an in-depth study of curriculum options available for the ESL classroom. Presents, reviews and critiques specific methods and strategies for teaching language minority students. Gives students the

opportunity to develop and present teaching units using ESL methodology as appropriate in classrooms. Prer., T ED 370. Meets with CURR 5701.

**T ED 372-3. Literacy for Linguistically Different Learners.** Presents current and emerging philosophies and methods on teaching reading to culturally diverse second language learners. Includes review of materials, strategies for teaching reading and writing skills, and important considerations for transference from L1 to L2 reading, and field-based assignments. Prer., T ED 370. Meets with CURR 5702.

**T ED 373-3. Assessment: Methods, Materials, and Theories for ELL's.** Prepares teachers to assess and evaluate ESL students in a field-based setting. Includes particular assessment instruments, mediation strategies and materials, and formal and informal diagnostic strategies. Covers both theoretical and applied aspects of assessing language learning and teaching. Prer., T ED 370/CURR 5700. Meets with CURR 5703.

**T ED 374-3. Practicum in ESL/Multicultural Education.** A field-based, standards-based course that provides at least 150 hours of site-based work in addition to in-school work. Students are placed into classrooms with ELLs if they do not already have such classrooms. Instructors supervise the placements. Prer., T ED 373. Meets with CURR 5704.

**T ED 375-3. Second Language Acquisition: Capstone.** Presents a broad survey of second language acquisition research. Stresses theoretical concerns and research findings and practical applications to teaching second languages. Gives emphasis to applied second language acquisition, cultural awareness, and social and economic factors that contribute to ELLs' success in schools. Prer., T ED 374. Meets with CURR 5705.

**T ED 376-3. Curriculum for Multicultural Education.** Analyzes curriculum programs used in the classrooms, and applies principles and innovation for education of ethnic minority and majority students in the elementary grades.

**T ED 377-3. Pro-Seminar: Parent and Community Involvement.** Focuses on models and strategies for improving parent and community involvement in the schools. Discusses administrative concerns, such as parent advisory councils, instructional concerns, such as helping children with school assignments, and family literacy issues and programs.

Field-based assignments are required. Prer., T ED 370. Meets with CURR 5707.

**T ED 441-1. Children's Literature**

**Methods.** Surveys historical and contemporary literature for children to promote literacy growth. Author studies, technology connections in children's literature, and genre such as picture books, biography, nonfiction, and mystery and adventure are among the critical topics covered, as well as the Colorado content standards for reading and writing. Meets with T ED 541.

**T ED 444-3. Mathematical Connections and Concepts.**

Exploration of current mathematics curriculum topics in ways which will allow students to develop deeper conceptual knowledge and a better understanding of the connections between various mathematical topics. Applications of mathematics to other disciplines. Historical background of secondary curriculum. Meets with CURR 524.

**T ED 450-1. The Professional Educator.**

Provides student teachers in the final semester of teacher training with the skills and strategies to successfully enter the teaching profession including portfolio development, interviewing, philosophies, and application processes.

**T ED 452-3. Educational Psychology.**

Provides teachers with the knowledge of psychology most relevant to teaching. The focus is on areas of child development and major learning theories and their application in the classroom. Meets with T ED 552.

**T ED 453-1. Social Foundations of Educational Issues.**

Addresses the relationship of schooling to society by focusing whether the schools can significantly reduce the environmentally related inequalities in achievement which exist in America on relationships between the state and federal government and education. Includes an overview of multicultural education and an outline of recent legislative changes enacted at the state and federal level.

**T ED 454-2. Education of Exceptional Children.**

Includes an overview of the major current issues in special education as well as a description of the most commonly encountered handicapping conditions. Students gain an understanding of different learning styles and adapting instruction to meet individual needs. Information regarding the general legal requirements for handicapped students and due process is also provided. Requires volunteer work with special populations.

**T ED 457-3. Elementary Literacy**

**Methods.** Elementary literacy strategies to successfully implement reading and writing teaching and assessment with emphasis on Colorado Model Content Standards. Prer., Acceptance into TEP. Meets with T ED 557.

**T ED 458-2. Elementary Curriculum Instruction and Classroom**

**Management.** Principles of curriculum design, instructional models and practice, standards-based curriculum and assessment, planning, organization, and classroom management and discipline. Prer., Acceptance into TEP. Meets with T ED 558.

**T ED 459-1. Elementary Physical and**

**Wellness Education Methods.** Examines the contribution physical and wellness education makes to the curriculum. The components of the curriculum will be explained and students will have direct experience with most activities. Emphasis will be on low-organized games, rhythm, perpetual motor activities, conflict resolution, class management, and the importance of individual skill development. Prer., Accepted TEP students only.

**T ED 460-1 to 4. School Experience-**

**Elementary.** Pre-student teaching field experience. Summer involves participating in organizing, planning, conducting and evaluating a reading clinic experience in a public school. Fall involves observing a variety of schools and classrooms and serving as a teaching associate at assigned Professional Development School. Meets with T ED 560.

**T ED 462-3. Elementary Reading**

**Methods.** An introduction to reading literacy instructional practices. Includes a critical overview of current approaches, methods and materials, supported by a basic understanding about the reading and literacy learning process. Meets with T ED 562.

**T ED 463-3 to 14. Student Teaching-**

**Elementary.** Elementary education students, in consultation with members of the school of education faculty, will be assigned to an elementary professional development school for full-day teaching for a period of sixteen weeks. During this time students will demonstrate, through direct site development experience, competence and understanding of teaching-learning process. Prer., TEP students only. Meets with T ED 563.

**T ED 464-3. Elementary Mathematics**

**Methods.** Provides teachers with a laboratory approach for teaching mathematics and acquaints them with a variety of materials and methods.

Emphasis is on fostering skills in problem-solving; creative/critical thinking; and inductive/deductive processes and addressing the Colorado content standards for math. Meets with T ED 564.

**T ED 465-2. Elementary Science**

**Methods.** Designed to acquaint teachers with materials and methods for teaching science to elementary school children. Consideration will be given to various programs and textbook series as well as the Colorado content standards in science. Teachers will complete a number of laboratory activities. Meets with T ED 565.

**T ED 466-1. Elementary Social Studies**

**Methods.** Elementary social studies disciplines of history, civics, economics, and geography, writing standards-based instructional units, and characteristics of high quality social studies programs and instruction. Meets with T ED 566.

**T ED 468-1. Expressive Arts Methods.**

Introduces prospective teachers to methods for teaching the expressive arts within the regular classroom. Students will learn how to meaningfully integrate the expressive arts into all subject areas. Visual arts, music drama, puppetry, dance, expressive literature, creative story telling and writing will all be explored. Prer., Accept TEP students only.

**T ED 470-1 to 5. School Experience-**

**Secondary.** Pre-student teaching field experience. Summer: Teaching in a summer program for area secondary schools. Fall: 8 weeks in a PDS middle school site and 8 weeks in a PDS high school site observing, assisting, teaching. Prer., Acceptance in TEP. Meets with T ED 570.

**T ED 471-1 to 3. Methods for Secondary**

**Education.** Introduces the fundamentals of teaching methods. Focus is on the decision-making model of teaching including planning, implementing, assessment, and modifying teaching. Skill in developing instructional objectives and planning and presenting lessons are emphasized. Meets with T ED 571.

**T ED 472-3. Teaching Reading and**

**Writing in the Content Area.** Designed to help secondary teachers become aware of the reading and writing process and how they apply to subject matter material. A framework for functionally teaching reading and writing within a particular content area is developed and strategies for increasing student independence with print are emphasized. Meets with T ED 572.

**T ED 473-3 to 14. Student Teaching-Secondary.** Secondary education students, in consultation with members of the school of education faculty, will be assigned to a secondary professional development school for full-day teaching for a period of sixteen weeks. During this time students will demonstrate, through direct experience, competency and understanding of the teaching-learning process. Prer., TEP students only. Meets with T ED 573.

**T ED 479-3 to 4. Secondary Curriculum, Instruction and Evaluation.** Students develop an understanding of the context in which instruction takes place in today's middle and high schools, as well as principles of curriculum design, including standards-based lesson and unit planning. Methods of assessment, interpretation of results, and diagnostic teaching will be addressed. Meets with T ED 579.

**T ED 480-3. English as a Second Language for Educators.** Presents current and emerging philosophies, theories, and methods on teaching literacy and content areas to culturally and linguistically diverse students. Meets with T ED 580.

**T ED 482-1 to 4. Workshop in Educational Development.** Current trends and issues in education. In-depth study of selected topics. Advanced-level work but counts toward a graduate degree only as a minor.

**T ED 483-1 to 4. Instructional Workshop.** Current instructional approaches are considered. Focus is upon classroom applications with in-depth study of selected topics.

**T ED 491-3. Secondary English Methods.** Secondary English Methods gives an overview of instructional theory, methods, and materials in English and helps the students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to and participating in TEP. Meets with T ED 591 and CURR 5491.

**T ED 492-3. Secondary Math Methods.** Secondary Math Methods gives an overview of instructional theory, methods, and materials in math and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to and participating in TEP. Meets with T ED 592 and CURR 5492.

**T ED 493-3. Secondary Science Methods.** Secondary Science Methods gives an overview of instructional

theory, methods, and materials in science and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those students admitted to and participating in TEP. Meets with T ED 593 and CURR 5493.

**T ED 494-3. Secondary Social Studies Methods.** Secondary Social Studies Methods gives an overview of instructional theory, methods, and materials in social studies and helps students develop teaching strategies and address the Colorado model content standard. Prer., Only those admitted to and participating in TEP. Meets with T ED 594 and CURR 5494.

**T ED 495-3. Secondary Spanish Methods.** Secondary Spanish Methods gives an overview of instructional theory, methods, and materials in Spanish and helps students develop teaching strategies and address the Colorado model content standards. Prer., Only those admitted to participating in TEP. Meets with T ED 595 and CURR 5495.

**T ED 500-3. Contemporary American Education.** Provides an introduction to American education today for anyone interested in today's schools as well as for potential teachers. Meets with T ED 300.

**T ED 501-1 to 3. Early School Experience Practicum.** Provides early school experience for potential teachers in public school classrooms. This experience focuses on the roles, responsibilities and qualities of the professional teacher through practical experience.

**T ED 530-1 to 3. Special Topics in Teacher Education.** This course explores special topics in teacher education. Course cannot be used in a degree program.

**T ED 541-1. Children's Literature Methods.** Surveys historical and contemporary literature for children to promote literacy growth. Author studies, technology connections in children's literature, and genre such as picture books, biography, nonfiction, and mystery and adventure are among the critical topics covered, as well as the Colorado content standards for reading and writing. Additional requirements for T ED 551 students. Prer., Acceptance in TEP. Meets with T ED 441.

**T ED 552-3. Educational Psychology.** Provides teachers with the knowledge of psychology most relevant to teaching. The focus is on areas of child development and major learning theories and their

application in the classroom. Additional requirements for T ED 552 Students. Meets with T ED 452.

**T ED 557-3. Elementary Literacy Methods.** Elementary literacy strategies to successfully implement reading and writing teaching and assessment with emphasis on Colorado Model Content Standards. Additional requirements for T ED 557 students. Prer., Acceptance into TEP. Meets with T ED 457.

**T ED 558-2. Elementary Curriculum, Instruction, and Classroom Management.** Principles of curriculum design, instructional models and practice, standards-based curriculum and assessment, planning, organization, and classroom management and discipline. Additional requirements for T ED 558 students. Prer., Acceptance into TEP. Meets with T ED 458.

**T ED 560-1 to 4. School Experience - Elementary.** Pre-student teaching field experience. Summer involves participating in organizing, planning, conducting and evaluating a reading clinic experience in a public school. Fall involves observing a variety of schools and classrooms and serving as a teaching associate at assigned Professional Development School. Additional requirements for T ED 560 students. Prer., Acceptance in TEP. Meets with T ED 460.

**T ED 562-3. Elementary Reading Methods.** An introduction to reading literacy instructional practices. Includes a critical overview of current approaches, methods and materials, supported by a basic understanding about the reading and literacy learning process. Additional requirements for T ED 562 students. Prer., Acceptance into TEP. Meets with T ED 462.

**T ED 563-3 to 14. Student Teaching - Elementary.** Elementary education students, in consultation with members of the school of education faculty, will be assigned to an elementary professional development school for full-day teaching for a period of sixteen weeks. During this time students will demonstrate, through direct site development experience, competency and understanding of teaching-learning process. Additional requirements for T ED 563 students. Prer., TEP students only. Meets with T ED 463.

**T ED 564-3. Elementary Mathematics Methods.** Provides teachers with a laboratory approach for teaching mathematics and acquaints them with a variety of materials and methods. Emphasis is on fostering skills in

problem-solving; creative/critical thinking; and inductive/deductive processes and addressing the Colorado content standards for math. Prer., Acceptance into TEP. Meets with T ED 464.

**T ED 565-2. Elementary Science**

**Methods.** Designed to acquaint teachers with materials and methods for teaching science to elementary school children. Consideration will be given to various programs and textbook series as well as the Colorado content standards in science. Teachers will complete a number of laboratory activities. Prer., Acceptance into TEP. Meets with T ED 465.

**T ED 566-1. Elementary Social Studies**

**Methods.** Elementary social studies disciplines of history, civics, economics, and geography, writing standards-based instructional units, and characteristics of high quality social studies programs and instruction. Additional requirements for T ED 566 students. Prer., Acceptance into TEP. Meets with T ED 466.

**T ED 570-1 to 5. School Experience**

- **Secondary.** Pre-student teaching field experience. Summer: Teaching in a summer program for area secondary schools. Fall: 8 weeks in a PDS middle school site and 8 weeks in a PDS high school site observing, assisting, teaching. Additional requirements for T ED 570 students. Prer., Acceptance in TEP. Meets with T ED 470.

**T ED 571-1 to 3. Methods for Secondary Education.**

Introduces the fundamentals of teaching methods. Focus is on the decision-making model of teaching including planning, implementing, assessment, and modifying teaching. Skill in developing instructional objectives and planning and presenting lessons are emphasized. Additional requirements for T ED 571 students. Prer., Acceptance into TEP. Meets with T ED 471 and CURR 5014.

**T ED 572-3. Teaching Reading and Writing in the Content Area.**

Designed to help secondary teachers become aware of the reading and writing process and how they apply to subject matter material. A framework for functionally teaching reading and writing within a particular content area is developed and strategies for increasing student independence with print are emphasized. Additional requirements for T ED 572 students. Prer., Acceptance into TEP. Meets with T ED 472.

**T ED 573-3 to 14. Student Teaching**

- **Secondary.** Secondary education students, in consultation with members of the school of education faculty, will be assigned to a secondary professional

development school for full-day teaching for a period of sixteen weeks. During this time students will demonstrate, through direct experience, competency and understanding of the teaching-learning process. Additional requirements for T ED 573 students. Prer., TEP students only. Meets with T ED 473.

**T ED 579-3 to 4. Secondary Curriculum, Instruction and Evaluation.**

Students develop an understanding of the context in which instruction takes place in today's middle and high schools, as well as principles of curriculum design, including standards-based lesson and unit planning. Methods of assessment, interpretation of results, and diagnostic teaching will be addressed. Additional requirements for T ED 579 students. Prer., Acceptance into TEP. Meets with T ED 479.

**T ED 580-3. English as a Second Language for Educators.**

Presents current and emerging philosophies, theories, and methods on teaching literacy and content areas to culturally and linguistically diverse students. Meets with T ED 480.

**T ED 583-1. PDS Workshop.**

Provides experiences and principles that address the roles, structures, and expectations of Professional Development School sites for new sites. Designed for site coordinators and clinical teachers at sites.

**T ED 591-3. Secondary English**

**Methods.** Secondary English Methods gives an overview of instructional theory, methods, and materials in English and helps students develop teaching strategies and address the Colorado model content standards. Prer., Acceptance into TEP. Meets with T ED 491 and CURR 5491.

**T ED 592-3. Secondary Math Methods.**

Secondary Math Methods gives an overview of instructional theory, methods, and materials in math and helps students develop teaching strategies and address the Colorado model content standards. Prer., Acceptance into TEP. Meets with T ED 492 and CURR 5492.

**T ED 593-3. Secondary Science**

**Methods.** Secondary Science Methods gives an overview of instructional theory, methods, and materials in science and helps students develop teaching strategies and address the Colorado model content standards. Prer., Acceptance into TEP. Meets with T ED 493 and CURR 5493.

**T ED 594-3. Secondary Social Studies**

**Methods.** Secondary Social Studies Methods gives an overview of instructional

theory, methods, and materials in social studies and helps students develop teaching strategies and address the Colorado model content standard. Prer., Acceptance into TEP. Meets with T ED 494 and CURR 5494.

**T ED 595-3. Secondary Spanish**

**Methods.** Secondary Spanish Methods gives an overview of instructional theory, methods, and materials in Spanish and helps students develop teaching strategies and address the Colorado model content standards. Prer., Acceptance into TEP. Meets with T ED 495 and CURR 5495.

**T ED 940-1 to 6. Independent Study.**

Independent investigation of topics of specific interest to the individual student and completed under the direction of a faculty member. The specifics of the investigation and the topic are a joint decision by the student and faculty member. The meeting times, expectations, and evaluation are arranged with the faculty member. Students must have written consent of the instructor.

## COLLEGE OF ENGINEERING AND APPLIED SCIENCE

### COMPUTER SCIENCE

**C S 100-3. Computer Literacy.** The role of computers in society with an introduction to programming in basic. The student is introduced to the concepts and operations of a microcomputer including several typical software environments such as word processing, spread sheet accounting, and database systems. The history and impact of computing in society is covered. This is the most elementary course offered by the computer science department. This course is not for CS or engineering majors. Prer., High school algebra.

**C S 101-1 to 3. Topics in Computer Science.** Content will vary to reflect areas of current interest in computer science. As the course continually changes, students may take the course several times for elective credit. Prer., instructor consent.

**C S 103-1. Introduction to Microsoft Word.** Introduction to word processing and the specifics of using the Microsoft Word for Windows system. Students will learn to create, format, and edit documents using Word.

**C S 104-1. Introduction to Microsoft Excel.** Introduction to spreadsheets and the specifics of using the Microsoft Excel

for Windows system. Students will learn to create, edit, and print spreadsheets using Excel.

**C S 105-1 to 3. Topics in Computer Science.** Content will vary to reflect areas of current interest in computer science. As the course continually changes, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 106-1 to 3. Topics in Computer Science.** Content will vary to reflect areas of current interest in computer science. As the course continually changes, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 107-3. Introduction to Programming in Visual BASIC for Non-Majors.** Introduction to using visual basic to design and implement programs that interface with their users through Microsoft Windows. Prer., High school algebra.

**C S 110-2. Problem Solving through Game Creation.** An introductory course that combines problem-solving techniques with computer game design and implementation to introduce the student to basic gaming and computer science concepts. Students design, implement, and test computer games using drag-and-drop tools; no programming is required.

**C S 115-3. Principles of Computer Science.** Introduction to programming with emphasis on computer science concepts. Develops methods for computer problem solving. Develops proficiency for programming in a modern programming language, and introduces the concepts of abstraction in problem solving. Includes basic concepts of computer systems and environments including debuggers, editors, and file systems. Prer., High school algebra and familiarity with computer concepts including file operations and text editing.

**C S 145-3. Data Structures and Algorithms.** Concepts of data type, data abstraction, and data structure. Internal representations of fundamental data types. Linear data structures: stack, queue. Linked data structures and dynamic data types. Search table data abstraction, linear search in arrays and lists, binary search in arrays and trees. Binary trees, non-binary trees, binary search trees. Prer., C S 115 or equivalent.

**C S 201-1 to 3. Topics in Computer Science.** Content will vary to reflect the areas of current interest in computer science. As the courses continually change, students may take the course several times for elective credit. Prer.,

Consent of instructor.

**C S 202-2. Programming with UNIX.** An introduction to the UNIX operating system with an emphasis on the development of C and command shell programs. Prer., C S 145 and C S 206.

**C S 203-1 to 3. Topics in Computer Science.** Content will vary to reflect the areas of current interest in computer science. As the courses continually change, students may take the course several times for elective credit. Prer., Consent of instructor.

**C S 205-1 to 3. Topics in Computer Science.** Content will vary to reflect the areas of current interest in computer science. As the courses continually change, students may take the course several times for elective credit. Prer., Consent of instructor.

**C S 206-2. Programming with C.** A first course in the C programming language for those who are proficient in some other high level language. Prer., C S 115.

**C S 207-1 to 3. Topics in Computer Science.** Content will vary to reflect the areas of current interest in computer science. As the courses continually change, students may take the course several times for elective credit. Prer., Consent of instructor

**C S 212-1 to 3. Topics in Computer Science.** Content will vary to reflect the areas of current interest in computer science. As the courses continually change, students may take the course several times for elective credit. Prer., Consent of instructor

**C S 216-3. Computer Organization and Assembly Language Programming.** Provides an introduction to the concepts of computer architecture, functional logic, design and computer arithmetic. It presents material on the mechanics of information transfer and control within a computer system. Also included are symbolic programming techniques, implementing high level control structures, addressing modes and their relation to arrays, subprograms, parameters, linkage to high level languages and the assembly process. Prer., C S 145 and C S 206.

**C S 301-3. Web Programming.** An introduction to the programming languages and technologies associated with the Web. Included are XHTML, cascading style sheets, JavaScript, dynamic XHTML documents, applets, XML, Perl and its use in CGI programming, Java Servlets and web access to databases. Prer., C S 316.

**C S 302-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for technical elective credit. Prer., Instructor consent.

**C S 303-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for technical elective credit. Prer., Instructor consent.

**C S 304-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for technical elective credit. Prer., Instructor consent.

**C S 305-1. Social and Ethical Implications of Computing.** This class will discuss selected topics in ethical, social, political, legal and economic aspects of the application of computers. Each student is expected to research one or more topics, actively participate in discussions, and give a presentation. Written papers may be required. Prer., C S 202 or instructor consent.

**C S 306-3. Object-Oriented Programming Using C++.** The principal goals of this course are: 1) to learn the fundamentals of object-oriented programming, 2) to gain skill and proficiency in using the C++ programming language, 3) to exercise the C++ language in implementing a moderate sized software system designed with objects. Prer., C S 202 and C S 206.

**C S 316-3. Concepts of Programming Languages.** Evolution of the central concepts of programming languages, describing syntax and semantics, data types, abstract data types, control structures, subprograms, concurrency and exception handling. Prer., C S 216 and C S 306.

**C S 330-3. Software Engineering.** Software engineering methodologies. The software lifecycle. Emphasis on the design, development and implementation of a software system. A course project provides the student teams practical application of the software engineering techniques. Prer., C S 145 and C S 202.

**C S 401-1 to 3. Selected Topics in Computer Science.** The content of



these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructors consent.

**C S 402-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 403-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 404-1 to 3. Selected Topics in Computer Science.** Selected topics in computer science. The content of these courses will vary from time to time and reflect the areas of current interest in computer science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 405-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 406-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for - elective credit. Prer., Instructor consent.

**C S 407-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 408-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit.

Prer., Instructor consent.

**C S 409-1 to 3. Selected Topics in Computer Science.** The content of these courses will vary from time to time and reflect the areas of current interest in Computer Science. As the courses continually change, students may take the course several times for elective credit. Prer., Instructor consent.

**C S 410-3. Compiler Design I.** Underlying theory and design techniques for compilers. Lexical analysis, top-down and bottom-up parsing algorithms, runtime storage management, syntax directed translation schemes, intermediate code generation. Prer., C S 216, C S 316 and C S 470/570. Meets with C S 510.

**C S 420-3. Computer Architecture I.** Course covers fundamentals of computer design, instruction set principles and examples, pipelining, advanced pipelining and instruction-level parallelism, memory-hierarchy design and survey of design issues in storage, interconnection network and multiprocessor systems. Prer., C S 216. Meets with C S 520.

**C S 422-3. Computer Networks.** Course focuses on the basic network and protocol concepts and principles with practical hands-on exercises on network management, network programming, and network planning through the use of industry simulators. Topics include: Internet protocols and routing, local area networks, basic TCP/IP programming, congestion control, packet switching and routing, quality-of-service, and network management. Prer., C S 306 or equivalent.

**C S 442-3. Database Systems I.** Course introduces general database concepts as well as database system technology. The course covers ER and R data models, R-algebra, SQL, data storage and indexing, query optimization, database design and security. Prer., C S 145. Meets with C S 542.

**C S 450-2. Operating Systems I.** Introduces concepts, terminology, and algorithms of operating systems. Describes semaphores, processes, virtual mappings, interrupts, resource allocation and management, protection, synchronization, scheduling, queueing and communication as applied to operating system design and implementation. Prer., C S 202, C S 206, and C S 420/520. Meets with C S 550.

**C S 460-3. Numerical Computing.** Algorithms for the solution of nonlinear equations, interpolation and approximation, differentiation, integration, systems of linear equations, ordinary

differential equations and least squares. Prer., C S 145, MATH 235 and MATH 313. Meets with C S 560.

**C S 470-3. Computability, Automata and Formal Languages.** Finite automata and regular expressions, context-free grammars, context-free languages, and pushdown automata, Turing machines, undecidability, the Chomsky hierarchy of formal languages, computational complexity and intractable problems. Prer., MATH 215 and MATH 313. Meets with C S 570.

**C S 472-3. Design and Analysis of Algorithms.** Design methodologies; divide-and-conquer, exhaustive search, dynamic programming. Time and space complexity measures, analysis of algorithms. Survey of important algorithms for searching, sorting, graph manipulation. Tractability: class P and NP, NP complete problems. Prer., C S 145 and MATH 215. Meets with C S 572.

**C S 480-3. Computer Graphics.** Fundamental areas of modern raster computer graphics: hardware, software, data structures, mathematical modeling, user interface and manipulation of graphical objects. A subset of the two dimensional GKS is examined and implemented with emphasis placed upon segmented display files and instance modeling. Basic to all graphic programs written are the ergonomic requirements of the user. Required programs are in the areas of animation, paint systems, polygon filling and clipping, and curve generation. Prer., C S 145, C S 202, and MATH 313. Meets with C S 580

**C S 482-3. Functional and Logical Programming for Artificial Intelligence.** Course focuses on functional programming using LISP and logical programming using Prolog. Programming projects are geared towards various aspects of artificial intelligence. Prer., C S 316 or consent of instructor.

**C S 484-3. Bioinformatics and Computational Biology.** Review of molecular and cell biology; bioinformatics databases; pair wise sequence alignment algorithms; Markov chains, Hidden Markov models; evolutionary models; phylogenetic trees; gene recognition; protein structure prediction. Prer., MATH 381, C S 472, BIOL 484 or permission of instructor.

**C S 501-3. Intensive Computer Science for Graduate Students.** Intended for prospective graduate students with extensive programming experience. Covers concepts in C S 115 and C S 145. Can substitute for these courses in satisfying entrance requirements for M.S.

in Computer Science. Does not count towards M.S. or B.S. degrees. Not open to undergraduate. Prer., Knowledge of high-level programming language.

**C S 502-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 503-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 505-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 506-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 507-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 508-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 509-1 to 3. Selected Topics in Computer Science.** Topics vary.

**C S 510-3. Compiler Design.** Underlying theory and design techniques for compilers. Lexical analysis, top-down and bottom-up parsing algorithms, runtime storage management, syntax directed translation schemes, and intermediate code generation. Prer., C S 216, C S 316 and C S 470/570. Meets with C S 410.

**C S 520-3. Computer Architecture I.** Course covers fundamentals of computer design, instruction set principles and examples, pipelining, advanced pipelining and instruction-level parallelism, memory-hierarchy design and survey of design issues in storage, interconnection network and multiprocessor systems. Prer., C S 216. Meets with C S 420.

**C S 522-3. Computer Communication.** The subject of transmitting information between processors is described in detail. The student is expected to have maturity with hardware and/or realtime concepts. Communication systems, from simple to asynchronous point-to-point links, to those based on complex network architectures will be studied. Material will be oriented toward the computer scientist as a user, designer and evaluator of such systems. Terminology and concepts will be emphasized rather than detailed electronic or physical theory. Prer., C S 420/520, C S 450/550.

**C S 525-3. Multimedia Computing and Communications.** Design principles of multimedia authoring and communication systems. It covers the interface and characteristics of voice and video processing equipment, multimedia document architectures, media encoding/compression schemes, real-time scheduling of time critical multimedia documents, multimedia editors,

multimedia communication standards and communication software. Prer., Graduate standing or instructor permission.

**C S 526-3. Advanced Internet and Web Systems.** Advanced topics in Internet and WWW systems, TCP/IP network modules in kernel, content switching, web server technologies, web system management, load balancing, web security, and electronic commerce. Prer., C S 301, C S 522, or permission of instructor.

**C S 531-3. Software Requirements Analysis and Specification.** Techniques and tools for requirements analysis and requirements specification. Requirements languages and notations. Specification completeness and consistency. Team project in the analysis and specification of a major software system. Prer., C S 145 or equivalent, knowledge of a modern programming language and discrete structures.

**C S 532-3. Software Design.** Covers a variety of methodologies and tools for design of sequential, parallel and distributed software systems. Design language; graphical design representations. Data abstraction, data dictionaries. Data flow design and diagrams. Object-oriented design. Documentation. Team project in the design of a major software system. Prer., C S 531.

**C S 533-3. Formal Methods of Software Systems Engineering.** Elements of discrete mathematics. Formal mechanisms for specifying and verifying the correctness, reliability, and efficiency of software systems. State transition, regular expression, context free, and applicative models. Assertions, hoare axioms, and weakest preconditions. State machine, algebraic, and operational specification techniques. Prer., C S 145 or equivalent, knowledge of a modern programming language, and discrete structures.

**C S 534-3. Software Maintenance.** Discussion and application of corrective, adaptive, perfective and preventive software maintenance techniques and tools. Related topics such as software systems analysis, reverse-engineering, re-engineering, regression testing and configuration management are examined. As a project, student teams maintain an existing software system. Prer., Knowledge of modern programming language, discrete structures, C S 145 or equivalent.

**C S 535-3. Software Project Management.** Planning, scheduling, costing of projects. Measuring progress,

predicting success, controlling failure. Management tools and their use. Effectiveness and efficiency of software engineering environments. Distributed software development. Quality control standards and practices. Prer., Knowledge of modern programming, NG language, data structures and algorithms, and discrete structures.

**C S 536-3. Software Product Assurance.** Principles, techniques and tools for producing quality software systems. The first half of this course focuses on software product assurance processes. The second half covers a variety of software testing techniques. Prer., C S 531.

**C S 537-3. Human-Computer Interfaces.** Techniques and tools for the analysis, design, implementation and testing of human-computer interfaces. Special topics such as human factors, rapid prototyping and usability testing will be studied. Term project. Prer., C S 330 and C S 531.

**C S 538-3. Object-Oriented Software Development.** Principles of object-oriented problem-solving, object-oriented analysis and object-oriented design. Development of class hierarchies, use of polymorphism and inheritance, criteria for good design, semester project. Prer., C S 330 or consent of instructor.

**C S 539-3. Software Systems Engineering Project Laboratory.** Students participate in a project involving the development or maintenance of a software system intended for external distribution and use. Duties include requirements analysis, specification, design, implementation, testing, quality assurance, configuration management and documentation. Projects come from the university and from outside sources. Students are evaluated based on their project work and an oral presentation describing their work and critiquing their results. Prer., CS 531, CS 532, CS 534, CS 535, and CS 536.

**C S 542-3. Database Systems I.** Course introduces general database concepts as well as database system technology. The course covers ER and R data models, R-algebra, SQL, data storage and indexing, query optimization, database design and security. Prer., C S 145. Meets with C S 442.

**C S 543-3. Database Systems II.** Course covers advanced database topics including transaction management, parallel and distributed databases, internet databases, decision support, data mining, object and object-relational database systems,

spatial data management and other current research issues. Prer., C S 442/C S 542.

**C S 550-3. Operating Systems I.**

Introduces concepts, terminology, and algorithms of operating systems. Describes semaphores, processes, virtual mappings, interrupts, resource allocation and management, protection, synchronization, scheduling, queueing and communication as applied to operating system design and implementation. Prer., C S 202, C S 206, and C S 420/520. Meets with C S 450.

**C S 551-3. Distributed Systems.**

Conveys insight into, and knowledge of, the principles and practice underlying the distributed systems, both Internet-based and otherwise. Describes major developments in interprocess communication, remote invocation, distributed file systems, replication and load balancing, distributed shared memory, and distributed multimedia systems. Prer., C S 450/550.

**C S 555-3. Computer Systems**

**Performance Evaluation.** Perspectives of performance evaluation, measurement techniques; hardware, software, and firmware tools, simulation techniques, analytical techniques; workload characterization, system selection; system tuning; performance tracking, performance prediction in the design phase and cost-benefit analysis. Prer., C S 450/550.

**C S 560-3. Numerical Computing.**

Algorithms for the solution of nonlinear equations, interpolation and approximation, differentiation, integration, systems of linear equations, ordinary differential equations and least squares. Prer., C S 145, MATH 235 and MATH 313. Meets with C S 460.

**C S 567-3. Discrete Simulation I.**

Examines concepts and methods of discrete event simulation. Compares major modeling methods. Discusses statistical issues including random number generation, arrival processes, analysis of simulation output, verification and validation of models and simulation programs. Describes in detail the use of a major discrete event simulation language. Discusses simulation level of detail and simplifying assumptions. Prer., C S 202 and MATH 381.

**C S 570-3. Computability, Automata, and Formal Languages.**

Finite automata and regular expressions; context-free grammars, context-free languages, and pushdown automata; Turing machines; undecidability; the Chomsky Hierarchy

of Formal Languages; computational complexity, and intractable problems. Prer., MATH 215 and MATH 313. Meets with C S 470.

**C S 571-3. Evolutionary Computation.**

Introduction to evolutionary computation with emphasis on genetic algorithms. Includes evolution strategies, evolutionary programming, schemata fitness functions and classifiers, current research topics, messy algorithms, adaptive landscapes. Prer., C S 202 and MATH 381.

**C S 572-3. Design and Analysis of**

**Algorithms.** Design methodologies: divide-and-conquer, exhaustive search, dynamic programming. Time and space complexity measures, analysis of algorithms. Survey of important algorithms for searching, sorting, graph manipulation. Tractability: class P and NP, NP-complete problems. Prer., C S 145 and MATH 215. Meets with C S 472.

**C S 575-3. Computational Geometry.**

Computational complexity of geometric problems within the framework of analysis of algorithms. Stress on geometric searching, intersection problems, particularly of rectangles, and fundamental algorithms. Practical applications of concepts developed can be found in computer graphics, analysis of algorithms, spatial data structures and VLSI system design. Prer., C S 472/572, C S 480/580 or instructor's consent.

**C S 577-3. Computer Graphics Animation & Scientific Visualization**

**Techniques.** Animation: basic principle, physically based modeling, algorithms for animation, constraint optimization, use of dynamics in animation, teleological modeling. Scientific visualization: overview, foundation and techniques, applications. Prer., C S 480/580.

**C S 578-3. Advanced 3D Games and Digital Content Creation.**

Populating virtual worlds with characters and objects, this course will concentrate on current technology and advance topics using graphics and VR technology. Typical topics included are graphics engines, landscape specializations, wrapping techniques, complex scenes, highting, shadows, motion control, collision, dynamics, image based rendering, multi- player games, etc... plus advanced features from SIGGRAPH and others. Prer., C S 480/580 or instructor's consent.

**C S 579-3. Wearable Computing and Complex Systems.**

Wearable computing with an emphasis on complex systems research is an important area of research. This course will cover concepts and related techniques, and state of the

art issues. This course will provide an excellent basis for students who are interested in computer graphics and virtual reality research. Prer., C S 480/580 or consent of instructor.

**C S 580-3. Computer Graphics.**

Fundamental areas of modern raster computer graphics; hardware, software, data structures, mathematical modeling, user interface and manipulation of graphical objects. A subset of the two dimensional GKS is examined and implemented with emphasis placed upon segmented display files and instance modeling. Basic to all graphic programs written are the ergonomic requirements of the user. Required programs are in the areas of animation, paint systems, polygon filling and clipping, and curve generation. Prer., C S 145, C S 202 and MATH 313. Meets with C S 480.

**C S 581-3. Topics in Computer Graphics.**

Examines the mathematical and physical models used to produce realistic three dimensional images. Topics include perspective viewing, hidden surface removal, shading, fractals, and rag tracing. Prer., C S 480/580.

**C S 582-3. Artificial Intelligence.**

Course covers the foundation of artificial intelligence: search techniques, first-order predicate calculus and knowledge representation. Also covers advanced topics such as speech and natural language processing and learning. Prer., C S 316, C S 482, or instructor consent for graduate students.

**C S 583-3. Artificial Intelligence II.**

Covers in detail a selection of AI topics: planning, natural language processing, computer vision, robotics, expert systems, and learning. Current research topics may be covered. Students may use a programming language of their choice. Prer., C S 482/582 or instructor's consent.

**C S 584-3. Computer Vision.**

Representation and manipulation of digital images, Fourier analysis of images, enhancement techniques in spatial and frequency domain, segmentation procedures, digital geometry, region and boundary representation, texture processing, pattern recognition and application to robotics. Prer., MATH 235 or consent of instructor. Meets with MATH 584.

**C S 587-3. Introduction to Artificial Neural Networks.** The course will cover basic neural network architecture and learning algorithms. Practical applications will be surveyed. Students will learn

to implement their own simulator and implement various architectures. Prer., MATH 235.

**C S 589-3. Computational Linguistics.**

Approaches to syntactic processing of natural language: issues in semantic interpretation, pragmatics or the impact of context and world knowledge of natural language understanding and generation of natural language responses. Prer., C S 582 or consent of instructor.

**C S 591-3. Fundamentals of Computer/Network Security.**

Introduction to the study of computer and network security from the view of information warfare. Topics include information system threats, vulnerabilities and defensive mechanisms (cryptography, authentication digital signatures, PKI, etc.). Prer., C S 202 and MATH 215.

**C S 592-3. Applied Cryptography for Secure Communication.**

Basic security issues in computer communication, classical cryptographic algorithms, symmetric-key cryptography, public-key cryptography, authentication, and digital signatures. Prer., MATH 215, MATH 381, C S 316, C S 522, or instructor consent.

**C S 601-3. Technological Transfer, Patents and IP in Engineering.**

Technological transfer process including discovery through invention to commercialization. Forms of IP protection including copyrights and patents. Students will read/write patent applications. Prer., Permission of instructor.

**C S 622-3. Distributed Networks.** Deals with complex communications systems in depth. Packet switching networks, local area networks, satellite systems, the open systems interconnect (OSI) reference model, and the development of communications software. Prer., C S 522.

**C S 630-3. Topics in Software Systems Engineering.** Advanced topics and current research issues in software engineering. Possible topics include software engineering environments, requirements, design, testing, software metrics, configuration management, maintenance, software cost analysis, and distributed software. Prer., C S 531 or C S 535.

**C S 638-3. The Design and Modeling of Class Interfaces and Contracts.** Past and present work related to specifying the semantics of a class using assertions are examined. The BON method is presented. Prer., C S 538.

**C S 643-3. Data Mining.** This course covers data warehousing, OLAP, association rules, cluster analysis,

classification and prediction, complex data mining applications and trends in data mining. Prer., C S 442/542.

**C S 677-3. Virtual Reality and Computer-Human Interaction.**

The course will focus on the so-called ultimate form of interaction between human and machine, creating virtual or artificial world. The basic idea and various input devices will be discussed. Several advanced papers in this area will be covered. Some of these ideas will be implemented through a term project. Prer., C S 580 or C S 577 or consent of instructor.

**C S 687-3. Advanced Studies in Artificial Neural Networks.** A research seminar treating contemporary results in the theory and applications of artificial neural networks. Prer., C S 587.

**C S 691-3. Advanced System Security Design.** Advanced topics in network and system security, including firewall design, network intrusion detection, tracking and prevention, virus detection, programming language and OS support for security and wireless network security. Prer., C S 591, C S 592, or instructor permission.

**C S 692-3. Advanced Topics in Network Security.** Covers advanced topics in network security such as Kerberos, PGP, IPSec, VPNs, SSL, SET, Smart cards, Steganography, Watermarking and Biometric Encryption. Research papers may be discussed. Prer., C S 592.

**C S 700-1 to 6. Masters Thesis.**

**C S 701-3. Masters Project.**

**C S 800-1 to 10. PhD Dissertation.** Prer., Acceptance into program.

**C S 920-1 to 3. Independent Study in Computer Science Undergraduate.**

**C S 999-0. Candidate for Degree.**

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## ELECTRICAL AND COMPUTER ENGINEERING

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**ECE 1001-3. Introduction to Robotics.**

An introductory course presenting foundational material in the design of robots. Topics include basic properties of sensors, motors, gears, drive mechanisms, control schemes and processors to guide and control robots. LEGO kits will be used to implement student designs. Meets with ENGR 1001.

**ECE 1021-3. Computer-Based Modeling and Methods of Engineering.** Methodology for solving engineering problems is introduced. Fundamental

features of the C programming language are presented and integrated with a variety of engineering examples and applications. Pointer variables and structures will be used in the applications. Prer., MATH 135 and ECE 1001.

**ECE 1411-2. Logic Circuits I.**

Fundamentals of digital electronics, number systems, logic gates, boolean algebra, combinational circuit design, binary addition, flip-flops, shift registers and counters, logic families and specifications, introduction to microprocessors. Meets with ENGR 1411.

**ECE 2050-3. Introduction to Physical Electronics.**

An introductory course on the fundamental properties of materials and semiconductors in preparation for a background in modern device physics and technology. Topics include: crystal structure, quantum theory of solids, and transport and excess carriers in semiconductors. Coreq., MATH 340 and PES 213.

**ECE 2205-4. Circuits and Systems I.**

Modeling and analysis of analog circuits and linear systems. Kirchoff's current and voltage laws. Uses time-domain methods and s-domain transfer functions to solve differential equations of first and second-order RLC circuits with op amps. Transient and steady-state response to steps and complex exponentials. Zero-input, zero-state, and initial-state response. Introduction to circuit simulation. Prer., ECE 2610.

**ECE 2210-3. Circuit Analysis I.** Modeling and analysis of electrical devices and circuits, including operational amplifiers. Transient and steady state response using classical differential equation methods. Impulse and step responses. Prer., ECE 2210 or ECE 2205.

**ECE 2220-3. Circuit Analysis II.**

Continuation of ECE 2210, with frequency response, filter design, Fourier series, Fourier transforms and Laplace transforms. Prer., ECE 2210 or ECE 2205.

**ECE 2230-1. Circuits Laboratory.**

Experimental work dealing with fundamental electrical circuits and measurement techniques. An introduction to computer-aided design (CAD). Prer., ECE 2210. Coreq., ECE 2220.

**ECE 2411-2. Logic Circuits II.**

Covers sequential circuit design and implementation. Topics include Mealy/Moore machine design, state encoding, states minimization, Verilog HDL modeling of logic circuits, register transfer level modeling of digital systems, and memory. Prer., ECE 1411.

**ECE 2610-4. Introduction to Signals and Systems.** Mathematical representation of signals and systems; spectrum representation; representation of signals by sample values; discrete-time filter characterization and response; the z-transform; continuous-time signals and linear, time-invariant systems; frequency response; continuous-time Fourier transform and application to system analysis. MATLAB basics with applications to signals and systems. Includes lectures, demonstrations, and laboratory assignments. Prer., MATH 136 and ECE 1021.

**ECE 3020-3. Semiconductor Devices I.** An introduction to semiconductor devices used in modern microelectronic technologies. The course objective is to provide an understanding of the fundamental physical principles and concepts underlying the operation and use of the most important semiconductor devices. Prer., ECE 2210 or ECE 2205.

**ECE 3110-3. Electromagnetic Fields I.** Static electric and magnetic field analysis, Poisson's and Laplace's equations, steady electric current, fields of steady electric currents, ferromagnetic materials, boundary-value problems for static fields, time-varying electric and magnetic fields, and Maxwell's equations and wave equations. Relationship between field and circuit theory. Prer., ECE 2210 or ECE 2205.

**ECE 3120-3. Electromagnetic Fields II.** Electromagnetic wave propagation in dielectric and conducting media: solutions to the wave equations, transmission lines, waveguides and resonators, antennas and radiation, uniform and non-uniform plane waves. Design involving considerations of electromagnetic fields. Prer., ECE 3110 and MATH 340.

**ECE 3205-4. Circuits and Systems II** A continuation of topics introduced in ECE 2205. Modeling and analysis with, phasors, sinusoidal steady-state response, impedance models, Fourier series and Laplace transforms. Computer-aided design of active and passive analog filters. Includes lectures, demonstrations, and laboratory assignments. Prer., ECE 2205.

**ECE 3210-3. Electronics I.** The application of semiconductor devices to the design of electronic circuits. Topics include diode circuits and applications, low frequency transistor amplifier design and switching theory. Prer., ECE 2210 or ECE 2205.

**ECE 3220-3. Electronics II.** Transistor

models used in circuit design at high frequencies: multistage amplifier design, frequency response of amplifiers, feedback, operational amplifiers, and distortion. Prer., ECE 2220 or ECE 3205.

**ECE 3230-1. Electronics Laboratory I.** Design and implementation of power supplies, amplifiers with bipolar junction transistors, junction field effect transistors, and MOSFETS. In addition, basic circuit design with operational amplifiers will also be performed. Coreq., ECE 3210.

**ECE 3240-1. Electronics Laboratory II.** Continuation of ECE 3230. Design of differential amplifier with discrete components, analysis of frequency response, frequency compensation techniques, feedback amplifier design, power amplifiers, oscillator and simple subsystem design. Prer., ECE 3230. Coreq., ECE 3220.

**ECE 3420-1. Microprocessor Systems Laboratory.** Introduction to microprocessor development systems and foundations of system design. Assembly language will be used in the development. Use of high-level languages will also be discussed. Prer., ECE 2411. Coreq., ECE 3430.

**ECE 3430-3. Introduction to Microcomputer Systems.** Design of microcomputer systems including assembly language programming and interfacing techniques. Emphasis is on the practical application of microcomputers as solutions to engineering problems. Prer., ECE 2411. Coreq., ECE 3420.

**ECE 3440-1. Microcomputer Systems Laboratory.** Experiments are performed to program and interface microcomputer systems to design and implement microcomputer-based systems. Emphasis is on the application of the microcomputer as a tool to solve control and data acquisition problems. Prer., ECE 3430.

**ECE 3510-3. Linear System Theory.** Characterization of linear systems by impulse response, convolution, transfer function. Linear differential equations and linear difference equations as models. Applications to circuits, electromechanical systems, etc. Transform methods include: Fourier series, Fourier transforms, and Laplace transforms. Introduction to state variables, and the state transition matrix. Use of a variety of models in design. Prer., ECE 2220 and MATH 340. Coreq., ECE 3520.

**ECE 3520-1. MATLAB Systems Analysis Laboratory.** Fundamental constructs in MATLAB - scalars, vectors, and matrices;

scalar and array operations; input and output capabilities; functions; matrix computations; interpolation and curve fitting; numerical integration; random number generation; FFT. Several laboratory projects are used to illustrate applications to system analysis. Coreq., ECE 3510.

**ECE 3610-3. Engineering Probability & Statistics.** An introduction to probability and statistics with application to solving engineering problems. Includes the axioms of probability, random variables, density functions, distribution functions, expectations. Gaussian random variables, bivariate random variables, sums of independent random variables. Estimation of sample mean and variance. Monte Carlo simulation, binomial, hypergeometric, Poisson counting processes, confidence intervals, reliability, failure rates, the Weibull model, the log-normal model, estimation using regression. Introduction to random processes. Involves a project making use of simulation of random variables on a computer. Prer., MATH 235.

**ECE 4020-3. Semiconductor Devices II.** Advanced study of the electrical and transport properties of semiconducting and solid state devices and integrated device structures. Topics include: pn junction device structures, non-ideal effects in small geometry MOSFETs, compound semiconducting devices, CCDs, negative conductance microwave devices. Prer., ECE 3050 or equivalent. Meets with ECE 5020.

**ECE 4040-1. Introductory VLSI Fabrication Laboratory.** Various types of VLSI fabrication processes such as thermal oxidation, rapid thermal annealing, diffusion, physical vapor deposition, ion implantation, photolithography and etching. In addition, students will use a variety of device characterization techniques available in the laboratory. Prer., ECE 3050, ECE 4020, and ECE 4080 or consent of instructor.

**ECE 4050-3. Microelectronics IC Fabrication Laboratory.** Independent experimental project in which students are expected to acquire the theoretical understanding of modern IC fabrication processes, perform the IC processing and supporting measurements, and write detailed laboratory reports. Prer., ECE 4080 and ECE 4020 or consent of instructor. Meets with ECE 5050.

**ECE 4070-3. Electronic Properties of Materials.** Principles and applications of the electrical, optical, magnetic, and thermal properties of engineering

electronic materials. The treatment is designed for students specializing in the areas of microelectronics, solid state, and electromagnetics. Prer., ECE 3050. Meets with ECE 5070.

**ECE 4080-3. VLSI Processing.**

Introductory study of the various processes such as oxidation, diffusion, epitaxy, ion-implantation, photolithography, CVD, plasma processing, etc., used in contemporary fabrication of modern microelectronic technologies; use and understanding of process modeling programs used in design, fabrication, and simulation of MOSFET and bipolar microelectronics technologies. Prer., ECE 3050 or consent of instructor. Meets with ECE 5080.

**ECE 4110-3. Electromagnetic Theory and Applications.**

An intermediate level fields course beginning with the classical development of Maxwell's equations and the wave equation. Included are electrostatics, the steady magnetic field, plane-wave propagation, Poynting's vector, guided waves, transmission lines, wave guides, the interaction of fields and matter, and concluding with an introduction to the subject of radiation. Dirac-delta and Dyadic Green's function method of problem solution are treated. Prer., ECE 3120 or equivalent. Meets with ECE 5110.

**ECE 4150-1. Microwave Measurements Laboratory.**

Experiments with transmission lines and waveguide systems. Infrared imaging of electromagnetic fields. Measurement of antenna fields. Exposure to equipment and techniques used in microwave measurements. Design of microwave circuits. Prer., ECE 3120 or equivalent. Meets with ECE 5150.

**ECE 4200-1. Advanced Digital Design Laboratory.**

A design laboratory focusing on the design of digital systems using modern programmable devices (PLDs and FPGAs). Contemporary design tools and hardware description languages (e.g., Verilog) will be used. Prer., ECE 4242.

**ECE 4211-3. Rapid Prototyping with FPGAs.**

Field programmable gate arrays (FPGAs) are an important part of the overall design flow for application specific integrated circuits (ASICs) because they offer the potential of allowing cheap hardware prototypes to be built to meet a narrow window of opportunity. They also offer novel, programmable architectures. This course will focus on the combined use of FPGAs and modern synthesis tools to develop rapid prototypes of ASICs. Architectural and performance tradeoffs and characteristics of both commercial

anti-fuse and dynamically programmable FPGAs will be considered. Includes a team project. Prer., ECE 4242. Meets with ECE 5211.

**ECE 4220-3. Analog IC Design.**

A fundamental analog circuit design course that establishes relationships between semiconductor device theory, semiconductor processing technologies and the electrical and functional performance requirements of modern analog integrated circuits. Includes a design project. Prer., ECE 3050, ECE 3220, and ECE 3240. Meets with ECE 5220.

**ECE 4230-3. Analog Filter Design.**

Theory, specification, design, and simulation of active and passive analog filters based on modern integrated circuit technology and VLSI Design I design philosophy. Prer., ECE 3220. Meets with ECE 5230.

**ECE 4242-3. Advanced Digital Design Methodology.**

This course focuses on modern digital design practice using computer-based design tools and then considers key steps in a modern design flow, with particular attention to the use of behavioral models in hardware description languages as a stepping stone to combinational and sequential logic synthesis. The Verilog language will be presented, along with ancillary topics of functional verification, testbench generation, timing analysis, fault simulation, and design for testability. Design examples will include microcontrollers, RISC-CPU's, pipelined processors, digital filters, finite state machines for datapath control, UARTs, and typical architectures of synchronous computational units. Prer., ECE 3210. Meets with ECE 5242.

**ECE 4250-3. Microwave Circuit Design.**

An introduction to the design and analysis of microwave circuits, both passive and active. Topics include microwave circuit analysis, measurement methods, transmission line structures, material properties, lumped elements, discontinuities, terminations, attenuators, directional couplers, hybrids, power dividers, impedance transformers, filters, mixers, switches, phase shifters, and amplifiers. Prer., ECE 3120 or equivalent. Meets with ECE 5250.

**ECE 4260-3. Mixed Signal IC Design.**

Design of data converters, switch capacitor filters, high performance opamps, phase locked loops, oscillators. Prer., ECE 4220/5220 or consent of instructor. Meets with ECE 5260.

**ECE 4270-3. CMOS Radio Frequency Integrated Circuit Design.**

CMOS based high frequency amplifier design, s-parameters, voltage references, noise, low noise amplifier (LNA), mixers, RF power amplifiers, phase locked loops, oscillators and synthesizers, transmitter and receiver architectures, and RFID systems. Prer., ECE 3110, ECE 3210, ECE 3220. Meets with ECE 5270.

**ECE 4320-3. Fault Detection & Design for Testability.**

Stuck-at fault modeling. Test generation for combinational circuits-Boolean difference, D algorithm, PODEM, FAN, critical path. Fault dominance and equivalence. Test generation for synchronous sequential circuits. Cost functions used in test generation. Fault simulation. Basics of design for testability. Prer., ECE 3430 or equivalent. Meets with ECE 5320.

**ECE 4330-3. Embedded Systems Design.**

Introduction to embedded systems including real time fault-tolerant significance. Study the hardware and software techniques to designing embedded system, including study of various embedded operating systems, embedded controllers and digital signal processing hardware. Study existing embedded systems. Prer., ECE 3430, C S 145, or consent of instructor. Meets with ECE 5330.

**ECE 4340-3. VLSI Circuit Design I.**

Design considerations for MOS integrated circuits with an emphasis on CMOS technology and the relationships between semiconductor device theory, semiconductor processing technologies, and the electrical and functional performance requirements of modern digital IC circuits. Physical behavior of CMOS transistors and integrated circuits, CMOS processing technology, CMOS circuit and logic design, design rules, and structured design methodology. Prer., ECE 3050 and ECE 3210. Meets with ECE 5340.

**ECE 4362-3. Synthesis with Verilog HDL.**

Logic synthesis with the Verilog hardware description language and commercial EDA tools. Includes an introduction to System Verilog. A project is required. Prer., ECE 4242/5242. Meets with ECE 5362.

**ECE 4480-3. Computer Architecture and Design.**

The design of large digital systems with emphasis on the computer. Architectural alternatives, instruction set design, implementations including microprogramming, and actual examples are discussed. Performance tradeoffs. Prer., ECE 3430 or consent of instructor.

Meets with ECE 5480.

**ECE 4510-3. Feedback Control**

**Systems.** Linear analysis and analog simulation of electrical, chemical, hydraulic, and mechanical systems using block diagrams and signal flow graphs. Comparison of open and closed loop configurations. Feedback control system design using Nyquist, Bode, and root locus methods. Effects of simple networks on system response. Introduction of state variable techniques and digital computer solutions. Prer., ECE 3510.

**ECE 4520-3. Multivariable Control**

**Systems I.** Fundamental aspects of modern control theory are covered, including solutions to systems modeled in state variable format, controllability, observability, pole placement, and linear transformation. Computer-based tools for control system design are used. Prer., ECE 4510 and MATH 313, or equivalent. Meets with ECE 5520.

**ECE 4530-3. Control Systems**

**Laboratory.** Introductory experiments on response of control system components. Open-loop and closed-loop (feedback) response of servo systems. Simulation of systems on an analog computer. Design of compensator systems. Coreq., ECE 4510.

**ECE 4540-3. Digital Control Systems.**

Theory and application of classical and modern discrete-time control systems. Analysis and design of discrete-time and hybrid control using Z-transforms, root locus, frequency domain and state variable compensation techniques. On-line implementation by digital computers will be studied. Prer., ECE 4510. Meets with ECE 5540.

**ECE 4560-1. Digital Control Laboratory.**

Discrete-time control systems will be designed and tested using microcomputers, compensators, A/D and D/A converters, and analog computers. Experiments in the control of discrete and analog systems will be performed. Coreq., ECE 4540.

**ECE 4610-3. Analysis of Random**

**Signals.** Probability and random variables. Practical aspects and methods for analyzing and interpreting random signals. Statistical and parametric descriptions, estimators and errors for measurement data. Prer., ECE 3510 and ECE 3610 or equivalent. Meets with ECE 5610.

**ECE 4625-3. Communication Systems**

**I.** Introduction to principles of modern communication theory and signal processing: AM, FM, PAM, PCM, and delta modulation. Noise analysis, filtering, threshold effects, phase-locked loops, and

introduction to digital modulation. Prer., ECE 3510. Meets with ECE 5625.

**ECE 4630-3. Communications**

**Systems II.** Continuation of ECE 4625. Digital modulation and demodulation; equalization and diversity; error correcting code performance in noise; introduction to spread spectrum and space communications; simulation of communication systems. Prer., ECE 3610 & ECE 4625/5625 or equivalent. Meets with ECE 5630.

**ECE 4650-3. Modern Digital Signal**

**Processing.** Study of linear discrete-time systems, linear difference equations, Z-transforms, discrete Fourier transform, fast Fourier transform, sensitivity, discrete random processes, quantization effects, and design-related concepts. Prer., ECE 3510 and ECE 3610 or equivalent. Meets with ECE 5650.

**ECE 4655-3. Real-Time Digital Signal**

**Processing.** An introduction into the design, development, and implementation of signal processing algorithms on real-time hardware targets. The emphasis will be on high-level language, but assembly language will also be discussed. Prer., ECE 4650/5650 or ECE 4640. Meets with ECE 5655.

**ECE 4660-3. Introduction to Digital**

**Image Processing.** Methods for coding, storing, and processing images by digital computers. Image models, sampling theorem, Fourier representation. Methods for image enhancement, restoration, registration, and image understanding. Introduction to pattern recognition, computer vision, and robotics with industrial applications. Prer., ECE 3510 and ECE 3610. Meets with ECE 5660.

**ECE 4670-1. Communications**

**Laboratory.** Laboratory experiments demonstrating material taught in ECE 4625/5625. Use is made of spectrum analysis to study baseband signals and signal processors. Topics include noise, AM, FM, PM, sampling, TDM, digital modulation, errors, and complete communication systems. Prer., ECE 3230. Coreq., ECE 4625.

**ECE 4675-3. Phase-Locked Loops and Frequency Synthesis.**

A study of phase-locked loops and frequency synthesizers. Both analysis and design aspects are addressed. Linear and nonlinear models are considered. Prer., ECE 3610 and ECE 4625. Meets with ECE 5675.

**ECE 4680-1. Signal Processing**

**Laboratory.** Analog filter design, design and simulation of digital processors including filters and FFT algorithms. Prer.,

ECE 3230 and Prer. or Coreq. ECE 4650.

**ECE 4890-1. Senior Seminar.**

Design principles and a variety of realistic constraints such as economic factors, safety, reliability, aesthetics, ethics, and social impact; design project organization and design goals; techniques for making oral presentations and organizing written reports; interviewing and resume writing skills along with the art of making a favorable first impression. Prer., This course must be taken the semester before ECE 4899.

**ECE 4899-3. Senior Design Project.**

A project lab taken during the last semester of the senior year for the design of system components and systems in the areas of communications, computer engineering, controls, digital signal processing, electromagnetics, microelectronic fabrication processes, or CMOS integrated circuits. Students will identify, select, and complete a design project. Design specification, analysis, design, simulation and/or construction of a successful project is required for completion of the course. Prer., ECE 4890 and last semester of degree. Meets with ECE 4892.

**ECE 4910-3. Selected Topics.**

Current topics in ECE. See current course schedule for title of specific topic. Prer., Senior standing. Meets with ECE 5910.

**ECE 4990-1 to 3. Selected Topics.**

Credit and subject matter to be arranged. Consult current course schedule of classes for offering of topics. Prer., Consent of instructor.

**ECE 5010-3. Electronic Ceramics.**

Course covers physical theory of each type of electronic ceramic used in applications such as insulators, resistors, capacitors, fast ion conductors, magnetic ceramic, optical and electro-optical materials, waveguides, lasers, high T<sub>c</sub> ceramic superconductors, high dielectric constant materials, and sensors. Course is biased toward thin-films in integrated circuit applications. However, many examples in the current literature of basic materials synthesis techniques, deposition processes and properties will also be an integral part of the course. Prer., ECE 4070/5070.

**ECE 5020-3. Semiconductor Devices**

**II.** Advanced study of the electrical and transport properties of semiconducting and solid state devices and integrated device structures. Topics include: pn junction device structures, non-ideal effects in small geometry MOSFETs, compound semiconducting devices, CCDs, negative conductance microwave devices.

Prer., ECE 3050 or equivalent. Meets with ECE 4020.

**ECE 5030-3. Advanced Semiconductor Device Modeling.** Introduces advanced students and graduate engineers to the methodology of numerical device modeling. The course is designed to take the student from the classical analytical models to finite difference and finite element schemes common in existing device modeling programs. Technologically worthy models (as opposed to simple phenomenological models) have a high degree of sensitivity to the fabrication technology and regions of operating voltages, currents and frequencies. This course sets the foundations for state-of-the-art modeling analysis and simulation employed by most semiconductor companies. Prer., ECE 4020/5020.

**ECE 5050-3. Microelectronics IC Fabrication Laboratory.** Independent experimental project in which students are expected to acquire the theoretical understanding of the modern IC fabrication process, perform the IC processing and supporting measurements, and write detailed laboratory reports. Students should take ECE 4050/5050 before ECE 4896. Prer., ECE 4080/5080 and ECE 4020/5020 or consent of instructor. Meets with ECE 4050.

**ECE 5060-3. Processing and Device Physics of Advanced MOSFET Microelectronic Structures.** Development of basic and up-to-date understanding of the fabrication, processing, and device physics of advanced MOSFET structures used in contemporary microelectronic circuits. Topics covered include MOS theory and characterization, MOSFET process/device physics, advanced MOSFET process/device topics, review and study of current literature. Prer., ECE 4020/5020 or consent of instructor.

**ECE 5070-3. Electronic Property of Materials.** Principles and applications of the electrical, optical, magnetic, and thermal properties of engineering electronic materials. The treatment is designed for students specializing in the areas of microelectronics, solid state, and electromagnetics. Prer., ECE 3050. Meets with ECE 4070.

**ECE 5080-3. VLSI Processing.** Introductory study of the various processes such as oxidation, diffusion, epitaxy, ion-implantation, photolithography, CVD, plasma processing, etc., used in contemporary fabrication of modern microelectronic technologies; use and understanding of process modeling programs used in fabrication simulation of MOSFET and bipolar microelectronic

technologies. Prer., ECE 3050 or consent of instructor. Meets with ECE 4080.

**ECE 5090-3. Semiconductor Device Characterization.** Characterization of semiconductor devices for application in signal amplification. Topics include models for integrated-circuit active devices, bipolar and MOS integrated-circuit technology, single-transistor and two-transistor amplifiers, transistor current sources and active loads, output stages, operational amplifiers, frequency response, and integrated circuits. Prer., ECE 4020/5020 or equivalent.

**ECE 5100-3. Technology of Gallium Arsenide Devices.** Topics pertinent to GaAs processing technology and devices. Topics include materials characterization, GaAs physics, MOCVD, MOSFETS and HEMTS, digital GaAs circuits, and analog applications. Prer., ECE 4020/5020.

**ECE 5110-3. Electromagnetic Theory and Applications.** An intermediate-level fields course beginning with the classical development of Maxwell's equations and the wave equation. Included are electrostatics, the steady magnetic fields, plane-wave propagation, Poynting's vector, guided waves, transmission lines, wave guides, the interaction of fields and matter, and concluding with an introduction to the subject of radiation. Dirac-delta and Dyadic Green's-function methods of problem solution are treated. Prer., ECE 3120 or equivalent. Meets with ECE 4110.

**ECE 5120-3. Antenna Engineering.** A continuation of ECE 5110 at an intermediate level. Includes a polynomial development of linear antenna array patterns and synthesis, radiation from horn and reflector aperture antennas, transform theory of aperture field patterns including optical sources, wave modes in spherical coordinates, the antenna boundary-value problem. Green's functions, ray theory in electromagnetics. Prer., ECE 4110/5110 or equivalent.

**ECE 5130-3. Waveguiding Structures.** Application of electromagnetic theory starting from basic wave and ray optics principles. Topics include transmission lines, transmission line modes, microwave networks, multiterminal structures, waveguides, resonant cavities and various aspects of dielectric waveguides used in optical fibers. Prer., ECE 4110/5110 or equivalent.

**ECE 5150-1. Microwave Measurements Laboratory.** Experiments with transmission lines and waveguide systems. Infrared imaging of electromagnetic fields. Measurement of

antenna fields. Exposure to equipment and techniques used in microwave measurements. Design of microwave circuits. Prer., ECE 3120 or equivalent. Meets with ECE 4150.

**ECE 5160-3. Electromagnetic Effects in IC Design.** System electromagnetic considerations in IC system design. Includes RF component behavior, EM material properties, impedance and resonance, transmission lines, differential circuits, ground bounce, crosstalk-radiated emissions, and EM measurements. Prer., ECE 3110 and ECE 3210.

**ECE 5170-3. Electromagnetic Compatibility Engineering.** Fundamentals of EMC design, analysis and measurement. Sinusoidal, nonsinusoidal and transient responses will be treated. Topics include filters, shielding, FCC rules and regulations, cables and connectors, coupling and interference effects. Approaches for EMC testing will also be covered. Prer., ECE 4110/5110 or equivalent.

**ECE 5190-3. Remote Sensing.** Covers fundamental technology for various remote sensing techniques. These techniques cover optical, infrared, microwave, and nuclear sensors and imaging systems as appropriate. Background effects and effects of propagation through the atmosphere are included as well as tradeoffs of systems and platform capabilities. Prer., ECE 3120 and PES 213 or equivalent. Meets with MAE 5092.

**ECE 5211-3. Rapid Prototyping with FPGAs.** Field programmable gate arrays (FPGAs) are an important part of the overall design flow for application specific integrated circuits (ASICs) because they offer the potential of allowing cheap hardware prototypes to be built to meet a narrow window of opportunity. They also offer novel, programmable architectures. This course will focus on the combined use of FPGAs and modern synthesis tools to develop rapid prototypes of ASICs. Architectural and performance tradeoffs and characteristics of both commercial anti-fuse and dynamically programmable FPGAs will be considered. Includes a team project. Prer., ECE 4242/5242. Meets with ECE 4211.

**ECE 5220-3. Analog IC Design.** A fundamental analog circuit design course that establishes relationships between semiconductor device theory, semiconductor processing technologies, and the electrical and functional performance requirements of modern analog integrated circuits. Includes a design project. Prer., ECE 3050, ECE 3220 and ECE 3240. Meets with ECE 4220.



**ECE 5230-3. Analog Filter Design.**

Theory, specification, design and simulation of active and passive analog filters based on modern integrated circuit technology and VLSI Design I design philosophy. Prer., ECE 3220. Meets with ECE 4230.

**ECE 5242-3. Advanced Digital Design Methodology.**

Modern digital design with computer-based design tools: Verilog behavioral models, combinational and sequential logic synthesis. Functional verification, testbench generation, timing analysis, fault simulation and design for testability. Microcontrollers, signal processors, state machines, and datapath control. Prer., ECE 3210. Meets with ECE 4242.

**ECE 5250-3. Microwave Circuit Design.**

An introduction to the design and analysis of microwave circuits both passive and active. Topics include microwave circuit analysis, measurement methods, transmission line structures, material properties, lumped elements, discontinuities, terminations, attenuators, directional couplers, hybrids, power dividers, impedance transformers, filters, mixers, switches, phase shifters, and amplifiers. Prer., ECE 3120 or equivalent. Meets with ECE 4250.

**ECE 5260-3. Mixed Signal IC Design.**

Design of data converters, switched capacitor filters, high performance op amps, phase locked loops, oscillators. Prer., ECE 4220/5220 or consent of instructor. Meets with ECE 4260.

**ECE 5270-3. CMOS Radio Frequency Integrated Circuit Design.**

CMOS based high Frequency amplifier design, s-parameters, voltage references, noise, low noise amplifier (LNA), mixers, RF power amplifiers, phase locked loops, oscillators and synthesizers, transmitter and receiver architectures, and RFID systems. Prer., ECE 3110, ECE 3210, ECE 3220. Meets with ECE 4270.

**ECE 5320-3. Fault Detection & Design for Testability.**

Stuck-at fault modeling. Test generation for combinational circuits-Boolean difference, D-algorithm, PODEM, FAN, critical path. Fault dominance and equivalence. Test generation for synchronous sequential circuits. Cost functions used in test generation. Fault simulation. Basics for design for testability. Prer., ECE 3430 or equivalent. Meets with ECE 4320.

**ECE 5330-3. Embedded Systems Design.**

Introduction to embedded systems including real time fault-tolerant significance. Study the hardware and software techniques to designing

embedded system, including study of various embedded operating systems, embedded controllers and digital signal processing hardware. Study existing embedded systems. Prer., ECE 3430 and C S 145. Meets with ECE 4330.

**ECE 5340-3. VLSI Circuit Design**

**I.** Design considerations for MOS integrated circuits with an emphasis on CMOS technology and the relationships between semiconductor device theory, semiconductor processing technologies and the electrical and functional performance requirements of modern digital IC circuits. Physical behavior of CMOS transistors and integrated circuits, CMOS processing technology, CMOS circuit and logic design, design rules and structured design methodology. Prer., ECE 3050 and ECE 3210. Meets with ECE 4340.

**ECE 5362-3. Synthesis with Verilog HDL.**

Logic synthesis with the Verilog hardware description language and commercial EDA tools. Includes an introduction to System Verilog. A project is required. Prer., ECE 4242/5242. Meets with ECE 4362.

**ECE 5370-3. Artificial Neural Networks.**

A research seminar treating fundamental models and contemporary results in the theory, implementation, and application of artificial neural networks. Prer., Graduate standing. Meets with ECE 6370.

**ECE 5410-3. Advanced Topics in Testing.**

Bridging faults and quiescent-current testing. BIST PLAs, RAMs, ROMs. Delay-faults and gate-delay/ path-delay models. Logic-level and system-level fault diagnosis. Prer., ECE 4320/5320. Meets with ECE 6410.

**ECE 5450-3. Advanced Computer Architecture.**

This is a second course in computer architecture. Topics covered will include proposed novel architectures, arithmetic system design, multi-processor and multicomputer interconnection schemes and their performance evaluation, and application-directed architecture. Prer., ECE 4210/5210 and ECE 4480/5480.

**ECE 5480-3. Computer Architecture and Design.**

The design of large digital systems with emphasis on the computer. Architectural alternatives, instruction set design, implementations including microprogramming, and actual examples are discussed. Performance tradeoffs. Prer., ECE 3430 or consent of instructor. Meets with ECE 4480.

**ECE 5520-3. Multivariable Control Systems I.** Fundamental aspects of modern control theory are covered,

including solutions to systems modeled in state variable format, controllability, observability, pole placement, and linear transformations. Computer-based tools for control system design are used. Prer., ECE 4510, and MATH 313, or equivalent. Meets with ECE 4520.

**ECE 5530-3. Multivariable Control Systems II.**

Design of systems in state variable format are covered including linear quadratic regulators, state estimators, model reference compensators, and H infinity control. Computer tools are used. Prer., ECE 4520/5520.

**ECE 5540-3. Digital Control Systems.**

Theory and application of classical and modern discrete-time control systems. Analysis and design of discrete-time and hybrid control using Z-transforms, root locus, frequency domain, and state variable compensation techniques. On-line implementation by digital computers will be studied. Prer., ECE 4510. Meets with ECE 4540.

**ECE 5570-3. Optimal Control Theory.**

Formulation of optimal control problems, performance index, the variational approach to optimal control problems, Pontryagin's maximum principle, the principle of optimality, the Hamilton-Jacobi equation, computational methods, the steepest descent method, variation of extremals, quasilinearization, and gradient projection. Prer., ECE 4520/5520 or equivalent.

**ECE 5610-3. Analysis of Random Signals.**

Probability and random variables. Practical aspects and methods for analyzing and interpreting random signals. Statistical and parametric descriptions, estimators and errors for measurement data. Prer., ECE 3510 and ECE 3610 or equivalent. Meets with ECE 4610.

**ECE 5620-3. Detection and Extraction of Signals from Noise.**

Detection and extraction methods used in signal processing and includes such subjects as decision theory, detection of known random signals, optimum receiver design and evaluation, estimation theory, estimation of parameters, Wiener filtering, Kalman-Bucy filtering, applications to problems in communication theory. Prer., ECE 4625/5625 and ECE 4610/5610 or equivalent. Meets with ECE 6620.

**ECE 5625-3. Communication Systems I.**

Introduction to principles of modern communication theory and signal processing: AM, FM, PAM, PCM, and delta modulation. Noise analysis, filtering, threshold effects, phase-locked loops, and introduction to digital modulation. Prer.,

ECE 3510. Meets with ECE 4625.

**ECE 5630-3. Communication Systems**

**II.** Continuation of ECE 4625/5625. Digital modulation and demodulation; equalization and diversity; error correcting code performance in noise; introduction to spread spectrum and space communications; simulation of communication systems. Prer., ECE 3610 and ECE 4625/5625 or equivalent. Meets with ECE 4630.

**ECE 5635-3. Wireless Communication Systems.**

Types of wireless communication systems; channel models; cellular characteristics; handoff; modulation techniques; first, second, and third generation systems; wireless networks. Prer., ECE 4625/5625.

**ECE 5640-3. Spread Spectrum Communications Systems.**

An in-depth study of spread spectrum systems including implementation and performance. This includes effects of hostile interference on spread spectrum system performance, acquisition and tracking of the spread spectrum signal, and an introduction to coding techniques used to mitigate the effect of jamming. Prospective students should have previous course background in signal analysis, probability and digital communications. Prer., ECE 4630/5630 or equivalent. Meets with ECE 6640.

**ECE 5650-3. Modern Digital Signal Processing.**

Study of linear discrete-time systems, linear difference equations, Z-transforms, discrete Fourier transform, fast Fourier transform, sensitivity, discrete random processes, quantization effects, and design-related concepts. Prer., ECE 3510 and ECE 3610 or equivalent. Meets with ECE 4650.

**ECE 5655-3. Real-Time Digital Signal Processing.**

An introduction into the design, development, and implementation of signal processing algorithms on real-time hardware targets. The emphasis will be on high-level language, but assembly language will also be discussed. Prer., ECE 4650/5650 or ECE 4640. Meets with ECE 4655.

**ECE 5660-3. Introduction to Digital Image Processing.**

Methods for coding, storing and processing images by digital computers, image models, sampling theorem, Fourier representation, methods for image enhancement, restoration, registration, and image understanding. Introduction to pattern recognition, computer vision, and robotics with industrial applications. Prer., ECE 3510 and ECE 3610. Meets with ECE 4660.

**ECE 5675-3. Phase-Locked Loops and Frequency Synthesis.**

A study of phase-locked loops and frequency synthesizers. Both analysis and design aspects are addressed. Linear and nonlinear models are considered. Prer., ECE 3610 and ECE 4625/5625. Meets with ECE 4675.

**ECE 5680-3. Computer Communications Networks.**

Modern communications networks provide a means for messages and data to be exchanged between high speed digital computers. Central to this technology are many design problems dealing with network layout, capacity assignment, user delay, routing, cost and queue management. Prer., ECE 3610 or equivalent.

**ECE 5900-3. Graduate Seminar.**

Meetings of faculty, students and guests from industry to participate in discussions of recent advances in research or other topics of interest. Seminar schedule will be announced at the beginning of the Fall and Spring semesters. Topics will be presented by faculty, graduate students and invited lecturers from other universities, government agencies and industry. Prer., Consent of instructor.

**ECE 5910-3. Selected Topics.**

Current topics in ECE. See current course schedule for title of specific topic. Prer., Graduate standing. Meets with ECE 4910.

**ECE 5970-1 to 3. Selected Topics.**

Current topics in ECE. See current course schedule for title of specific topic. Prer., Consent of instructor.

**ECE 5990-3. Advanced Topics Seminar.**

Current topics in microelectronics, materials, devices, and processes. Prer., Consent of instructor. Meets with ECE 6990.

**ECE 6020-3. Solid State Electronics**

**II.** This course is designed for advanced students looking for a formal treatment of solid state phenomena with special emphasis on semiconductors. Topics include energy band theory, impurities and imperfections in semiconductors, carrier concentration in thermal equilibrium, Boltzmann's transport equation, thermal effects in semiconductors, diffusion of electrons and holes, scattering of electrons and holes, recombination phenomena, strong field effects, high frequency and amorphous semiconductors. Prer., ECE 4020/5020, ECE 4070/5070 and PHYS 690 or equivalent.

**ECE 6040-3. Quantum Electronics.**

Introduction to the theory of lasers, optical resonators and nonlinear optics, with the emphasis on applications to

devices. Prer., ECE 3120 and PES 313 or equivalent.

**ECE 6111-3. Math Methods for EM Field Theory: Part I.**

Develop a mathematical model of EM fields, based on Maxwell's Equations. Derive the Helmholtz (Wave) Equations for the auxiliary potentials and the fields. Develop the integral equation solutions for radiation and scattering based on Green's Functions. Applications include electric and magnetic properties of materials, wave propagation and polarization, reflection and transmission. Prer., ECE 4110/5110.

**ECE 6112-3. Math Methods for EM Field Theory: Part II.**

Apply the mathematical methods developed in ECE 6111 to advanced EM problems. Applications include wave propagation and scattering, waveguides, cavities and resonators, striplines and microstrip lines, fiber optics, introductory numerical techniques (Moment Methods & GTD), and Green's Functions. Prer., ECE 6111.

**ECE 6120-3. Numerical Methods of Field Theory.**

Continuation of ECE 6112. Prer., ECE 5110 or equivalent.

**ECE 6370-3. Artificial Neural Networks.**

A research seminar treating fundamental models and contemporary results in the theory, implementation and application of artificial neural networks. Prer., Graduate status. Meets with ECE 5370.

**ECE 6410-3. Advanced Topics in Testing.**

Bridging faults and quiescent-current testing. BIST PLAs, RAMs, ROMs. Delay-faults including gate-delay/ path-delay models. Logic level and system-level fault diagnosis. Prer., ECE 4320/5320. Meets with ECE 5410.

**ECE 6550-3. Nonlinear and Adaptive Systems.**

Analyses of nonlinear control systems including phase plane, singular points, describing functions, and stability via Lyapunov are covered. System identification and design of adaptive systems are included. Prer., ECE 4520/5520.

**ECE 6620-3. Detection and Extraction of Signals from Noise.**

Detection and extraction methods used in signal processing and includes such subjects as decision theory, detection of known random signals, optimum receiver design and evaluation, estimation theory, estimation of parameters, Wiener filtering, Kalman-Bucy filtering, applications to problems in communication theory. Prer., ECE 4625/5625 and ECE 4610/5610 or equivalent. Meets with ECE 5620.

**ECE 6630-3. Information Theory and Coding.**

Information and entropy, Markov

chains, combined systems, continuous systems, coding theory, channel capacity, modulation and applications to communications engineering. Prer., ECE 4610/5610 or equivalent.

**ECE 6640-3. Spread Spectrum Communications Systems.** An in-depth study of spread spectrum systems including implementation and performance. This includes effects of hostile interference on spread spectrum system performance, acquisition and tracking of the spread spectrum signal, and an introduction to coding techniques used to mitigate the effect of jamming. Prospective students should have previous course background in signal analysis, probability and communications. Prer., ECE 4630/5630 or equivalent. Meets with ECE 5640.

**ECE 6650-3. Estimation Theory and Adaptive Filtering.** Presents the application of digital filtering theory to problems in communications and signal processing. Topics include discrete spectral analysis of random signals, discrete time signal detection, estimation and filtering algorithms including the Kalman filter and effects of discrete noise sources in digital signal processing. Prer., ECE 4610/5610 and ECE 4650/5650 or equivalent.

**ECE 6980-3. Ferroelectric Materials and Applications.** Phenomenon of ferroelectricity in bulk and thin-film materials with emphasis on applications to integrated circuit devices. Devonshire's treatment and its variation to include surface phenomena are studied in some detail. Switching analysis and device modeling are discussed with emphasis to memory applications. Prer., ECE 6020.

**ECE 6990-3. Advanced Topics Seminar.** Current topics in microelectronics, materials, devices, and processes. Prer., Consent of instructor. Meets with ECE 5990.

**ECE 7000-1 to 6. Masters Thesis.**

**ECE 8000-1 to 10. Ph D Dissertation.**

**ECE 9200-1 to 3. Independent Study in ECE - Undergraduate.** An opportunity for sophomore students to do independent, creative work in electrical and computer engineering, possibly including industrial co-op (see co-op policy for details). Prer., Prior agreement on study program with faculty advisor.

**ECE 9300-1 to 3. Independent Study in ECE - Undergraduate.** An opportunity for juniors to do independent, creative work in electrical and computer engineering, possibly including industrial co-op (see

co-op policy for details). Prer., Prior agreement on study program with faculty advisor.

**ECE 9400-1 to 3. Independent Study in ECE - Undergraduate.** An opportunity for seniors to do independent, creative work in electrical and computer engineering, possibly including co-op (see co-op policy for details). Prer., Prior agreement on study program with faculty advisor.

**ECE 9500-1 to 3. Independent Study in ECE - Graduate.** An opportunity for graduate students to do independent, creative work in electrical and computer engineering. Prer., Prior agreement on study program with faculty advisor.

**ECE 9990-0. Candidate for Degree.** For students who have completed all course work and thesis hours, but have yet to defend thesis.

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## ENGINEERING

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### ENGR 1001-3. Introduction to Robotics.

An introductory course presenting foundational material in the design of robots. Topics include basic properties of sensors, motors, gears, drive mechanisms, control schemes, and processors to guide and control robots. LEGO kits will be used to implement student designs. Meets with ECE 1001.

### ENGR 1411-2. Digital Electronics.

Fundamentals of Digital Electronics, Number Systems, Logic Gates, Boolean Algebra, Combinational Circuit Design, Binary Addition, Flip-flops, Shift Registers and Counters, Logic Families and Specifications, Introduction to microprocessors. Meets with ECE 1411.

### ENGR 1501-2. Introduction to

**Engineering Design.** Problem-solving skills using a design development process. Models of product solutions are created, analyzed and communicated using computer-aided design software, including 2D orthographic projections and 3D isometric views, pictorial drawings, technical sketching, dimensioning, sectioning, working drawings, wireframe, and solid modeling. Meets with MAE 1501.

### ENGR 1502-3. Principles of Engineering.

Introduces the field of engineering. Explores various technology systems and manufacturing processes to demonstrate how engineers use math, science and technology in an engineering problem solving process. The course also includes an examination of social and political implications of technology. Meets with MAE 1502.

### ENGR 501-3. Engineering and Applied Science Education: Principles of Engineering.

Development of theoretical and classroom skills to teach pre-engineering skills to high school students. The course will cover the engineering skills required for Project Lead The Way's Principles of Engineering. Pedagogical delivery approaches for technical material will also be presented. Laboratory work and a culminating course project are required. This course may not be used towards a graduate degree offered by the College of Engineering and Applied Science.

### ENGR 502-3. Engineering and Applied Science Education: Digital Electronics.

Development of theoretical and classroom skills to teach pre-engineering skills to high school students. The course will cover the engineering skills required for Project Lead The Way's Digital Electronics. Pedagogical delivery approaches for technical material will also be presented. Laboratory work and a culminating course project are required. This course may not be used towards a graduate degree offered by the College of Engineering and Applied Science.

### ENGR 503-3. Engineering and Applied Science Education: Introduction to Engineering Design.

Development of theoretical and classroom skills to teach pre-engineering skills to high school students. The course will cover the engineering skills required for Project Lead The Way's Introduction to Engineering Design. Pedagogical delivery approaches for technical material will also be presented. Laboratory work and a culminating course project are required. This course may not be used towards a graduate degree offered by the College of Engineering and Applied Science.

### ENGR 504-3. Engineering and Applied Science Education: Civil Engineering and Architecture.

Development of theoretical and classroom skills to teach pre-engineering skills to high school students. The course will cover the civil engineering and architecture skills required for Project Lead the Way's Civil Engineering and Architecture. Pedagogical delivery approaches for technical material also will be presented. Laboratory work and a culminating course project are required. This course may not be used toward a graduate degree offered by the College of Engineering and Applied Science.

### ENGR 505-3. Engineering and Applied Science Education: Special Topics.

Offered by guest lecturers to the university or by regular faculty where special

topics or special needs arise regarding engineering education. Laboratory work and a culminating course project are required. This course may not be used towards a graduate degree offered by the College of Engineering and Applied Science.

**ENGR 507-0.5 to 3. Space Technologies for the Classroom.** Covers a wide range of space technologies and their engineering implications for the educator. Students learn both the content and pedagogical approaches for key concepts such as the fundamentals of orbital mechanics, satellite operations and global positioning systems. Students learn how Lego Mindstorms, "ballutes" (a combination of balloons and parachutes), and the NASA Mars Rover project can be used to teach science and engineering principles. This course cannot be used for credit towards any electrical engineering, computer science, computer engineering or mechanical engineering degree. Meets with CURR 5544.

**ENGR 508-0.5 to 3. Rocketry Technologies for the Classroom.** Covers a wide-range of rocketry technologies and their engineering implications for the educator. Students learn both the content and pedagogical approaches for key concepts such as the fundamentals of aeronautics, rocketry principles, elementary space operations and GPS. Students design, build, and launch rockets, and learn how rocketry can be used in teaching science and engineering principles. This course cannot be used for credit towards any electrical engineering, computer science, computer engineering or mechanical engineering degree. Meets with CURR 5541.

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## **MECHANICAL ENGINEERING**

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**MAE 1501-2. Introduction to Engineering Design.** Problem-solving skills using a design development process. Models of product solutions are created, analyzed and communicated using computer-aided design software, including 2D orthographic projections and 3D isometric views, pictorial drawings, technical sketching, dimensioning, sectioning, working drawings, wireframe, and solid modeling. Meets with ENGR 1501.

**MAE 1502-3. Principles of Engineering.** Introduces the field of engineering. Explores various technology systems and manufacturing processes to demonstrate how engineers use math, science and technology in an engineering problem

solving process. The course also includes an examination of social and political implications of technology. Meets with ENGR 1502.

**MAE 2101-3. Statics.** Force vectors, moments of force, equilibrium of a particle and rigid bodies, structural analysis and trusses, internal forces and shear, friction, center of gravity and mass, moments of inertia, and virtual work. Prer., MATH 135 and PES 111.

**MAE 2102-3. Dynamics.** Dynamics of a particle. Kinetics of a system of particles. Kinematics of rigid bodies in two and three dimensions. Free and forced vibrations with and without viscous damping. Prer., MAE 2101. Coreq., MATH 340.

**MAE 2301-3. Thermodynamics.** First and second laws of thermodynamics. Properties, states, thermodynamic functions, entropy, and probability. Prer., MATH 135 and PES 111.

**MAE 3001-3. Technology and Change.** Geared toward non-technical majors - removes mystery from technology. Students increase understanding of technology's impact on society, familiarization with today's systems (e.g., space, cellular phones, internet, etc.), and appreciation of the acceleration of change and possible alternative futures. National technology leaders will share experiences and perspectives. Prer., Should have at least sophomore status.

**MAE 3005-3. Engineering Measurement Laboratory.** Fundamental technical measurement techniques, measurement processes, analog and digital measurements, system response, sensors, signal conditioning, readout data processing. Measurement standards and treatment of uncertainties. Applied mechanical measurements: counters, displacement, stress and strain, force and torque, temperature, and pressure. Prer., MATH 340, ECE 3210 and ENGL 309.

**MAE 3010-2. Mechanical Engineering Laboratory.** Laboratory experiments in thermodynamics, fluid mechanics, strength of materials, heat transfer, controls, dynamics, machining, manufacturing, and/or robotics. Requires preparation of laboratory reports and presentation of results. Prer., MAE 3005.

**MAE 3110-3. Fundamentals of Flight.** Introduction to the engineering science of flight, its history, and fundamental engineering concepts. Basic understanding of aerodynamic lift and drag, equations static force and moment equilibrium spacecraft orbital equations aircraft performance, stability, and

control. Introduction to the development of aircraft/ spacecraft design requirements based on missions objectives. Prer., Admission to the College of Engineering and Applied Science.

**MAE 3130-3. Fluid Mechanics.** An introduction to fluid mechanics. Continuum, velocity and stress fields. Viscous and inviscid flows, laminar and turbulent flows, compressible and incompressible flows, internal and external flows. Hydraulic systems, buoyancy and stability. Stream functions, Navier-Stokes Equations. Prer., MAE 2301 and ENGL 309.

**MAE 3135-3. Aerodynamics.** Airfoil and wing aerodynamics, thin airfoils, finite-span wings, compressible and incompressible flow, nozzle theory. Intro to numerical methods in aerodynamics. Prer., MAE 3110 and MAE 3130.

**MAE 3201-3. Strength of Materials.** The theory and application of the fundamental principles of mechanics of materials, including stress, strain, mechanical properties of materials, axial load, torsion, bending, transverse shear, combined loadings, stress transformation, strain transformation, design of beams and shafts, deflections of beams and shafts, buckling of columns, and energy methods. Prer., MATH 340 and ENGL 309.

**MAE 3302-3. Thermodynamics II.** Applications of classical thermodynamics including analysis of gas and vapor cycles for power production and refrigeration, thermodynamic property relationships, psychrometrics and combustion. Prer., MAE 2301.

**MAE 3310-3. Heat and Mass Transfer.** The principles of heat transfer: conduction, convection, and radiation. Steady-state and transient conduction, thermal contact resistance, insulation, heat capacity. Forced and natural convection, velocity and thermal boundary layers, fluid flow. Radiation from blackbodies, surfaces and the sun. Prer., MATH 313, MATH 340, MAE 2301 and ENGL 309.

**MAE 3342-3. Engineering Economy.** Economic decision-making, professional ethics, business records, net worth and profit and loss calculation, engineering law and contract agreements. Prer., Junior standing or instructor consent.

**MAE 3401-3. Modeling and Simulation of Dynamic Systems.** Course presents basic concepts of dynamic behavior, and the analytic and computational techniques for predicting and assessing dynamic behavior. Modeling a basic system,

compound system, dynamic stability and natural behavior and response to continuing and abrupt inputs are presented. Prer., MATH 340, MAE 2102 and (MATH 381 or ECE 3610), knowledge of MATLAB.

**MAE 3501-3. Machine Design.** Applied stress analysis and material strength theories for sizing and selecting materials of machine elements, failure and reliability. Selection of fasteners, bearings, gears, springs. Prer., MAE 3201.

**MAE 3560-3. Design for Manufacture.** Theories and practice for achieving manufacturable designs. Topics include: introduction to manufacturing processes, creativity and design, DFM concepts, design philosophy, company DFM programs, group technology, cost and value analysis, life-cycle engineering, assembly strategies, and human factors. Prer., ENGR 342 and MAE 2501. Meets with MAE 5570.

**MAE 4001-1 to 3. Engineering Analysis.** Purpose of this course is to assist a student who is deficient in a prerequisite or who is looking for a refresher course in engineering analysis prior to entering the Master of Engineering program. Each module is 1 hour credit. Module I: Differential Equations and Series. Module II: Linear Systems. Module III: Probability and Applications. Prer., Senior or graduate standing.

**MAE 4120-3. Kinematics.** Kinematic theory of planar mechanisms; position, velocity and acceleration analysis, coupler curves, centrodes, analysis and synthesis of 4 bar linkage, engine dynamics. Prer., MAE 2102, MAE 3501, and MATH 313.

**MAE 4150-3. Vibrations.** Free and forced single-degree of freedom systems. Damping: Rayleigh, Coulomb, hysteretic, and viscous. Harmonic motion, frequency-domain representation, harmonic forcing. General forcing, convolution, and response spectra. Computational techniques for solving simple vibration problems. Prer., MATH 340, MAE 2102, C S 115 or equivalent.

**MAE 4155-3. Introduction to Composite Materials.** Polymer, metal and ceramic matrix composites. Anisotropic and orthotropic elasticity, rotation and layering of laminas, properties of laminate structures. Failure theories: Tsai-Hill and Tsai-Wu. Hygrothermal and piezoelectric strains/stresses in composites. Computation of composite behavior. Prer., MAE 2102, MAE 3201 and MATH 340.

**MAE 4210-3. Fracture Mechanics.** Fundamental concepts of structure

failure. Stress intensity, energy criterion, cracking, and damage tolerance. Linear Elastic Fracture Mechanics: stress concentrations, Griffith energy, energy release rates, K/G and J-integrals, crack tip plasticity. Plane stress/strain, and mixed-mode failure. Prer., MATH 313, MATH 340 and MAE 2102. Meets with MAE 5205.

**MAE 4316-3. Propulsion.** Basic concepts of aerospace propulsion. Foundational concepts of thermodynamics, compressible flow, and boundary layer theory. Characteristics, operation and analysis of turbine engines. Characteristics, operation and analysis of rocket engines. Prer., MAE 2301 and MATH 340.

**MAE 4402-3. Intermediate Dynamics.** Kinematics, relative motion, and rotation of particles and rigid bodies, including inertia tensors, Euler's angles and equations. Variational principles, work, energy expressions, and Lagrange's equations. Electrical circuits and electromechanical systems. Prer., MAE 2102 or equivalent, MATH 340 and MATH 313.

**MAE 4410-3. Fundamentals of Astrodynamics.** Development and application of the fundamental principles of astrodynamics to satellite motion. Study of coordinate systems, time keeping, computation of orbits, and introduction to perturbation theory. Prer., MAE 2102, MAE 3110, MATH 313, and MATH 340.

**MAE 4415-3. Flight Dynamics.** Advanced treatment of the flight dynamics of atmospheric flight vehicles and spacecraft. Rigorous development of non-linear equations of motion, including environmental and propulsive forces. Linearization via small-perturbation methods - limitations. Transient response, stability, natural modes. Intro to simulation techniques. Prer., MAE 3110, MAE 3401, and MAE 4402. Meets with MAE 5415.

**MAE 4421-3. Automatic Control of Aerospace and Mechanical Systems.** Introduction to the automatic control of aerospace and mechanical systems. Aero/Mech systems modeling, aircraft/spacecraft; computational analysis via MATLAB; frequency-domain techniques for analysis and synthesis; root-locus, bode, nyquist. Time-and- frequency-domain relationships. Mech/Aero System simulation. Prer., MAE 3401, MATH 313, and MATH 340.

**MAE 4425-3. Space Environment.** Introduction to properties and effects

of the environment in which spacecraft and astronauts must operate. Intensive coverage given to earth-sun-lunar system. Topics include earth's environment, ionosphere, atmosphere chemistry, radiation belts, magnetosphere, aurora, geomagnetic storms, celestial background, and recent bioastronautic effects. Prer., PES 112 or equivalent and MATH 340. Meets with MAE 5091.

**MAE 4450-3. Robotics.** Dynamics, kinematics, and automatic control of robotic devices. Force and position control, path planning. Prer., MATH 313, MATH 340, MAE 3401, and MAE 4421. Meets with MAE 5450.

**MAE 4455-3. Flight Mechanics.** A fundamental study of the trajectory dynamics of aerospace vehicles operating in the atmosphere (aircraft and missiles). Rigid-body equations of motion; vehicle-carried coordinate systems; aerodynamic and propulsive forces; maneuvering flight; introduction to trajectory simulation. Prer., MAE 3135, MAE 4402, MATH 313 and MATH 340. Meets with MAE 5455.

**MAE 4460-3. GPS Principles and Applications.** Course will focus primarily on GPS (Global Positioning Satellite) navigation system and its limits and applications in navigation on earth and near-space. Effects of atmospheric propagation will be included. Surveys of usage for such navigational systems to the military and civilian sectors will be given. Prer., MAE 4410/5410 and MATH 381 or ECE 3610.

**MAE 4506-3. Engineering Simulation.** Introduction to the essential elements of stochastic simulation including discrete, continuous and hybrid simulations models. A practical hands-on course illustrating concepts and principles through use of a flexible, advanced, higher-order simulation software package (SLAM II). Illustrates cost-saving techniques resulting from simulation studies of manufacturing systems. Prer., MATH 313 and MATH 340. Senior or graduate standing. Meets with MAE 5596.

**MAE 4510-1. Engineering Design I.** Design principles with the realistic constraints of economy, safety, reliability, aesthetics, ethics and social impact. Project and team organization to meet design goals. Professional oral and written communication of the design through presentations, memos, reports, and e-mail. Prer., Senior standing. Meets with MAE 5510.

**MAE 4511-3. Engineering Design II.** Project laboratory for the senior or graduate student for the design of a mechanical

or electromechanical component, with emphasis on the identification, selection, design, and simulation or fabrication of the component. A successful project is required for completion of the course. Prer., MAE 4510 and instructor's consent. Meets with MAE 5511.

**MAE 4541-3. Cellular Manufacturing.**

Cellular manufacturing has become an essential part of most world-class strategies. Investigation of analysis design and implementation of high-performance manufacturing cells. Topics include: key cell design issues, simulation in cell design, techniques for economic evaluation, group technology, just-in-time strategies, and team building in cellular manufacturing. Prer., MAE 3560, MAE 4561, and MAE 4506. Meets with MAE 5574.

**MAE 4542-3. Contemporary Issues in Manufacturing.**

Introduction to world class manufacturing including interaction with customers and suppliers, integrated and concurrent manufacturing, and just-in-time production meeting customer requirements, using case analysis, field study, and experiential learning. Prer., MAE 3560, MAE 4561, and MAE 4506. Meets with MAE 5575.

**MAE 4550-3. Space Mission Analysis.**

Survey of various spacecraft bus systems, and tradeoffs needed to satisfy the space-mission requirements. Spacecraft subsystems considered include communications, data handling, power, thermal, structures, sensors, and mechanisms. Prer., MAE 4410/5410, MAE 4425 or MAE 5091.

**MAE 4561-3. Analysis and Design of Experiments.**

Statistical methods to design experiments for the design of effective manufacturing systems. Balanced treatment of traditional and modern techniques in experiment design, with emphasis on real-world applications. Processes of planning, collecting data, and analyzing the data are covered. Prer., Senior or graduate standing and either ECE 3610 or MATH 381. Meets with MAE 5571.

**MAE 5090-3. Space Mission Operations.**

This course describes the relationship between the operations concept and the other elements of a space mission and covers the various functions associated with a space mission. These functions include mission planning, trajectory analysis, navigation, payload operations, spacecraft operations, data processing, communications, training, and management. Students learn how to translate mission objectives and

requirements into a viable operations concept. The course covers key cost, technical, and schedule drivers and develops methods for determining key space mission operations design parameters (data flow diagrams, orbit maneuvers, communication links, and spacecraft and payload commanding). Prer., MAE 4410/5410.

**MAE 5091-3. Space Environment.**

Introduction to properties and effects of the environment in which spacecraft and astronauts must operate. Intensive coverage given to earth-sun-lunar system. Topics include earth's environment, ionosphere, atmospheric chemistry, radiation belts, magnetosphere, aurora, geomagnetic storms, celestial background and recent bioastronautic effects. Prer., PES 112 or equivalent and MATH 340. Meets with MAE 4425.

**MAE 5092-3. Remote Sensing in Space.**

Covers fundamental technology for various remote sensing techniques. These techniques cover optical, infrared, microwave and nuclear sensors and imaging systems as appropriate. Background effects and effects of propagation through the atmosphere are included as well as trade-offs of systems and platform capabilities. Prer., ECE 3120 and PES 213 or consent of instructor. Meets with ECE 5190.

**MAE 5093-3. Systems Engineering.**

Focus on the Systems Engineering life-cycle process and the derivation of engineering/technical requirements from customer/operational requirements. Analytical tools which support fielding of effective systems consistent with developed requirements will be covered. Major emphasis will be placed on systems reliability and life-cycle costing. Prer., MATH 381 and MATH 313 or equivalent.

**MAE 5095-3. Engineering Simulation.**

Course will introduce the cost saving technique of simulation. The statistical tools needed to model and simulate events and equipment will be presented. A major course project simulating either a space, information or manufacturing system will cover the last quarter of the course and replace the final. Prer., MATH 313 and MATH 340; senior or graduate standing.

**MAE 5110-3. Solid Mechanics.**

Fundamental applied elasticity. Theory of stress and strain and stress-strain-temperature relationships. Inelastic materials. Energy methods: stationary PE, Castigliano's theorem. Classical problems in elasticity. Flat plates, stress concentrations, fracture, contact mechanics, and creep. Prer., MATH 447

and MAE 4402/MAE 5493.

**MAE 5115-3. Plates and Shells.**

Static and dynamic analysis of beams, arches, rings, plates, and shell structures. Development of coordinates, strain, stress-strain relationships, forces and moments, boundary conditions, and equations of motion using Hamilton's theorem. Solutions by exact and computational techniques. Prer., MATH 447, MAE 4150/MAE 5190 and MAE 4402/MAE 5493.

**MAE 5125-3. Advanced Dynamics.**

Analytical dynamics: Lagrange's equations, Hamilton's principle and variational calculus, Routh's method, Hamilton's equations. Applications in rigid bodies and continuous, nonautonomous, and nonlinear systems. Stability of nonlinear systems with Liapunov's direct method. Prer., MATH 447 and MAE 4402.

**MAE 5130-3. Advanced Fluid Dynamics.**

Mechanics of fluids. Governing equations: conservation laws, flow kinematics, and basic theorems. Ideal fluid flow: 2D and 3D potential flows and surface waves. Viscous flows of incompressible fluids: exact solutions, low-Reynolds number approximations, and boundary layer theory. Compressible flow of inviscid fluids: shock waves, 1-D and multi-dimensional flows. Prer., MATH 447 and MAE 3130.

**MAE 5150-3. Advanced Vibrations.**

A second course in vibrations covering the following topics: multiple-degree of freedom systems, undamped and damped, harmonic and forced, numerical solutions, continuous systems, and the finite-element method. Prer., MATH 313 and MATH 340; MAE 4150/5190.

**MAE 5155-3. Mechanics of Composite Materials.**

Polymer, metal, and ceramic matrix composites. Anisotropic and orthotropic elasticity, rotation and layering of laminas, properties of laminate structures. Failure theories: Tsai-Hill and Tsai-Wu. Hygrothermal and piezoelectric strains/stresses in composites. Computation of composite behavior. Prer., MAE 4150 or MAE 5190 and MATH 447.

**MAE 5160-3. Finite Element Analysis for Mechanics.**

An introduction to finite element analysis (FEA) procedures in mechanics, beginning with vectors, matrices and tensors, and continuing with formulation and calculation of FEA for solid mechanics, static and dynamic structural mechanics, heat transfer, electric fields, and incompressible fluid flow analysis. Students will do a significant amount of programming in the language of their choice. Prer., MATH 447, MAE 4150/

MAE 5190, and programming competency.

**MAE 5165-3. MicroElectroMechanical Systems (MEMS).** Integration of electrical and mechanical processes to design micromachines. Properties of materials. Structural design: fundamental mechanics, systems, and vibrations. Transducer and actuator principles. Sensor design integration and applications. Prer., MATH 313, MATH 340, MAE 4402 or MAE 5493, ECE 2220 or equivalent.

**MAE 5167-3. MEMS Design and Fabrication Laboratory.** Integration of electrical and mechanical design processes to build micro machines. Process design: wet chemical etching, wafer bonding, RIE and CMP. Surface micro machining. Sensor design integration and application. Prer., MAE 5165.

**MAE 5205-3. Fracture Mechanics.** Fundamental concepts of structural failure. Stress intensity, energy criterion, cracking, and damage tolerance. Linear Elastic Fracture Mechanics: stress concentrations, Griffith energy, energy release rates, K/G and J-integrals, crack tip plasticity. Plane stress/strain, and mixed-mode failure. Graduate credit requires the solution and presentation of a class project. Prer., MATH 313, MATH 340 and MAE 2102. Meets with MAE 4210.

**MAE 5210-3. Advanced Fracture Mechanics.** Review of linear elastic fracture mechanics. Dynamic fracture mechanics: arrest and branching, energy release rates, contour integrals, and examples. Elastic-plastic fracture mechanics, including Dugdale's model, J-integrals, CTOD, and mixed-mode failure. Introduction to computational technique. Prer., MAE 4210 and MATH 447.

**MAE 5391-3. Rocket Propulsion.** Basic theory of rocket propulsion, nozzle performance, propellant characteristics. Primary emphasis on the engine system design process, based on mission requirements. Chemical, as well as nuclear, electric, and advanced propulsion concepts are treated. Prer., MATH 340 and MAE 2301. Meets with MAE 4316.

**MAE 5402-3. System Dynamics.** Kinematics, relative motion, and rotation of particles and rigid bodies, including inertia tensors, Euler's angles and equations. Variational principles, work, energy expressions, and Lagrange's equations. Electrical circuits and electromechanical systems. Prer., MAE 4402.

**MAE 5410-3. Astrodynamics.** Rigorous development and application of the fundamental principles of astrodynamics to satellite motion. Study of coordinate systems, time keeping, computation of orbits, introduction to perturbation theory, Kepler's and Lambert's problems, linear orbit theory, patched conics method. Prer., MAE 4402, MAE 4410, or consent of instructor.

**MAE 5411-3. Space Operations Analysis.** An advanced class in astrodynamics and space mission operations. The primary goal is to present numerical methods useful in evaluating spacecraft trajectories. This will include methods of orbit determination, numerical vehicle targeting, and statistical estimation theory. Prer., MAE 4410/5410.

**MAE 5412-3. Atmospheric Flight Control.** Feedback control of aerospace vehicles operating in the atmosphere (aircraft and missiles). Aircraft and missile stability augmentation and autopilots. Frequency-domain analysis and synthesis, Bode/Nyquist, loop shaping. Prer., MAE 3420 and MAE 4415/MAE 5415.

**MAE 5415-3. Flight Dynamics.** Advanced treatment of the flight dynamics of atmospheric flight vehicles and spacecraft. Rigorous development of non-linear equations of motion, including environmental and propulsive forces. Linearization via small-perturbation methods - limitations. Transient response, stability, natural modes. Intro to simulation techniques. Prer., MAE 3401, MAE 4402 recommended by the instructor. Meets with MAE 4415.

**MAE 5417-3. Analysis of Mechanical and Aerospace Dynamic Systems.** Unified approach to dynamic systems analysis; method for development of lumped-parameter analytical models for mechanical and electromechanical systems, vehicles, robots, power systems; energy-based state-space formulations; simulation of linear and non-linear systems; perturbation techniques and neighboring trajectories; controllability concepts; modal analysis. Prer., MAE 3401, MAE 4421, and MATH 413/513.

**MAE 5419-3. Trajectory Optimization.** Optimization of the non-linear dynamics governing trajectories of aerospace vehicles or robots. Calculus of variations and numerical algorithms. Optimal orbit transfer, launch, re-entry, and interplanetary trajectories; robot path planning. Treatment of equality and inequality constraints (e.g., heating, loads). Projects in numerical optimization. Prer., MATH 313, MATH 340, MAE 2102,

and Graduate level linear algebra and astrodynamics recommended.

**MAE 5421-3. Digital Control of Mechanical and Aerospace Systems.** A laboratory-based course addressing the feedback control of aerospace vehicles, with special focus on the fact that the control systems will be implemented digitally. Z-domain systems analysis, discrete loop-shaping synthesis techniques; sample-rate selection; quantization effects. Real-time code generation and implementation. Hardware-in-the-loop testing and validation. Aircraft and missile stability augmentation and autopilots, spacecraft attitude control, and control of flexible systems. Prer., MAE 4421 or ECE 4510.

**MAE 5424-3. Spacecraft Attitude Dynamics and Determination.** Graduate-level treatment of spacecraft attitude dynamics and attitude determination techniques. Vector treatment of 3-D rigid-body rotational spacecraft dynamics, kinematics, Euler angles, quaternions, angular momentum. Attitude matrix, algebraic attitude determination algorithms, intro to dynamic determination techniques. Prer., MAE 4402 and MATH 313.

**MAE 5425-3. Spacecraft Attitude Control.** Graduate-level treatment of attitude feedback-control techniques. Review of attitude dynamics and conventional control analysis and synthesis methods. Loop-shaping design techniques; control-system requirements. Safe-hold algorithms, tracking, regulation control and maneuvering. Prer., MAE 4421, MAE 5424, and ECE 3610.

**MAE 5440-3. Attitude Control of Aerospace Vehicles.** Introduction to attitude-determination algorithms for spacecraft. Attitude feedback-control analysis and synthesis techniques for spacecraft, missiles, and aircraft. Review of attitude dynamics and conventional control analysis and synthesis methods. Loop shaping design techniques; control-system requirements. Prer., MAE 3420 and MAE 4415/5415.

**MAE 5450-3. Robotics.** Dynamics, kinematics, and automatic control of robotic devices. Force and position control, path planning. Prer., MATH 313, MATH 340, MAE 3401, and MAE 4421. Meets with MAE 4450.

**MAE 5455-3. Flight Mechanics.** A fundamental study of the trajectory dynamics of aerospace vehicles operating in the atmosphere (aircraft and missiles). Rigid-body equations of motion; vehicle-

carried coordinate systems; aerodynamic and propulsive forces; maneuvering flight; introduction to trajectory simulation. Prer., MAE 4402/MAE 5493, MATH 313 and MATH 340. Meets with MAE 4455.

**MAE 5456-3. Spacecraft Actuators and Sensors.** Modeling of spacecraft actuators, including momentum wheels, reaction wheels, gas jets, and magnetic torque bars. Modeling of spacecraft sensors, including sun sensors, star sensors, earth sensors, magnetometers, gyros, and GPS. Prer., MAE 5402 and MATH 340.

**MAE 5495-3. Launch Vehicle Analysis.** Theory of rocket performance, nozzle performance, propellant characteristics, staging, throw-weight analysis, launch trajectory analysis, orbit injection. Development of launch-vehicle requirements based on mission requirements. Prer., MAE 2301, MAE 3130. Prer. or Co-req., MAE 5410.

**MAE 5510-1. Engineering Design I.** Design principles with the realistic constraints of economy, safety, reliability, aesthetics, ethics and social impact. Project and team organization to meet design goals. Professional oral and written communication of the design through presentations, memos, reports, and e-mail. Prer., Senior/Graduate standing. Meets with MAE 4510.

**MAE 5511-3. Engineering Design II.** Project laboratory for the senior or graduate student for the design of a mechanical or electromechanical component, with emphasis on the identification, selection, design, and simulation or fabrication of the component. A successful project is required for completion of the course. Prer., MAE 4510/MAE 5510. Meets with MAE 4511.

**MAE 5559-3. Manufacturing Technology and the Factory of the Future.** Engineering and technology issues are integrated with management methods and international interaction to examine future developments in manufacturing. Topics include: computer-integrated manufacturing, robotics, flexible automation, expert systems, integration of design and production through databases and telecommunications, the human-machine interface, and manufacturing management information systems. Prer., MAE 4541/MAE 5574 and MAE 4542/MAE 5575.

**MAE 5560-3. Engineering Project Management.** Capstone course involving all components of the manufacturing

systems engineering curriculum. Focus on mathematical programming, networks, dynamic programming and tools such as PERT/CPM to model projects, systems and timelines. A major portion of the course is a hands-on project. Written and oral reports are required that meet publication standards for completeness, clarity and technical integrity. Prer., Graduate status.

**MAE 5570-3. Design for Manufacture.** Theories and practice for achieving manufacturable designs. Topics include: introduction to manufacturing processes, creativity and design, DFM concepts, design philosophy, company DFM programs, group technology, cost and value analysis, life-cycle engineering, assembly strategies, and human factors. Prer., ENGR 342 and MAE 2501. Meets with MAE 3560.

**MAE 5571-3. Analysis and Design of Experiments.** Statistical methods to design experiments for the design of effective manufacturing systems. Balanced treatment of traditional and modern techniques in experiment design, with emphasis on real-world applications. Processes of planning, collecting data, and analyzing the data are covered. Prer., Senior/Graduate standing and either ECE 3610 or MATH 381. Meets with MAE 4561.

**MAE 5574-3. Cellular Manufacturing.** Cellular manufacturing has become an essential part of most world-class strategies. Investigation of analysis design and implementation of high-performance manufacturing cells. Topics include: key cell design issues, simulation in cell design, techniques for economic evaluation, group technology, just-in-time strategies, and team building in cellular manufacturing. Prer., MAE 3560/MAE 5570, MAE 4561/MAE 5571 and MAE 4506/MAE 5596. Meets with MAE 4541.

**MAE 5575-3. Contemporary Issues in Manufacturing.** Introduction to world class manufacturing including interaction with customers and suppliers, integrated and concurrent manufacturing, and just-in-time production meeting customer requirements, using case analysis, field study, and experiential learning. Prer., MAE 3560/MAE 5570, MAE 4561/MAE 5571 and MAE 4506/MAE 5596. Meets with MAE 4542.

**MAE 5593-3. Space Sensor Systems.** Introduction to airborne and space based sensor systems and data fusion techniques. The sensor design and performance characteristics of microwave and millimeter wave radar

systems, infrared (IR) thermal imagers, and electro-optical (EO) devices will be covered. Additionally, multiple sensor systems, data fusion, and tracking will be discussed. Prer., MATH 340, PES 112 and MAE 5092.

**MAE 5595-3. Space Mission Analysis.** Space environment, spacecraft communication constraints. Orbit selection, launch requirements, communication requirements. Development of spacecraft design requirements, as driven by the mission requirements. Prer., MAE 5410, MAE 5424, MAE 5425, and MAE 5495.

**MAE 5596-3. Space Mission Design.** A capstone course which includes some review of engineering subsystem technology. Students will be asked to configure and design a spacecraft bus to fulfill missions specified. Prer., MAE 5090, MAE 5594 and MAE 5595.

**MAE 6415-3. Robust Multivariable Control.** Theory and application for multivariable feedback control systems, limitations of achievable performance and stability robustness in the face of uncertainty in the dynamics of the controlled system. Characterization of uncertainty, and robustness analysis. Multivariable synthesis techniques, applications to control of electromechanical systems and spacecraft. Prer., ECE 5520.

**MAE 6430-3. Optimal Estimation Theory.** Theory of optimal estimation, with applications to aerospace navigation. Kalman filtering, and complementary filters, continuous and discrete formulations. Observability issues, sensor selection, numerical methods. Prer., ECE 4610 or ECE 5610.

**MAE 6432-3. Advanced Astrodynamics.** Special and general perturbations including geopotential expansions and other perturbing forces are covered. Also included are circular restricted three-body problems; Jacobi integral and zero velocity curves, and Hamiltonian mechanics including canonical transformations and the Hamilton-Jacobi equation applied to two-body motion. Open to graduate students only. Prer., MAE 5410 or equivalent.

**MAE 7000-1 to 12. Master's Thesis.** For master's thesis in mechanical and aerospace engineering. Prer., Prior agreement with faculty advisor.

**MAE 7500-1 to 12. Master's Research.** Research credit for master's program in mechanical and aerospace engineering. Prer., Prior agreement with faculty advisor.



MAE 8000-1 to 12. Doctoral Dissertation.

For doctoral dissertation in mechanical and aerospace engineering. Prer., Prior agreement with faculty advisor.

**MAE 9110-1 to 3. Special Topics: Undergraduate.** An opportunity for students to study special subjects in mechanical and aerospace engineering, undergraduate level. Prer., Prior agreement with faculty advisor.

**MAE 9400-1 to 3. Independent Study: Undergraduate.** Provides opportunity for independent study in mechanical and aerospace engineering by one or more students on topics determined by a faculty member. Prer., Prior agreement with faculty advisor.

**MAE 9500-1 to 6. Independent Study: Graduate.** Provides opportunity for independent study in mechanical and aerospace engineering by one or more graduate students on topics determined by a faculty member. Prer., Prior agreement with faculty advisor.

**MAE 9510-1 to 3. Special Topics: Graduate.** An opportunity for students to study special subjects in mechanical and aerospace engineering, graduate level. Prer., Prior agreement with faculty advisor.

**MAE 9520-1 to 3. Graduate Seminar.** Allows graduate students credit for attending department seminars and workshops. Prer., Prior agreement with faculty advisor.

**MAE 9999-0. Candidate for Degree.** Candidate for degree. Prer., Prior agreement with faculty advisor.

## MATHEMATICS

### **MATH 090-1. Fundamentals of Algebra.**

A review of basic algebra and arithmetic, including algebra of polynomials, factorization of simple polynomials, arithmetic operations on fractions and rational expressions, laws of exponents, linear equations and inequalities in one variable, quadratic equations using factoring. Administered through Department of Mathematics. Pass/fail grading only. Does not count toward BA or BS degree.

**MATH 104-3. College Algebra.** An in-depth study of algebraic equations and inequalities. Comprehension of the underlying algebraic structure will be stressed as well as appropriate algebraic skills. The study will include polynomials, rational, exponential, and logarithmic functions as well as systems of equations/inequalities. Prer., Score 9

or more on algebra diagnostic exam. \*\*\* See Mathematics Department prerequisite policy. \*\*\*

**MATH 105-4. Elementary Functions of Calculus.** An intensive study of the elementary functions required for calculus. These functions will include polynomial, rational, exponential, logarithmic, and trigonometric functions. Emphasis is on their algebraic structure and graphs. Analysis of conic sections and analytic geometry will be included. Prer., MATH 104 or score 20 or more on algebra diagnostic exam. \*\*See Mathematics Department prerequisite policy. \*\*\*

**MATH 111-3. Topics in Linear Algebra.** For business and economics students. Systems of linear equations, matrix algebra, linear programming, probability, statistics. Prer., MATH 104 or score 17 or more on algebra diagnostic exam. \*\*See Mathematics Department prerequisite policy\*\*

**MATH 112-3. Calculus for Business and Economics.** Calculus for business and economics students. Prer., MATH 104 or score 17 or more on algebra diagnostic exam. \*\*See Mathematics Department prerequisite policy\*\*

**MATH 135-4. Calculus I.** Selected topics in analytical geometry and calculus. Rates of change of functions, limits, derivatives of algebraic and transcendental functions, applications of derivatives, and integration. Prer., MATH 105 or score 20 or more on the Algebra Placement Exam AND score 10 or more on the Calculus Readiness Exam. \*\*\* See Mathematics Department prerequisite policy. \*\*\*

**MATH 136-4. Calculus II.** Continuation of MATH 135. Transcendental functions, techniques and applications of integration, Taylor's theorem, improper integrals, infinite series, analytic geometry, polar coordinates. Prer., MATH 135.

**MATH 215-3. Discrete Math.** Introduction to most of the important topics of discrete mathematics, including set theory, logic, number theory, recursion, combinatorics, and graph theory. Much emphasis will be focused on the ideas and methods of mathematical proofs, including induction and contradiction. Prer., MATH 135.

**MATH 235-4. Calculus III.** Continuation of MATH 136. Parametric curves, vector functions, partial differentiation, multiple integrals, Green's Theorem and Stoke's Theorem. Prer., MATH 136.

**MATH 301-3. Mathematics for Elementary Teachers I.** Covers the whole number, integer, and rational number systems that are of prime

importance to the elementary teacher. For students planning on elementary teacher certification.

**MATH 302-3. Mathematics for Elementary Teachers II.** Intuitive and logical development of the fundamental ideas of geometry such as parallelism, congruence, and measurement. Includes study of plane analytical geometry. For students planning on elementary teacher certification.

**MATH 310-3. Statistics for the Sciences.** Descriptive probability, hypothesis testing, nonparametric methods. Discrete and continuous random variables, mean and variance, confidence limits, correlation and regression. Prer., MATH 135.

**MATH 311-3. Theory of Numbers.** A careful study, with emphasis on proofs, of the following topics associated with the set of integers: divisibility, congruences, arithmetic functions, sums of squares, quadratic residues and reciprocity, and elementary results on distributions of primes. Prer., MATH 136 and MATH 215.

**MATH 313-3. Introduction to Linear Algebra.** Systems of linear equations, matrices, vector spaces, linear independence, basis, dimension, determinants, linear transformations and matrices, eigenvalues and eigenvectors. Prer., MATH 135.

**MATH 340-3. Introduction to Differential Equations.** First order differential equations, linear differential equations, the Laplace transform method, power series solutions, numerical solutions, linear systems. Prer., MATH 235.

**MATH 341-3. Estimation, Convergence and Approximation.** Sequences, numerical series, and power series. Integrals and the analysis of functions defined by integrals. This course provides a thorough introduction to proofs in analysis, and is strongly recommended for students planning to take Math 431. Prer., MATH 235.

**MATH 350-3. Graph Theory.** Standard material on the theory of both directed and undirected graphs, including the concepts of isomorphism, connectivity, trees, traversability, planar graphs, coloring problems, relations and matrices. Prer., MATH 215.

**MATH 351-3. Topics in Combinatorial Analysis.** A survey of important areas of combinatorics. Topics may include enumeration techniques, recurrence relations, combinatorial designs, graph theory, machining and optimization. Prer., MATH 215.

**MATH 381-3. Introduction to Probability and Statistics.** The axioms of probability and conditional probability will be studied as well as the development, applications and simulation of discrete and continuous probability distributions. Also, expectation, variance, correlation, sum and joint distributions of random variables will be studied. The Law of Large Numbers and the Central Limit Theorem will be developed. Applications to statistics will include regression, confidence intervals, and hypothesis testing. Prer., MATH 235.

**MATH 405-1 to 3. Topics in Mathematics Secondary Classroom.** The topics covered will vary from one offering to the next. Topics will be chosen to meet the needs of secondary mathematics teachers for additional training to teach to the Colorado Model Content Standards. Prer., One semester of calculus, or instructor approval. Meets with MATH 505.

**MATH 410-3. Technology in Mathematics Teaching and Curriculum.** Methodology for using technology as a teaching/ learning tool for high school and college math courses. Use of graphing calculators, computer algebra systems, computer geometry systems and the internet will be emphasized. Students are required to develop and present a portfolio of in-depth projects. Prer., MATH 136. Meets with MATH 510.

**MATH 413-3. Linear Algebra I.** Vector spaces, linear transformations and matrices, determinants, eigenvalues, similarity transformations, orthogonal and unitary transformations, normal matrices and quadratic forms. Prer., MATH 313. Meets with MATH 513.

**MATH 414-3. Modern Algebra I.** A careful study of the elementary theory of groups, rings, and fields. Mappings such as homomorphisms and isomorphisms are considered. The student will be expected to prove theorems. Prer., MATH 215 and MATH 313. One of MATH 311, MATH 350, or MATH 351 (preferably MATH 311) is strongly recommended.

**MATH 415-3. Modern Algebra II.** Continuation of MATH 414 through Galois theory. Prer., MATH 414. Meets with MATH 515.

**MATH 421-3. Higher Geometry.** Axiomatic systems. The foundations of Euclidean and Lobachevskian geometries. Prer., MATH 311 or MATH 313. Meets with MATH 521.

**MATH 423-3. Fractal Geometry.** Introduction to iterated function systems and mathematical aspects of fractal

sets. Includes metric spaces and the space fractals live in, transformations, contraction mapping and Collage Theorem, chaotic dynamics, shadowing theorem, fractal dimension, fractal interpolation, and measures on fractals. Prer., MATH 235 and MATH 313. Meets with MATH 523.

**MATH 425-3. Introduction to Chaotic Dynamical Systems.** Introduction to dynamical systems or processes in motion, that are defined in discrete time by iteration of simple functions, or in continuous time by differential equations. Emphasis on understanding chaotic behavior that occurs when a simple non-linear function is iterated. Topics include orbits, graphical analysis, fixed and periodic points, bifurcations, symbolic dynamics, chaos, fractals, and Julia sets. Prer., MATH 235. Meets with MATH 525.

**MATH 431-3. Modern Analysis I.** Calculus of one variable, the real number system, continuity, differentiation, integration. Prer., MATH 215 and MATH 235, MATH 341 is strongly recommended.

**MATH 432-3. Modern Analysis II.** Sequence and series, convergence, uniform convergence; Taylor's theorem; calculus of several variables including continuity, differentiation, and integration. Prer., MATH 431. Meets with MATH 532.

**MATH 442-3. Optimization.** Linear and nonlinear programming, the simplex algorithm and other approaches to linear optimization, minimax theorems, convex functions, introduction to calculus of variations. Prer., MATH 313 and MATH 340. Meets with MATH 542.

**MATH 443-3. Ordinary Differential Equations.** Linear systems of differential equations, existence and uniqueness theorems, stability, periodic solutions, eigenvalue problems, and analysis of equations important for applications. Prer., MATH 313 and MATH 340. Meets with MATH 543.

**MATH 445-3. Complex Variables.** Theory of functions of one complex variable including integrals, power series, residues, conformal mapping and special functions. Prer., MATH 235. Meets with MATH 545.

**MATH 447-3. Methods of Applied Mathematics.** Boundary value problems for the wave, heat, and Laplace equations, separation of variables methods, eigenvalue problems, Fourier series, orthogonal systems. Prer., MATH 235, MATH 313 and MATH 340. Meets with MATH 547.

**MATH 448-3. Mathematical Modeling.** The use of diverse mathematical techniques to analyze and solve problems from science and engineering, particular problems likely to arise in nonacademic settings such as industry or government. Converting a problem to a mathematical model. Commonly encountered classes of mathematical models, including optimization problems, dynamical systems, probability models and computer simulations. Communication of results of mathematical analysis. Prer., MATH 313, MATH 340, and MATH 310 or MATH 381 or ECE 3610. Meets with MATH 548.

**MATH 465-3. Numerical Analysis.** Error analysis, root finding, numerical integration and differentiation, numerical methods for ordinary differential equations, numerical linear algebra and eigenvalue problems. Prer., C S 115, MATH 313, and MATH 340. Meets with MATH 565.

**MATH 467-3. Scientific Computation.** Description and analysis of algorithms used for numerical solutions of partial differential equations of importance in science and engineering. The main emphasis is on theoretical analysis, but some practical computations are included. Prer., MATH 235, MATH 313, MATH 340, and C S 115 or equivalent. Meets with MATH 567.

**MATH 481-3. Mathematical Statistics I.** Exponential, Beta, Gamma, Student, Fisher and Chi-square distributions are covered in this course, along with joint and conditional distributions, moment generating techniques, transformations of random variables and vectors. Prer., MATH 235 and MATH 313. Meets with MATH 581.

**MATH 482-3. Mathematical Statistics II.** Point and confidence interval estimation, principles of maximum likelihood, sufficiency and completeness; tests of simple and composite hypotheses. Linear models and multiple regression analysis. Other topics will be included. Prer., MATH 381 or MATH 310. Meets with MATH 582.

**MATH 483-3. Linear Statistical Models.** Methods and results of linear algebra are developed to formulate and study a fundamental and widely applied area of statistics. Topics include generalized inverses, multivariate normal distribution and the general linear model. Applications focus on model building, design models and computing methods. The "Statistical Analysis System" (software) is introduced as a tool for doing computation. Prer., MATH 381 or ECE 3610, or MATH 310 and MATH 313. Meets with MATH 583.

**MATH 485-3. Stochastic Modeling.**

Mathematical development of continuous and discrete time Markov chains, queuing theory, reliability theory, and Brownian motion with applications to engineering and computer science. Prer., MATH 381 or ECE 3610. Meets with MATH 585.

**MATH 495-1. Senior Seminar.** This is the capstone course for the students in the mathematics program (with MATH 448, Mathematical Modeling). Students will give oral and written presentations on mathematical topics. Prer., MATH 313, MATH 340, MATH 310 or MATH 381; MATH 448 recommended.

**MATH 505-0.5 to 3.** Topics in Mathematics for the Secondary Classroom. The topics covered will vary from one offering to the next. Topics will be chosen to meet the needs of secondary mathematics teachers for additional training to teach to the Colorado Model Content Standards. Prer., One semester of calculus, or instructor approval. Meets with MATH 405.

**MATH 510-3. Technology in Mathematics Teaching and Curriculum.**

Methodology for using technology as a teaching/ learning tool for high school and college math courses. Use of graphing calculators, computer algebra systems, computer geometry systems and the internet will be emphasized. Students are required to develop and present a portfolio of in-depth projects. Prer., MATH 136. Meets with MATH 410.

**MATH 511-1 to 3. Technology in Math Education Seminar.** A follow-up to MATH 410/510. Students will present demonstrations, projects and/or laboratories they have developed for use in their math courses. Extended in-depth coverage of computer algebra or geometry systems and/or graphing calculators and internet. Basic familiarity with computer algebra or geometry systems and/or graphing calculators is required. Prer., MATH 510 or consent of instructor.

**MATH 513-3. Linear Algebra I.** Vector spaces, linear transformation and matrices, determinants, eigenvalues, similarity transformations, orthogonal and unitary transformations, normal matrices and quadratic forms. Prer., MATH 313. Meets with MATH 413.

**MATH 515-3. Modern Algebra II.** Continuation of MATH 414 through Galois theory. Prer., MATH 414. Meets with MATH 415.

**MATH 517-3. Graduate Modern Algebra I.** Groups, rings, modules, fields, algebraic systems and Galois theory. Prer., MATH 414.

**MATH 521-3. Higher Geometry.**

Axiomatic systems. The foundations of Euclidean and Lobachevskian geometries. Prer., MATH 311 or MATH 313. Meets with MATH 421.

**MATH 523-3. Fractal Geometry.**

Introduction to iterated function systems and mathematical aspects of fractal sets. Includes metric spaces and the space fractals live in, transformations, contraction mapping and collage theorem, chaotic dynamics, shadowing theorem, fractal dimension, fractal interpolation, and measures on fractals. Prer., MATH 235 and MATH 313. Meets with MATH 423.

**MATH 525-3. Introduction to Chaotic Dynamical Systems.**

Introduction to dynamical systems or processes in motion, defined in discrete time by iteration of simple functions, or in continuous time by differential equations. Emphasis on chaotic behavior of an iterated simple nonlinear function. Orbits, graphical analysis, fixed and periodic points, bifurcations, symbolic dynamics, chaos, fractals, and Julia sets. Prer., MATH 235. Meets with MATH 425.

**MATH 527-3. Algebraic Coding Theory.**

The basic ideas of the theory of error-correcting codes are presented. We will study some important examples and give applications. These codes are important for the digital transmission of data. Prer., MATH 414.

**MATH 532-3. Modern Analysis II.**

Sequence and series, convergence, uniform convergence; Taylor's theorem; calculus of several variables including continuity, differentiation, and integration. Prer., MATH 431. Meets with MATH 432.

**MATH 533-3. Real Analysis I.** Measure theory, metric and normed linear spaces, completions, continuous functions, Riemann-Stieltjes and Lebesgue integration. Prer., MATH 432/532.

**MATH 535-3. Applied Functional Analysis.** An introduction to the basic concepts, methods and applications of functional analysis. Topics covered will include metric spaces, normed spaces, Hilbert spaces, linear operators, spectral theory, fixed point theorems and approximation theorems. Prer., MATH 431.

**MATH 542-3. Optimization.** Linear and nonlinear programming, the simplex algorithm and other approaches to linear optimization, minimax theorems, convex functions, introduction to calculus of variations. Meets with MATH 442.

**MATH 543-3. Ordinary Differential**

**Equations.** Linear systems of differential equations, existence and uniqueness theorems, stability, Lyapunov functions, periodic solutions, applications. Prer., MATH 313 and MATH 340. Meets with MATH 443.

**MATH 545-3. Complex Variables.** Theory of functions of one complex variable, including integrals, power series, residues, conformal mapping and special functions. Meets with MATH 445.

**MATH 547-3. Methods of Applied Mathematics.** Boundary value problems for the wave, heat, and Laplace equations, separation of variables methods, eigenvalue problems, Fourier series, orthogonal systems. Prer., MATH 235, MATH 313 and MATH 340. Meets with MATH 447.

**MATH 548-3. Mathematical Modeling.**

The use of diverse mathematical techniques to analyze and solve problems from science and engineering, particularly problems likely to arise in a nonacademic setting such as industry or government. Converting a problem to a mathematical model. Commonly encountered classes of mathematical models, including optimization problems, dynamical systems, probability models, and computer simulations. Communication of results of mathematical analysis. Prer., MATH 313, 340, and MATH 310 or MATH 381. Meets with MATH 448.

**MATH 552-3. Perturbation Theory in Astrodynamics.** Perturbation methods including Lagrange and Hamiltonian mechanics and the generalized method of averaging. Gravitational and atmosphere modeling. Prer., MAE 4410/5410 or PHYS 551.

**MATH 562-3. Complex Variables II.** Homotopy, Global Cauchy Theorem, Residue Theory, conformal mapping, infinite products, analytic continuation, special functions, selected topics. Prer., MATH 445/545 and MATH 431.

**MATH 565-3. Numerical Analysis.** Error analysis, root finding, numerical integration and differentiation, numerical methods for ordinary differential equations, numerical linear algebra and eigenvalue problems. Meets with MATH 465.

**MATH 567-3. Scientific Computation.** Description and analysis of algorithms used for numerical solutions of partial differential equations of importance in science and engineering. The main emphasis is on theoretical analysis, but some practical computations are included. Prer., MATH 235, MATH 313, MATH 340,

and C S 115 or equivalent. Meets with MATH 467.

**MATH 581-3. Mathematical Statistics**

I. Exponential, Beta, Gamma, Student, Fisher and Chi-square distributions are covered in this course, along with joint and conditional distributions, moment generating techniques, transformations of random variables and vectors. Prer., MATH 235 and MATH 313. Meets with MATH 481.

**MATH 582-3. Mathematical Statistics II.**

Point and confidence interval estimation, principles of maximum likelihood, sufficiency and completeness; tests of simple and composite hypotheses. Linear models, and multiple regression analysis. Other topics will be included. Prer., MATH 310 or MATH 381. Meets with MATH 482.

**MATH 583-3. Linear Statistical Models.**

Methods and results of linear algebra are developed to formulate and study a fundamental and widely applied area of statistics. Topics include generalized inverses, multivariate normal distribution and the general linear model. Applications focus on model building, design models and computing methods. The "Statistical Analysis System" (software) is introduced as a tool for doing computations. Prer., MATH 381 or ECE 3610, or MATH 310 and MATH 313. Meets with MATH 483.

**MATH 584-3. Computer Vision.**

Representation and manipulation of digital images; Fourier analysis of images; enhancement techniques in spatial and frequency domain; segmentation procedures; digital geometry, region and boundary representation; texture processing; pattern recognition and application to robotics. Prer., Graduate standing in mathematics, engineering or computer science. Meets with C S 584.

**MATH 585-3. Stochastic Modeling.**

Mathematical development of continuous and discrete time Markov chains, queuing theory, reliability theory and Brownian motion with applications to engineering and computer science. Prer., MATH 381 or ECE 3610. Meets with MATH 485.

**MATH 590-1 to 3. Graduate Seminar.**

Various topics in mathematics at the graduate level. Prer., Consent of instructor.

**MATH 591-3. Theory of Probability.**

Theoretical approach to probability. Measure theory is given form within a large body of probabilistic examples, ideas and applications. Weak and strong laws of large numbers, central limit theory, recurrence, Martingales. Prer., MATH 431.

**MATH 700-1 to 6. Masters Thesis.**

**MATH 800-1 to 10. PhD Dissertation.**

Enrollment is limited to those students who are in the PhD program in Engineering, and have primary thesis advisor in the Department of Mathematics. Prer., Consent of instructor.

**MATH 920-1 to 4. Independent Study Math Undergraduate.**

**MATH 940-1 to 3. Independent Study Math Undergraduate.**

**MATH 950-1 to 3. Independent Study Math, Graduate.**

**MATH 999-0. Candidate for Degree.**

**GRADUATE SCHOOL OF PUBLIC AFFAIRS**

**CRIMINAL JUSTICE**

**C J 5000-3. Law and Social Control.**

Provides an overview of the theory and application of criminal law in the context of social control. The course reviews various theoretical perspectives on law and society, focusing on the relationship between law and the structure and function of other social institutions. The course also examines aspects of the criminal law in action, assessing how legal definitions and sanctions are differentially interpreted and applied.

**C J 5100-3. Administration of Criminal Justice.** Analyzes the policies and practices of agencies involved in the criminal justice process from detection of crime and arrest of suspects through prosecution, adjudication, sentencing, and imprisonment to release. The patterns of decisions and practices are reviewed in the context of a systems approach.

**C J 5110-3. Criminal Justice Planning and Evaluation.** Provides an overview of planning and evaluation processes in the criminal justice system. Designs for monitoring and assessing program effects are reviewed. Key assumptions underlying various criminal justice operations are explored via specialized evaluative research studies. Special attention is given to the implications of process evaluation in modifying criminal justice policy making and decision making.

**C J 5120-3. Nature and Causes of Crime.** Analyzes the social origins of criminal behavior and the impact of crime on society. Various categories of deviant, delinquent, and criminal behavior are examined, and attempts to control such behavior are assessed. Connections

between social institutions, social problems, and illegal activities, and the response of the public to the threat of crime are examined.

**C J 5320-3. Police Administration.**

This course considers the major issues confronting police executives, such as professionalism, recruitment, selection, training, deployment, innovation, evaluation, and charges of brutality, inefficiency, and corruption.

**C J 5321-3. Research Methods in Criminal Justice.** Provides an assessment of research strategies in criminal justice through an examination of applied research designs and analytical models. The logic and rationale of these various strategies are contrasted, and their relative merits are critiqued. Selected research problems in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies.

**C J 5361-3. Advanced Seminar in Criminal Justice.** Designed to assist students in synthesizing what they have learned in the program by applying their knowledge and skills to a particular problem of interest. Students conduct an independent project, enabling them to explore an issue in depth. This course is taken in the final semester of the student's program. Meets with P AD 5361.

**C J 5510-3. Contemporary Issues in Law Enforcement.** Examines current thinking and experience with respect to changing and reforming police programs and practices. The course focuses primarily on the American police experience, reviewing major innovations, exploring their rationale, and examining organizational impediments to their implementation.

**C J 5520-3. Corrections.** Provides a critical examination of the development and implementation of correctional systems in America. The course presents the origins of correctional efforts and the evolution of the prison; reviews punishment and rehabilitation rationales in the context of sentencing models; examines the social organization of the prison, including inmate subcultures and staff work strategies; and assesses the inmates' rights movement and the impact of judicial intervention in correctional settings.

**C J 5530-3. Administration of Community-Based Corrections.** Analyzes the theories and practices of probation and parole, responses of paroling authorities to public pressures and

court controls, and their implications for rehabilitation. Efforts to bridge institutional settings and community life, as well as the feasibility and effectiveness of treating individuals under sentence in the community, are reviewed.

**C J 5540-3. Juvenile Justice**

**Administration.** Examines the policies and practices of agencies in processing youthful offenders through the juvenile court system, reviews trends in juvenile justice policymaking, and assesses changes in response to juvenile crime by both the juvenile justice and criminal justice systems.

**C J 5550-3. Criminal Justice Policy**

**Analysis.** Provides a survey of conceptual and design strategies in criminal justice policy analysis. The logic and rationale of these various strategies are contrasted, and their relative merits are critiqued. Selected policy issues in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies.

**C J 5551-3. Judicial Administration.**

Analyzes the judicial organization, court administration, and criminal court judicial decision-making practices within the context of the broader operation of the criminal justice system. Special attention is paid to the social organization of the courtroom, examining the special roles of judges, prosecutors, and defense attorneys.

**C J 5552-3. Criminal Justice Ethics.**

This seminar offers a normative framework within which to explore ways to increase sensitivity to the demands of ethical behavior among criminal justice personnel. The application of a normative perspective enhances the possibility that moral problems will be better understood, more carefully analyzed and rendered more tractable. Applied ethics forces a reflection not just on ethics, but also on the nature and operation of the criminal justice system itself.

**C J 5553-3. Women and Criminal**

**Justice.** This seminar explores issues surrounding women as offenders, victims, and criminal justice professionals. Investigates explanations for the involvement of women in illegal activities. Analyzes the plight of battered women, rape victims and other female victims. Examines the participation of women in law enforcement, judicial processes, corrections and lawmaking.

**C J 5554-3. Criminal Justice Reform.**

This seminar provides an overview of reform efforts in the criminal justice

system. Selected theoretical approaches and policies are examined and assessed in light of their assumptions and programmatic applications. The rationales and processes underlying selected reform strategies are explored. The implications of the effects of reform in criminal justice policymaking and decision-making are analyzed.

**C J 5560-3. Comparative Criminal**

**Justice.** Seminar on the different criminal justice systems in the world. Emphasis on the British and continental systems; analysis of other systems such as Scandinavia, U.S.S.R., China, and the African nations.

**C J 5571-3. Social Organization of**

**Crime.** This seminar explores the relationship of neighborhood social disorganization to the dynamics of crime from a social ecology perspective. The course examines the underlying social causes of phenomena such as criminal victimization, violent and property crime, neighborhood fear, neighborhood deterioration, and recidivism. The course will examine social, structural and ecological characteristics of neighborhoods and communities in affecting crime.

**C J 5572-3. Race, Crime and Justice.**

This seminar examines the role of race in criminal justice processing. The class examines the research findings, interpretations, issues and implications in assessing the impact of race in the administration of criminal justice. Explores the policy implications concerning the nature and extent of racial disparities in the criminal justice system and lays out a research agenda to more strategically address these issues within criminal justice policy making.

**C J 5573-3. Organized Crime.**

This seminar examines the issues involved in understanding those economic activities by which persons involved in "organized crime" make money. Major topics include: the structure of drug trafficking; the operations of illegal gambling activities; the culture and function of loan sharking; the economics of labor racketeering; and the role of criminal groups in fencing stolen goods and providing other services to hijackers and burglars.

**C J 5574-3. White Collar Crime.**

This seminar employs both the social science and legal approaches to examine crime committed by corporations as well as by individuals in white collar occupations. The course covers how such crimes are socially defined, who commits them, who is victimized by them, which social contexts promote them, and how society

and the criminal justice system respond to them.

**C J 5575-3. The Mentally Disordered**

**Offender.** This seminar examines the offender who may be mentally disordered. A survey is made of the various phases of the criminal justice system where psychiatrists are involved, e.g., diversion, fitness, insanity, and sentencing. Dangerous sex offender legislation, "not guilty by reason of insanity" and "guilty but mentally ill" statutes, and issues concerning confidentiality, informed consent, and treatment are addressed.

**C J 6600-3. Special Topics in Criminal**

**Justice.** This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues, and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Course may be taken for credit more than once provided subject matter is not repeated.

**C J 6910-3. Field Study in Criminal**

**Justice.** For students who have not had practitioner experience, a full or part-time internship is required. Consent of the instructor. Prer., 12-15 hours of criminal justice coursework.

**C J 9500-1 to 3. Independent Study in**

**Criminal Justice.** Affords the student the opportunity to pursue creative research activities under the individual supervision of a full-time faculty member. No more than six hours of credit for independent study may be applied toward the MCJ degree. Prer., Twelve hours of criminal justice course work.

**C J 9990-0. Candidate for Degree.**

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## **PUBLIC ADMINISTRATION**

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**P AD 498-1 to 3. Special Topics in**

**Public Administration.** Covers a variety of special topics relevant to public or nonprofit administration. Course may be taken for credit more than once, provided subject matter is not repeated.

**P AD 5001-3. Governance and**

**Institutions.** It is a time of rapid change, resource limitations, and questioning of the roles of public service organizations and professionals in American society. In such a time, it is essential for practitioners and citizens to understand the history, nature, and scope of public service. This course explores the creation of American public and nonprofit institutions, the ways organizations are

structured and managed, and the role of the public service practitioner in the challenging contemporary setting.

**P AD 5002-3. Organizational Management and Change.** Under the pressures to increase productivity with ever diminishing resources and the constant watch of the public eye, public administrators face constant dilemmas over issues of leading and motivating subordinates, of making decisions in what are often highly political environments, of communicating effectively, and of managing the constant flow of change. This course examines these issues.

**P AD 5003-3. Research and Analytic Methods.** This course examines research methods used to answer questions and test hypotheses in public and non profit settings. Methods covered include identifying and reviewing scholarly literature; formulating research questions; selecting appropriate design, data collection, and sampling strategies; and analyzing data. Topics include causal and descriptive designs, interviews and surveys, and statistics such as t-test, chi square, regression, and the Statistical Package for Social Sciences (SPSS). Meets with C J 5321.

**P AD 5004-3. Economics and Public Finance.** Uses economics to explore public and private sector roles, and the allocation of resources in the public sector. Introduces the concepts of public goods, market failure, and externalities. The effects of taxation and subsidies on consumer and firm behavior are analyzed. Also covers cost benefit analysis and national, state, and local budgeting methods.

**P AD 5005-3. The Policy Process and Democracy.** This course offers a theoretical approach to understanding the public policy process in the context of a democratic system. Presents theoretical models of the policy process, and issues in public affairs will be discussed.

**P AD 5006-3. Ethics and Leadership.** Placed as they are in the public fishbowl and surrounded by a renewed interest in right and wrong, public administrators are constantly faced with ethical questions and dilemmas. This course looks both at age old ethical problems as well as issues facing administrators in the public setting today. It builds on the ethical framework of the founding fathers to consider issues relevant to the practice of public administration today.

**P AD 5007-3. Qualitative Research Methods.** This seminar focuses on qualitative research methods that

incorporate field work techniques such as observation, interviews and content analysis. The main objective is to discover practicalities and limitations of ethnographic methods with a comparative methodology perspective. Students are required to conduct a research project. Prer., P AD 5003.

**P AD 5110-3. Seminar in Nonprofit Management.** This course provides students with an overview of the principles and concepts that are unique to nonprofit management. Topics include funding diversity, human resource management, program planning and evaluation, marketing, volunteer management, and ethics. Students are also given an introduction to the history and the importance of the nonprofit sector.

**P AD 5120-3. Social Change and Public Policy.** The objective of this course is to examine the political dynamics of social movements and key techniques utilized in the struggle for social, political, and economic change. Students will have the opportunity to examine factors that shape social movements, such as leadership, institutions and strategies and familiarize themselves with the relationship of social movements to organizational actors, particularly nonprofit organizations. Possible topics for discussion include the Women's Movement, the Domestic Violence Movement, the Civil Rights Movement, the Disabilities Movement, and the Environmental Justice Movement.

**P AD 5130-3. Collaboration Across Sectors.** The blurring of the three economic sectors continues to increase as more organizations partner with each other and/or contract out for the delivery of services. This course focuses on collaboration and partnerships involving public, nonprofit, and for-profit organizations as they strive to achieve public goals. Particular variables in administration and regulatory policies for each sector and how they affect procurement, contracting, grants administration, and expectations of accountability, efficiency, and effectiveness will be examined.

**P AD 5140-3. Nonprofit Financial Management.** Financial management is one of the core competencies of effective nonprofit managers. Every nonprofit organization needs money to sustain or advance its mission. This course provides a grounding in financial management for the "non-accountant" by focusing on an array of knowledge and management skill areas necessary for allocating and controlling resources, and for analyzing, reporting and protecting the fiscal health

of the organization. Topics include key accounting principles, understanding and using financial statements, the budget development process, cash flow analysis, banking relationships, using the audit report, maximizing investment policy and strategy, and understanding the boundaries of tax exemption.

**P AD 5150-3. Understanding and Achieving Funding Diversity.** This class is designed to provide a comprehensive overview of the range of funding sources available to nonprofit organizations (e.g. foundation and governmental grants, individual and corporate donations, entrepreneurial sources of revenue, events, etc.), as well as detailed information on how to secure support of the various sources presented. Additionally, students are expected to gain both theoretical and practical knowledge relevant to fundraising and why it is important to diversify an organization's revenue streams.

**P AD 5160-3. Nonprofit Boards and Executive Leadership.** The important roles and responsibilities of a voluntary board of directors and the process of governing are often misunderstood. This course explores the special powers of a nonprofit board of directors as framed by and responsive to public policy. From the perspective of organizational behavior and theory, the course examines the leadership role and interplay between board members and the executive director. The examination includes a comparative analysis of different governing models and explores fundamental questions of board composition, the role of advisory boards, achieving effective board meetings, the realm of liability, using committees, and the board's role in fundraising, among other special subject matter.

**P AD 5170-3. Strategic Management for Nonprofit and Public Managers.** This survey course is designed to train public and nonprofit managers in the effective use of strategic management tools and techniques. Strategic management tools and skills, although traditionally used by business, should not be seen as the exclusive domain of the private sector. The course teaches students how to adapt traditional strategic management capabilities to the particular conditions of public and nonprofit organizations.

**P AD 5180-3. Social Entrepreneurship.** The utilization of for-profit and entrepreneurial skills within the nonprofit sector has become increasingly important as organizations strive toward greater efficiency, effectiveness, and accountability. This course is designed to

show how business and entrepreneurial skills can be crafted into innovative responses to social problems. Students will be exposed to entrepreneurial behaviors such as opportunity recognition, innovation, resource mobilization, and risk-reward-tradeoff in the course of building viable social enterprises.

**P AD 5220-3. Human Resources Management.** The technical knowledge and interpersonal skills involved in managing public and nonprofit sector personnel have become extremely complex and challenging. This course probes the underlying values and techniques associated with employee recruitment, selection, motivation, training, affirmative action, compensation, benefits, performance appraisal, and related topics.

**P AD 5260-3. Managing in a Multicultural Society.** Using a systems approach, diversity within organizations is examined through the construction and review of theories in private, public and nonprofit organizations. Existing modes of managing diversity are examined and analyzed.

**P AD 5262-3. Leadership Workshop.** This skill building workshop focuses on issues of effective leadership in the organizational setting and enables participants to examine their own leadership style(s) and how those styles influence others. Models of effective leadership are examined and applied to the specific work settings of those participating, with distinctions between leadership and management being developed.

**P AD 5265-3. Group Dynamics.** Explores small group processes and the theories that strive to explain them, with particular attention focused on workplace teams. The course provides an introduction to theories, studies, and empirical findings pertaining to groups and teams, with an emphasis on managerial and organizational implications and applications. Topics include stages of group development, team processes, conflict, power and influence in groups, decision-making, leadership, diversity, problem-solving, virtual teams, and the impact of organizational culture.

**P AD 5270-3. Management Development.** With a focus on the balance between one's personal and professional life, this course seeks to identify and apply principles out of which public managers can increase their effectiveness. Considering such issues as stress management, creative problem

solving, time management, cooperative work strategies, effective listening, decision-making, and mechanisms for increasing power, this course has a strong focus on enabling students to personally apply the concepts considered.

**P AD 5271-3. Managing Conflict and Change.** Explores the process of change in organizations, communities and society and the conflicts that arise within those organizations. Through the use of relevant case studies and role playing exercises, students are provided a practical framework for looking at change and managing conflict associated with change.

**P AD 5320-3. Public Policy Analysis.** Provides training in the systematic analysis of policy and program initiatives. The course also covers benefit cost analysis, cost-effectiveness analysis and present values. Prer., ECON 101 or P AD 5004.

**P AD 5350-3. Program Evaluation.** Program evaluation is an important part of improving the performance of public and nonprofit organizations. This course introduces models and theories of program evaluation including decision-making models, utilization-focused evaluation, theory-based approaches, participatory and empowerment evaluation, and others. Students will also gain skills in program evaluation and will plan an evaluation for an organization or agency. Emphasis is placed on exercises and simulations to build skills for conducting evaluations.

**P AD 5361-3. Advanced Seminar in Public Policy and Management.** Designed to assist students in synthesizing what they have learned in the program, applying their knowledge and skills to a particular problem of interest. Students conduct an independent project, enabling them to explore an issue in depth. This course is taken in the final semester of the student's program. Meets with C J 5361.

**P AD 5370-3. Media and Public Policy.** Explores the conventions and practices of the print and electronic media in the United States. Students will better understand the place of the media in society, the way the media look at themselves, and how journalists confront conflicting values in the performance of their roles.

**P AD 5380-3. Citizen Participation: Theory and Practice.** Tackles the issues of citizen participation and community involvement in theory and practice. Students will work in class on understanding the theoretical foundations

that are relevant to citizen participation. Students will also engage in significant out-of-class projects to ground them in the practice of public involvement.

**P AD 5410-3. Administrative Law.** This course examines the legal aspects of policy implementation, particularly the relationship between courts and administrative agencies. Students will cover standards of judicial review and agency action; administrative procedure and due process; selected special topics such as rights, liabilities, and immunities of public employees; and administrative discretion and scientific uncertainty.

**P AD 5440-3. Negotiation and Conflict Resolution.** Focuses on the concepts and skills necessary to negotiate policy and management decisions and manage internal conflicts. It is designed to help students understand the dynamics that affect negotiations and to apply the principles and strategies of negotiations in a variety of decision-making and dispute resolution contexts.

**P AD 5460-3. Political Advocacy.** This course is designed to address advocacy and lobbying issues for graduate students, in the general area of public policy issues and government problems. Special attention is given to how the advocacy process works in the public sector and policy making bodies and how lobbying techniques and processes can be understood. The general focus of the class is on practical applications at all levels of government with primary attention given to state and local government. It is anticipated that guest speakers will be invited to attend some of the classes and will have the opportunity to utilize their own academic and professional backgrounds and experiences.

**P AD 5502-3. Public Financial Management and Policy.** The use of financial resources is at the heart of governing; policy decisions are meaningful only when resources are provided to implement them. This course examines American public sector finance in relation to other nations; the national government and fiscal well-being; types of budgeting systems and their uses; creation of the national budget; structure of the local government budget; and selected topics such as debt and cash management, accounting for resource use, and forecasting financial condition.

**P AD 5540-3. Organization Development.** A study of the dynamics involved in managing and facilitating change in organizations by application of behavioral science knowledge. Emphasis is placed on both cognitive

and experiential learning. A background in organization theory and administrative behavior is recommended.

**P AD 5615-3. Health Policy.** Health is one of the more important policy issues facing America today. This course examines the nature of health policy and how it is impacted by politics, with a focus on the federal government's major programs for purchasing health care, Medicare and Medicaid, and their evolution over time. The course also reviews the impact of sociocultural context and federalism on program structure, the effects of managed care on the health care system and the state's role in providing health care. Attention is also given to health care issues in Colorado.

**P AD 5625-3. Local Government Management.** Relates the systems, processes, and principles of public management to the local government environment. Public management concepts such as strategic planning, bureaucracy, formal and informal organizational structures, human resource planning, management control, systems theory, and administrative behavior are explored within the context of local government.

**P AD 5626-3. Local Government Politics and Policy.** The perspective of politics and public policy making is essential to understanding local governance. This course focuses on local government political structures, policy analysis and formulation, political forces in administrative decision making, and relationships between professional administrations and elected officials.

**P AD 5710-3. Public Sector Technology.** Introduces participants to innovative and cutting-edge technology in the public sector. Emphasizes current information technology concepts, issues and practices, systems, self-service kiosks, groupware, simulations, imaging systems, data warehousing, and the Internet/World Wide Web.

**P AD 5950-3. Introduction to Homeland Defense.** This course provides an overview of homeland security, with an emphasis on homeland defense and U.S. Northern Command (USNORTHCOM), its mission, the other government organizations it interfaces with, and constraints on those relationships. Course participants will gain an understanding of homeland security and homeland defense from the perspectives of the primary national-level players: the Department of Defense, USNORTHCOM, and the Department of Homeland Security. Major topics that will be explored

in depth include the national strategy for homeland security, strategic and military force approaches to countering the terrorist threat, civilian and military roles, military-civil relationships based on Posse Comitatus, the National Guard, and USNORTHCOM and North American Aerospace Defense Command (NORAD) roles and missions. Experience and/or academic work in civil government or military-related areas preferred.

**P AD 5951-3. Interagency Relationships in Homeland Security and Homeland Defense.** An in-depth study of the relationships between and among the many agencies involved in homeland security and homeland defense ranging from Federal departments to individual state agencies to local first responders is provided in this course. Particular emphasis will be placed on understanding the roles, missions, capabilities, and significant issues of those agencies the U.S. Northern Command (USNORTHCOM) primarily interfaces with. Major topics will include the homeland security policymaking process, organization theory and public management dimensions for homeland security agencies, intergovernmental and interagency relationships, consequence and disaster management, legal issues, and information sharing. Prer., P AD 5950 or consent of instructor.

**P AD 6115-3. Grant Writing.** Designed to provide students with the knowledge and skills to perform one of the most critical functions for any public or nonprofit sector agency today: gaining funds through proposals. Students learn how to find a funding source among various public and private sources and how to plan and write a proposal.

**P AD 6600-3. Special Topics in Public Administration.** Courses with this number cover a variety of special topics relevant to public or nonprofit administration. Course may be taken for credit more than once, provided subject matter is not repeated.

**P AD 6910-3. Field Study in Public Administration.** For students who have not had substantial professional experience in public or nonprofit organizations. Prer., Completion of the core courses and relevant electives.

**P AD 6950-3 to 6. Master's Thesis.** The master's thesis is available in lieu of P AD 5361 for MPA students who have achieved an exceptional academic record and who wish to pursue in-depth independent research of a theoretical nature. The thesis may be undertaken in lieu of up to 6 credits of elective coursework by

students who meet eligibility requirements outlined in the MPA thesis option guidelines.

**P AD 9500-1 to 3. Independent Study.** Independent study in public administration. Prer., Consent of Instructor.

## **COLLEGE OF LETTERS, ARTS AND SCIENCES**

### **ART HISTORY**

**A H 100-3. Languages of Art.** An introduction to art making, art history, and the contemporary art world. Course reading, writing assignments, and field trips equip students with the tools they need to think critically, write effectively, and build confidence in discussing art outside the classroom. Course is a prerequisite for all lower and upper division art history or studio art courses.

**A H 200-3. Survey: Special Topics.** elected topics focused on various historic periods of art history from throughout the world's cultures. May be repeated for credit if the topic is different.

**A H 250-3. Art Matters: Reading, Writing and Research in Art History.** An introduction to the practices of critical reading, thesis driven writing, and scholarly research methods in art history. The course is required for art history majors in their sophomore year.

**A H 280-3. Survey: Ancient Art.** A survey of sculpture, painting, and architecture from the Paleolithic through the Roman periods. The Arts of Mesopotamia, of Egypt, Anatolia, Greece, and Rome will be given primary consideration.

**A H 281-3. Survey: Medieval Art.** A survey of the arts of early Christian, Byzantine, early Medieval, Romanesque, and Gothic periods.

**A H 282-3. Survey: Renaissance, Baroque, and Rococo Art.** A survey of the paintings, sculpture, and architecture of Proto-Renaissance Italy through the European Rococo periods, roughly 1300 through 1750.

**A H 285-3. Survey: American Art.** This course addresses the material culture of what now is the continental United States. Material culture in this context emphasizes painting, sculpture and architecture, but comprises as well the decorative arts.

**A H 286-3. Survey: Modern Art I.** An introduction to major movements in art



and architecture of the Western world from the late 19th and 20th centuries, beginning with Post-Impressionism and ending with Abstract Expressionism.

**A H 287-3. Survey: Modern Art II.** An introduction to major movements in art and architecture of the western world from the mid twentieth century to the present, beginning with pop art and ending with a survey of contemporary trends.

**A H 289-3. Survey: Nineteenth Century Art.** A survey of Western art from the late eighteenth century to the mid-nineteenth century, beginning with the rejection of the rococo and ending with the realist style.

**A H 300-3. Topics in Art History.** Emphasizes study of a more specific area than that covered in regular art history course offerings. For further information see individual course listing for each semester.

**A H 301-3. History of Photography.** The history of photography from its infancy to the present. The development of the photograph as art will be traced from the early 19th-century pioneers through the contemporary masters.

**A H 324-3. The Art of Greece and Rome.** A consideration of the culture of ancient Greece and Rome as expressed by architecture, painting, and sculpture from around 800 B.C. to 400 A.D.

**A H 325-3. Women, Visual Arts, and Culture I.** A survey of the lives and contributions of women artists, from Ren. to c. 1900. The primary objectives are to introduce issues of gender in the production of visual culture and familiarize the student with the critical literature of art history. Prer., A H 100 or permission of instructor. Meets with WMST 324.

**A H 326-3. Women, Visual Arts, and Culture II.** Introduction to feminist theory and women's artistic production from 1970 to the present. Focuses on how women's art attempts to resist normative ideals of femininity, subvert aesthetic hierarchies, and illuminates the intersections of race, gender, and sexual orientation. Prer., A H 200 or permission of instructor. Meets with WMST 326.

**A H 328-3. Introduction to Feminist Film, Video and Digital Media.** A survey of major themes in feminist independent film, video and web-based projects produced since the mid-1970s. Meets with WMST 328.

**A H 333-3. Film, Video and the Avant-Garde.** An examination of the relationship between avant-garde film and video, and the history of modern and contemporary

art. The course will include the film and video works of artists such as Man Ray, Maya Deren, Andy Warhol, and Issac Julien. Meets with FILM 333.

**A H 343-3. African-American Art.** Introduction to contemporary (1970-) African-American art forms with inclusion of traditional African art's influence on American Black culture. Meets with EST 343.

**A H 379-3. Romanesque and Gothic Art.** A consideration of Romanesque and Gothic culture as manifest in the sculpture, painting, and architecture of Europe from around 1030-1350.

**A H 384-3. Baroque Art.** The 17th century throughout Europe with primary attention to Caravaggio, Rubens, Bernini, Poussin, Velasquez, and Rembrandt.

**A H 385-3. Topics in American Art.** Selected topics in the art of America from colonial period to the present, including folk art, craft, modern art, post-modern architecture, monuments, popular art and culture, etc. Prer., A H 100 or A H 200 level survey.

**A H 386-3. Contemporary Art.** An in-depth, thematic study of art of the late 1980s to the present that emphasizes the analysis of the art of our time in relation to a variety of critical texts. Prer., A H 100 or 200-level A H survey.

**A H 400-3. Seminar: The Practice of Art History.** Seminar experience in art history methodology. Required of all graduating majors. Open to students with 15 hours of upper-division coursework in art history.

**A H 403-1 to 3. Internship in Art History.** Supervised opportunities for advanced art history students to apply their knowledge and obtain experience in a variety of professional arenas. Pass/Fail only. Prer., Permission of advisor.

**A H 434-3. Arts of Indigenous Cultures.** An in-depth investigation of the art forms and related social customs of cultures native to the Americas, Australia, and Africa.

**A H 456-3. Perspectives on Art.** An examination of selected literature in art history, criticism, and aesthetics not usually covered in standard course offerings.

**A H 481-3. Art of the Italian Renaissance I.** A study of major trends in the development of painting, sculpture, and architecture as they reflect the culture of Renaissance Italy from around 1300-1500. Prer., A H 282 or equivalent.

**A H 482-3. Art of the Italian Renaissance II.** The late Renaissance and mannerism. The art of 16th-century Italy; special emphasis upon Michelangelo, Titian and Venice, both Florentine and Roman Mannerists, with some attention to Caravaggio. Prer., A H 282 or equivalent.

**A H 483-3. Northern Renaissance Art.** History of painting in northern Europe from the late 14th through the 16th century with primary emphasis on the art of the low countries. Prer., A H 282 or equivalent.

**A H 489-3. Nineteenth Century Art I.** History of the neoclassic and Romantic movements in European art with special reference to the Painting of David, Goya, Ingres, Gericault, and Delacroix, as well as consideration of architecture and sculpture from 1780 to 1850.

**A H 490-3. Nineteenth Century Art II.** A study of the developments of Realism, Impressionism, Post-Impressionism, and Symbolism in France and England from 1850 to 1905.

**A H 491-3. Modern Art: 1900-1945.** An in-depth, thematic study of the history of the avante-garde between 1890 and 1945 that emphasizes the analysis of art of this period in relation to a variety of critical texts.

**A H 492-3. Art since 1945.** An in-depth, thematic study of Modernism and Post-Modernism in the visual arts that emphasizes the analysis of art and architecture of this period in relation to a variety of critical texts. Prer., A H 200 level survey.

**A H 493-3. Contemporary Art Theory.** Considers theoretical writings about art and culture by major figures in the field of critical theory with an emphasis on making connections between critical theory and the practice of contemporary artists. Prer., A H 287 or A H 386 or by permission of the instructor.

**A H 940-1 to 4. Independent Study in Art History.** Independent Study in Art History on the undergraduate level with any full-time professor by arrangement.

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## ANTHROPOLOGY

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**ANTH 103-3. Introduction to Human Origins.** Evolution of humanity and its cultures from their beginnings through the early metal ages. Covers human evolution, race, prehistory, and the rise of early civilization.

**ANTH 104-3. Introduction to Cultural Anthropology.** Introduction to the

major aspects of culture, such as social organization, law, religion, and language. Juniors and seniors should begin their study of cultural anthropology with ANTH 240.

**ANTH 132-3. Evolution/Creationism Conflict.** Course will determine the realms in which conflict exists between evolution and creationism (as explanations for the origin and development of life on earth). Scientific evidence supporting the explanations will be stressed. Special emphasis will be placed on evidence for/against human evolution.

**ANTH 220-4. Survey of Prehistory.** The basic concepts and techniques of archaeology and a survey of the major developments in world prehistory.

**ANTH 230-4. Survey of Biological Anthropology.** Basic concepts in the study of human evolution, human physical variation, and social behavior of nonhuman primates.

**ANTH 240-3. Survey of Cultural Anthropology.** Basic concepts in the study of cultures. Prer., ANTH 104 or sophomore status.

**ANTH 241-3. Cultural Diversity in the United States.** Examines prejudice and discrimination in the United States from a variety of anthropological perspectives. It addresses such topics as racism, sexism, homophobia and religious intolerance.

**ANTH 280-3. The Nature of Language.** Introduction to the anthropological study of language. Prer., ANTH 104 or sophomore standing.

**ANTH 300-3. Quantitative Methods in Anthropology.** A survey of quantitative methods emphasizing the nature of hypothesis testing. Attention is given to special problems of bioanthropological, archaeological, and ethnographic data. Prer., 9 Completed hours in anthropology or consent of instructor.

**ANTH 301-3. Sacred Spaces of the World.** An examination of the world's religious structures; i.e. Jewish, Christian, Islamic, Hindu, Buddhist, Meso-American and Animist Traditions, along with an examination of religious traditions.

**ANTH 304-3. Women Around The World.** Provides a global, cross-cultural perspective on women, using an anthropological framework to examine women's status, issues, and general cultural experience in the context of gender systems of different types of societies. Prer., ANTH 104, ANTH 240 or

WMST 200, or permission of instructor. Meets with WMST 304.

**ANTH 307-3. Darwinism.** A critical examination of Charles Darwin's Origin of Species and The Descent of Man and their contemporary critics, considered in historical perspective. Prer., Sophomore standing.

**ANTH 309-3. God, Darwin, and Morality.** Explores the moral implications of Darwin's Theory of Evolution by natural selection. Offered only through Extended Studies.

**ANTH 315-3. Anthropology of Art and Expressive Culture.** This course introduces students to the anthropological study of art, aesthetics and expressive culture by considering several cross-cultural examples. Students will examine how aesthetics express and inform about the cultures in which they are found. Prer., ANTH 103 or ANTH 104 or A H 100.

**ANTH 317-6. Field Practicum in Prehistoric Archaeology.** A practicum course wherein students will work as part of a professional prehistoric archaeological project in a setting that is also conducive to learning. While working on a prehistoric site, they will gain experience in basic archaeological field techniques such as mapping, excavating, recording, and artifact storage. Prer., ANTH 220.

**ANTH 318-3. Archaeology and Public Policy.** Explores the role of government and public opinion in the development and enforcement of cultural resource legislation. Students will have hands-on exposure to documenting and evaluating resource significance and will explore issues of cultural patrimony and tribal rights.

**ANTH 319-6. Field Practicum in Historical Archaeology.** A practicum course wherein students will work as part of a professional archaeological project in a setting that is also conducive to learning. While working on a historic period site, they will gain experience in primary document analysis and basic archaeological field techniques. Prer., ANTH 220.

**ANTH 320-5. Field Techniques in Archaeology.** While working on a local prehistoric site, students will learn basic archaeological field techniques such as stratigraphy, mapping, excavating, recording, and artifact storage. Students will play an active role in planning the field project and, if necessary, in adjusting techniques to the problems presented by the site. Prer., ANTH 220.

**ANTH 321-3. Lab Techniques in Archaeology.** Provides hands-on experience cataloging and analyzing materials from archaeological sites. Topics will include analysis, computer applications, materials conservation, and artifact illustration, and also the methodological decision-making that affects how we describe, analyze, and interpret data. Prer., ANTH 220 or consent of instructor.

**ANTH 322-3. Prehistory of North America.** The prehistory of North America, emphasizing the peopling of the new world, earliest American cultures, and later regional developments. Prer., Either ANTH 103, ANTH 104, ANTH 220 or consent of instructor.

**ANTH 323-3. High Civilizations of the Americas.** Prehistoric, protohistoric, and historic cultural analysis of the Aztecs, the Mayans, and the Incas. Includes discussion of their archaeological developments, cultural attainments, and influence on other peoples. Prer., ANTH 103 or consent of instructor.

**ANTH 324-3. Paleolithic Archaeology.** The cultural evidence for human development from the earliest stone tool assemblages of the Plio- Pleistocene to the Mesolithic and Archaic cultures of the old and new worlds. Prer., ANTH 220 or consent of instructor.

**ANTH 325-3. The Prehistory and History of Native American Cultures of the Southwest.** The prehistory and ethnography of the Indian cultures of the Southwest. Meets with EST 325.

**ANTH 326-3. Agricultural Origins and the Emergence of Urban Society.** The evidence for the origins of agricultural economies and the emergence of complex social and political institutions in both the old and new worlds. Prer., ANTH 220 or ANTH 103 and consent of instructor.

**ANTH 327-3. Historical Archaeology.** History and practice of the sub-discipline of historical archaeology. Covers archaeological method and theory, some of which is unique to this subfield. Students will explore diverse perspectives brought to historical archaeology by its practitioners, and critically examine individual case studies. This is an area requirement (Soc Sci) course and fulfills the cultural diversity requirement. Prer., ANTH 220 or consent of instructor.

**ANTH 328-3. Archaeological Approaches to Gender and Sexuality.** Course covers archaeological approaches to studying gender and sexuality in past societies. Students will discuss the theoretical and methodological implications of these archaeological approaches and

analyze various case studies, spanning periods from the Paleolithic to the recent past. Prer., ANTH 220 or permission of instructor.

**ANTH 329-3. Prehistoric and Historical Archaeology of Colorado.** The ecological and geographical diversity of the State of Colorado has made it a rich source of archaeological research on the pre- and post-contact past. This course covers the ways that archaeologists have used material culture and landscape to study cultural change in the Centennial State. Prer., ANTH 103 or ANTH 220.

**ANTH 332-3. Primatology.** Behavior, ecology, and evolution of nonhuman primates. Emphasis on field studies, and on evolutionary explanations of social groups, mating systems, and behavior toward kin. Prer., ANTH 103 or ANTH 230 or consent of instructor.

**ANTH 334-3. Human Evolution.** A detailed examination of the fossil evidence for human evolution, emphasizing functional analysis of human structure and the process of natural selection. Prer., ANTH 230 or 103 or consent of instructor.

**ANTH 337-3. Human Biology and Ecology.** The study of variation and adaptations of human populations in an ecological framework. Includes interactions between cultural and biological factors in health and in reproduction, and anthropological aspects of demography. Prer., ANTH 103 or ANTH 230 or consent of instructor.

**ANTH 341-3. Ecological Anthropology.** Examines the relationship between culture and the natural environment in varied settings around the world. It focuses on the role of cultural anthropology in averting ecological disasters and creating methods of sustainable natural resource management. Prer. ANTH 104 or ANTH 240.

**ANTH 342-3. North American Indians.** A survey of the native cultures of America north of Mexico. Examines major institutions by culture area and type of social organization. Prer., ANTH 240 or 104 or consent of instructor. Meets with EST 342.

**ANTH 345-3. Social Organization.** Analysis of social organization among native peoples with an emphasis on kinship forms and functions. Prer., ANTH 104 or ANTH 240.

**ANTH 348-3. Psychological Anthropology.** Surveys the field of psychological anthropology and examines cross-cultural studies of personality development, mental health issues, and forms of ethnotherapy or native healing methods. The course covers methods in

the study of behavior and personality in a cross-cultural perspective. Prer., ANTH 104 or PSY 100 or instructor consent.

**ANTH 349-3. Culture Theory.** Analysis of significant theories of culture. Prer., ANTH 104 or ANTH 240 or consent of instructor.

**ANTH 351-3. The Ethnology of Death.** A cross-cultural consideration of a universal human experience. Prer., ANTH 104 or ANTH 240.

**ANTH 381-3. Language, Culture, and Society.** An examination of the social and cultural functions of language, emphasizing the use of linguistic methods and theories in anthropology and sociology. Prer., Sophomore standing. ANTH 280 or permission of instructor.

**ANTH 397-3. History of Anthropology.** History of the growth of anthropology from the earliest times, various schools of thought, outstanding contributors and their work, to the mid-20th century. Prer., ANTH 104 or ANTH 240 or consent of instructor.

**ANTH 409-3. Classics of Anthropological Literature.** Analysis of classical literature in the history of anthropology. Prer., ANTH 240, ANTH 349, or ANTH 407 or consent of instructor.

**ANTH 420-1 to 3. Advanced Topics in Archaeology.** Intensive study of selected topics in archaeology and prehistory. Prer., ANTH 320.

**ANTH 429-3. Archaeological Method and Theory.** A seminar designed for students who already have some archaeology coursework, and are interested in the history and development of the discipline as well as more recent methodological and theoretical debates. Prer., ANTH 103 or ANTH 220.

**ANTH 430-3. Advanced Topics in Physical Anthropology.** Intensive study of selected issues in human evolution, human biology, and primate behavior and ecology. In different years deals with different topic areas. Prer., ANTH 104 or ANTH 240 or ANTH 280.

**ANTH 440-3. Advanced Topics in Cultural Anthropology.** Intensive study of selected topics in cultural anthropology. In different years deals with different topic areas. Prer., Consent of instructor.

**ANTH 471-1 to 6. Internship in Anthropology.** A program of study and learning outside the classroom. Practical exposure to field of interest is intended to provide appropriate experience related to a student's career orientation. Students must have departmental permission. Anthropology majors only. Prerequisites vary depending on area of specialization.

**ANTH 480-3. Advanced Topics in Anthropological Linguistics.** Intensive study of selected topics in anthropological linguistics. In different years deals with different topic areas. Prer., Consent of instructor.

**ANTH 498-3. Senior Seminar in Anthropology.** A one semester special topics course designed to provide a synthesizing cap to the student's undergraduate program in anthropology. Topics vary by semester. Prer., Senior status.

**ANTH 499-3. Senior Thesis.** A one semester research project. The student will write a formal research paper drawing in primary sources and pertinent secondary material. The student will work under the direction of a full time member of the department and will have a second member as an additional reader.

**ANTH 700-1 to 6. Masters Thesis.**

**ANTH 940-1 to 3. Independent Study in Anthropology.** Hours and credits to be arranged. Consent of instructor is required.

**ANTH 950-1 to 4. Independent Study in Anthropology.** Prer., Consent of instructor.

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## AMERICAN SIGN LANGUAGE

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**ASL 101-4. American Sign Language I.** Basics of American Sign Language with applied usage of signs and finger spelling. Introduction to oral methodology.

**ASL 102-4. American Sign Language II.** American Sign Language with continued applied usage of finger spelling. Additional oral methodology. Prer., ASL 101 or equivalent.

**ASL 211-3. American Sign Language Intermediate I.** American Sign Language at the intermediate level with additional study of the culture on the hearing impaired. Prer., ASL 102 or equivalent.

**ASL 359-3. Deaf Culture.** Examines the culture of deaf people. The course will explore the customs, values, norms and heritage of the deaf community in America. Prer., ASL 101 and ASL 102. Meets with F CS 359.

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## BIBLIOGRAPHY

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**BIBL 101-3. Introduction to Library Research.** Introduction to the use of library services and research materials. Emphasis on the individual research needs. Designed for the undergraduate student in any discipline.

## **BIOLOGY**

**BIOL 100-3. Biology in the Modern World.** Designed for the nonmajor. The introductory principles of biology stressing the relationships between man and the environment. Concepts include heredity, evolution, genetics, nutrition, physiology, and ecology. Satisfies the LAS natural science requirement. To be taken with 106-1 to satisfy the LAS laboratory requirement. May not count as credit for the major. Fall, Spring.

**BIOL 105-3. Personal Nutrition.** Designed for the nonmajor. A course presenting basic information about factors influencing human nutritional requirements and food sources to meet them. Emphasis is on application of biological principles in the students' own diets and lives. The course will include how to evaluate one's own nutritional needs and the adequacy of personal diet. Satisfies the LAS natural science requirement. Spring. Meets with HSCI 106.

**BIOL 106-1. Introductory Biology Laboratory.** May be taken in conjunction with BIOL 100 to satisfy the LAS science requirement and lab requirement.

**BIOL 110-3. General Biology I: Introduction to Cell Biology.** Designed to integrate the more important facts and principles throughout living systems from molecular to organismic levels of organization. Broad areas of coverage include molecular and cellular biology. Prer., High school chemistry or concurrent registration in CHEM 101 or CHEM 103.

**BIOL 111-1. General Biology I Laboratory: Introduction to Cell Biology Laboratory.** To be taken in conjunction with BIOL 110. A series of experiments designed primarily to illustrate basic concepts of cellular biology and provide hands-on laboratory experience. Fall.

**BIOL 113-4. Plant Biology.** Structural and functional characteristics of plants. Stresses adaptations that plants have made in transition from aquatic to terrestrial environments. Lab is integral part of course and allows students to examine these organisms and relationships. Prer., BIOL 110 and BIOL 111.

**BIOL 114-3. Introduction to Health and Exercise Science.** Designed for the nonmajor. Introduction to energy systems in exercise, cardiorespiratory functions, nutrition, body composition, environmental considerations and training during exercise and work.

**BIOL 115-3. General Biology II: Organismic Biology.** A continuation of BIOL 110 emphasizing diversity in living systems. The theme of structure and

function is emphasized with consideration given to the principles of embryology, ecology, behavior, genetics and evolution. Also emphasizing the structure, function and diversity of the plant world, including cyanobacteria, fungi, and lower and higher plants. Spring. Prer. BIOL 110 and BIOL 111 or equivalent.

**BIOL 116-1. General Biology II Laboratory.** To be taken in conjunction with BIOL 115. Labs illustrate the basic concepts of plant and animal organisms. Spring.

**BIOL 151-3. Environmental Science.** Introduction to atomic molecular structure and to biological structure and function. Environmental contaminants in air and their reactions, water quality and its analysis, wastewater treatment, the ecology of natural systems and genetic adaptation. Counts towards fulfillment of the LAS natural science area requirement. Meets with CHEM 151.

**BIOL 153-1. Environmental Science Laboratory.** With BIOL 151, satisfies the LAS science requirement and lab requirement. Fall, Spring. Meets with CHEM 153.

**BIOL 201-4. Human Anatomy and Physiology.** Part 1. Lect. and lab. A comprehensive study of the structure and function of the human body. Covers basic anatomical terminology, cells, tissues, and the following systems: integumentary, skeletal, muscle, and nervous. Fall.

**BIOL 202-4. Human Anatomy and Physiology.** Part 2. Lect. and lab. A comprehensive study of the sense organs, endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems. Spring. Prer., BIOL 201.

**BIOL 203-4. Microbiology.** Lect. and lab. Presentation of the basic aspects of microbiology within a broad biological perspective. Subject matter will include microbiological concepts and methodology; a survey of the distinguishing properties of microorganisms based on structural-functional relationships: introduction to growth, metabolism, genetics, and ecology. Fall. Prer., BIOL 110, BIOL 111, BIOL 115 and BIOL 116, CHEM 103 and CHEM 106 or BIOL 201, BIOL 202, CHEM 101 and CHEM 102.

**BIOL 204-3. Biomedical Aspects of Aging.** A comprehensive study of the normal and pathological aspects of the aging process in human beings. The course treats cellular through organ system function, examining causes and changes related to aging. Immunity, nutrition and biopsychological factors are studied. The course also examines the

concept of wellness as it applies to aging. Meets with GRNT 204 and HSCI 280.

**BIOL 205-3. Nutrition for Health Sciences.** An introductory level course for students preparing for health science careers. Emphasis will be on the variety of biological and environmental factors which influence nutritional needs and nutritional status. The role of nutrients in energy metabolism and physiology will also be covered. The course will also focus on the educational role of the health service provider. Each student will do a detailed analysis of his own diet. Fall. Prer., BIOL 110 and BIOL 111 or CHEM 101 and CHEM 102.

**BIOL 206-3. Biology for Computer Scientists.** Introductory treatment of molecular and cellular biology. Topics include: cell structure, gene regulation, genetics, genetic engineering, cellular communication, molecular evolution. Some topics relevant to computer science will be addressed. Prer., MATH 104.

**BIOL 300-3. Research Methods in Biology.** An introduction to the principles, concepts, and processes involved in scientific research. Emphasis is on critical thinking approaches to evaluating scientific works, statistical methods for analyzing biological data, and research project design and reporting. Prer., MATH 135.

**BIOL 302-3. Cell Biology.** Life processes with emphasis on relationships of structure and function at organelle and molecular level. Physical and chemical properties of protoplasm, enzyme action; cellular respiration, cell growth, and division. Fall. Spring. Prer., BIOL 110, BIOL 111, BIOL 115, BIOL 116, CHEM 103, CHEM 106 or BIOL 201, BIOL 202, CHEM 101, and CHEM 102.

**BIOL 310-3. Microbiology: Bacteriology/Mycology.** Bacteriology/Mycology is an upper division, advanced study of the metabolism, physiology, and genetics of bacteria, yeast and fungus. Prer., BIOL 110 and CHEM 103. Co-req., BIOL 311.

**BIOL 311-1. Bacteriology/Mycology Lab.** Laboratory course to accompany BIOL 310. Prer., BIOL 310 concurrently or preceding.

**BIOL 313-3. Plants of Colorado.** An introduction to the identification of plants and the study of vegetation of Colorado. Emphasis will be on the vascular flora. Lecture, lab and field trips. Summer.

**BIOL 314-3. Microbiology: Virology.** Virology is an upper division course covering the topic of biology of viruses. Prer., BIOL 110 and CHEM 103. Meets with BIOL 514.

**BIOL 315-1. Virology Lab.** Research oriented - microbiology lab course. Prer., BIOL 310 and BIOL 314.

**BIOL 321-4. Human Physiology.** Focuses on the study of homeostatic control and how the nervous, endocrine, muscular, circulatory, respiratory, excretory, digestive and reproductive systems function in the human body. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116.

**BIOL 322-3. Animal Physiology.** An examination of how invertebrates and vertebrates have met the problems of survival through physiological adaptations.

**BIOL 330-3. Exercise Physiology.** A comprehensive, introductory course describing the effect of exercise on normal, physiological function. The course will describe the long-term benefits of exercise training, training adaptations and control mechanisms for these adaptations. Fall.

**BIOL 333-2. Alternative Therapies in Nutrition.** A review of the use and implications of alternative nutritional therapies. Provides a basis of understanding nutritional and herbal therapies. Winterim. Prer., BIOL 110 and BIOL 115.

**BIOL 345-4. Anatomy and Exercise Science: Fundamentals and Applications to Golf.** Course integrates musculoskeletal anatomy and scientific principles of relevant sport science disciplines (biomechanics, physiology, nutrition, psychology and technology), in a lecture/lab setting, to provide PGM and Exercise Science students a comprehensive understanding of exercise science applications to golf. Meets with BIOL 545.

**BIOL 360-4. Histology.** A comprehensive study of basic tissue type stressing the structural and functional interrelations of these tissues within organs. Treatment of cellular ultrastructure and development as it relates to tissues. Emphasis on vertebrates, including human beings. Spring (even years). Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Open to junior, senior, or graduate students.

**BIOL 361-4. Vertebrate Embryology/Developmental Anatomy.** Lect. and lab. Embryonic development stressing vertebrate animals from fertilized egg through organ systems, with introduction to experimental analysis.

**BIOL 370-3. General Ecology.** A survey of environmental relationships of plants and animals. Topics include speciation, abiotic, and biotic limiting factors, population, community and ecosystem dynamics, and terrestrial and aquatic

biomes. Spring (even years).

**BIOL 375-4. Conservation Biology.** The major focus is the application of biological and ecological principles to preserve biodiversity. Ultimate sources and current worldwide losses of biological diversity are emphasized. Because conservation biology demands multidisciplinary approaches, historical, legal, economic, and ethical issues are also included. Prer., BIOL 115, BIOL 370 recommended. Consent of instructor required. Meets with GES 375 and BIOL 570.

**BIOL 383-3. Genetics.** Classical and molecular genetic principles. Topics discussed include gene structure, function, and regulation; replication and recombination; DNA technology; and evolutionary and population genetics. Spring. Prer., BIOL 302.

**BIOL 384-2. Genetics Laboratory.** Laboratory course designed to illustrate concepts of Genetics as described in lecture (BIOL383). Spring. Prer., BIOL 383 genetics or concurrent enrollment. Meets with BIOL 544.

**BIOL 391-3. Immunology.** A basic study of immunity which treats the biochemical, physiological, and genetic aspects of the immune response, particularly in humans. Fall.

**BIOL 400-1 to 4. Current Topics in Biology.** Specialized topics and current issues are considered. Subject matter will change depending upon individual instructors. The topic in any given semester will be specified in the semester class schedule. May be repeated for credit more than one semester. Spring. Meets with BIOL 500.

**BIOL 401-1. Seminar in Biology.** Review and discussion of pertinent research subjects. Students will present seminars. Fall. Prer., Senior or graduate standing.

**BIOL 403-3. Health and Fitness.** A review of exercise prescription and health evaluation techniques including a special section on nutrition. Prer., BIOL 201 and BIOL 202.

**BIOL 404-3. Computer Skills for Biologists.** The goal of this course is to train biologists to use and understand some of the methods currently employed by computational (molecular) biologists. Additionally, students will be taught how to solve biological problems with the PERL programming language. Prer., BIOL 110 and BIOL 115. Meets with BIOL 504.

**BIOL 405-3. Technology Transfer and Biotechnology.** The purpose of this course is to inform students about the process of Technology Transfer, from academic discovery and invention, to

commercialization of a product. Prer., permission of instructor. Meets with BIOL 505.

**BIOL 409-3. Methods in Immunology.** Introduces students to a variety of current techniques in Immunology, including cell culture, flow cytometry, protein chemistry and Western blot, and DNA technology (PCR). Includes required safety and animal training. Prer., BIOL 110 and BIOL 302. Meets with BIOL 509.

**BIOL 415-4. Field Botany.** Topics include plant life cycles, systematics, life zones, and the use of field guides for identifying cyanobacteria, protists, bryophytes, seedless vascular plants, vascular plants, gymnosperms and angiosperms in Colorado foothills, Montane, subalpine and alpine life zones. Includes lecture and field study. Prer., BIOL 115, BIOL 116. Meets with BIOL 515.

**BIOL 420-4. Economic Botany.** An organismic biology course exploring botanic products used by people. Emphasis will be on plants that provide food, fiber, traditional medicines, herbal medicines, psychoactive drugs, poisons, and alcoholic beverages. Prer., BIOL 115 and BIOL 116.

**BIOL 423-3. Injury Prevention and Treatment.** A survey of typical sports-related injuries, their causes, treatment, rehabilitation and prevention. Prer., BIOL 201 and BIOL 202, or consent of instructor.

**BIOL 425-3. Evolution.** A comprehensive analysis of the evolutionary history of microbes, plants, and animals including studying the driving forces in the development of molecular pathways, organismic morphology and function. Spring (odd years).

**BIOL 426-4. Biogeography.** An analysis of plant and animal distributions on a world scale from ecological and historical perspectives. Human impact on vegetation and animals is emphasized. Prer., GES 100 or consent of instructor. Meets with BIOL 526, GES 426 and GES 526.

**BIOL 428-4. Mammalogy.** Lecture, lab, and field studies. Origin, evolution and adaptation, geographic distribution, ecology, and taxonomy of mammals. Fall. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Meets with BIOL 528.

**BIOL 429-4. Plant Communities of Colorado.** An examination of plant assemblages in Colorado. Major plant communities will be examined in the context of environmental factors such as climate and landforms. Required field trip. Prer., GES 426 or consent of instructor. Meets with GES 429 and GES 529.

**BIOL 430-3. Advanced Nutrition.** A comprehensive study of the energy providing nutrients and how they are metabolized within the human body. This course will provide students with a firm basis of the biochemistry of proteins, fats and carbohydrates. Fall. Prer., BIOL 302.

**BIOL 431-3. Advanced Immunology.** An advanced course in immunology to follow a junior- senior level introductory immunology course. Prer., BIOL 391.

**BIOL 435-4. Advanced Functional Human Anatomy.** A functional approach to human anatomy, focusing on (a) musculoskeletal structures; how they are arranged and interact to achieve performance, adapt, sustain trauma, and repair, and (b) a structural and functional analysis of the cardiovascular, respiratory, digestive, endocrine and reproductive systems. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Meets with BIOL 535.

**BIOL 440-4. Plant Physiology.** Lect. and lab. A comprehensive study of plant physiology, emphasizing molecular and cellular aspects of physiology. Laboratory topics will include photosynthesis, water relations, growth regulators, tissue culture and cell transformation.

**BIOL 443-4. Animal Ecology.** Problems concerned with the distribution of animals and their relations to each other and to their environment are considered. Local ecosystems are visited and sampled with special attention to sampling the animal communities. Summer. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Meets with BIOL 543.

**BIOL 444-2. Winter Ecology.** An organismic/environmental course exploring the options available to organisms for surviving winter. Includes evolutionary, behavioral, and physiological adaptations involved in migration, hibernation, and temperate environments. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116.

**BIOL 455-3. Biomechanics/Kinesiology.** An introduction to the mechanics of human movement. Includes the application of kinematics, kinetics, hydrodynamics, kinesiology and analytical techniques to human movement. Periodic trips to the International Center for Aquatic Research for analytical methods. Spring. Prer., BIOL 201 and BIOL 202.

**BIOL 460-3. Biomechanics of Musculoskeletal Injury.** A comprehensive survey of the biomechanics of musculoskeletal injury. The course explores the various bases of musculoskeletal injury to understand causal mechanisms, effects of injury on tissues, and how biomedical sciences

contribute to injury management and prevention. Prer., BIOL 201(Anatomy) or equivalent. Meets with BIOL 560.

**BIOL 471-1 to 12. Externship in Biology.** A program of study and learning outside the classroom. Practical exposure to field of interest is intended to provide appropriate experience to a student's career orientation. A variety of opportunities exists, and students may explore their own avenues as well. Some externships are in open competition. Students must have departmental permission and completed permission form to register. It is strongly suggested that students interested in this program plan their participation one semester before they plan to enroll. (Note: Externship is to be performed off campus at an institution performing biologically-oriented work, e.g., medical clinics and research laboratories.) Fall, Spring.

**BIOL 472-1 to 12. Externship in Biology.** Exercise Science. Fall, Spring.

**BIOL 473-1 to 12. Externship in Biology.** Biochemistry. Fall, Spring.

**BIOL 474-1 to 12. Externship in Biology.** Biotechnology. Fall, Spring.

**BIOL 477-3. Human Metabolism.** An advanced course in exercise physiology/biochemistry. Topics will involve extensive review of the scientific literature. These topics involve a review of current trends in sport science and are designed to give the student a practical application and interpretation of the sports sciences. Spring. Prer., BIOL 330.

**BIOL 478-2. DNA Technology for Teachers.** Introduction to elements of DNA technology and genetic engineering. Practical applications to biotechnology. Discussion of safety and ethical issues. Prer., One year of CHEM or BIOL.

**BIOL 479-3. Basic Laboratory Methods in Sports Physiology.** A course designed to teach students how to test and evaluate acute and chronic responses and adaptations to exercise. The course is intended to make students proficient in laboratory techniques for assessing human performance primarily from a metabolic standpoint. Fall. Prer., Consent of instructor.

**BIOL 480-3. Analytical Methods in Sports Physiology.** A laboratory course designed to teach students techniques used in exercise biochemistry, exercise testing and evaluation of human performance. This course is an extension of Basic Laboratory Methods in Sports Physiology with emphasis in exercise biochemistry. Spring. Prer., Consent of instructor.

**BIOL 481-3. General Biochemistry.** Topics include structure, conformation and, structure and functions of properties of proteins; enzymes; mechanisms and kinetics; intermediary metabolism; carbohydrates, lipids; and amino acids; energetics and metabolic control; and photosynthesis. Fall. Prer., BIOL 302 and CHEM 332. Meets with BIOL 581, CHEM 481, and CHEM 581.

**BIOL 482-4. General Biochemistry.** Continuation of BIOL 481/581. Topics include control of metabolic flux through transcriptional and post transcriptional mechanisms, macromolecules; nucleic acids, metabolism of nitrogen-containing compounds; biosynthesis and function of macromolecules including DNA, RNA, and proteins; biochemistry of subcellular systems and special topics. Spring. Prer., Organic Chemistry.

**BIOL 483-3. Biochemistry Principles.** A comprehensive one semester introduction to cells, proteins, catalysis; metabolism of carbohydrates, lipids and nitrogen compounds; and storage and utilization of genetic information. Prer., BIOL 110, BIOL 111 and CHEM 332. Meets with CHEM 483.

**BIOL 484-3. Molecular Biology.** Detailed examination of replication, recombination, transposition, and translation in prokaryotes and eukaryotes at the molecular level. Fall. Prer., BIOL 383. Meets with BIOL 584, CHEM 484, and CHEM 584.

**BIOL 485-3. Molecular Biology Laboratory.** A laboratory course emphasizing techniques in Molecular Biology, including DNA cloning, and analysis of gene expression. Fall. Prer., BIOL 484/584. Meets with BIOL 585.

**BIOL 486-3. Biochemistry and Molecular Biology Laboratory.** Designed to provide laboratory skills and techniques. Experiments are selected to demonstrate principles and application of current techniques and the use of instrumentation. Spectrophotometry, enzymology, centrifugation and electrophoresis are stressed. Prer., One semester of biochemistry or cell biology and one semester of organic chemistry. Meets with BIOL 586, CHEM 486 and CHEM 586.

**BIOL 488-2. Principles of Flow Cytometry.** A comprehensive introduction to the instrumentation, techniques and biological applications of flow cytometry, high speed single cell analysis, and cell sorting. Topics to be studied include light sources, fluidics, fluorescent dyes, data collection and analysis, and applications in biological research and clinical medicine. Prer., Upper division biology major.

**BIOL 490-3. Pathobiology.** Designed primarily for the biology major and pre-health profession students. The course will cover mechanisms of human disease from cellular through organ and systemic pathologies. Major and pertinent health problems will be discussed. Lab demonstrations are primarily from autopsy materials. Spring (odd years). Prer., BIOL 110, BIOL 111, BIOL 115 and BIOL 116. Open to junior, senior or graduate students. Meets with BIOL 590.

**BIOL 491-4. Biotechnology I.** Lect. and lab. in Biotechnology; part I of a two semester sequence emphasizing practical techniques in several areas. Instrumentation principles, applied immunology, tissue culture, handling radioisotopes, recombinant DNA, cloning and characterization of genes. Special topics required for graduate credit. Fall. Prer., CHEM 331 and CHEM 332; BIOL 383 and BIOL 481; PES 101 and PES 102, and senior standing or consent of instructor.

**BIOL 492-4. Biotechnology II.** Lect. and lab. Continuation of Biotechnology I. Recombinant DNA techniques, methods in microbial genetics. Engineering gene expression. Biomass conversion with engineered microbes. Computer applications, tumor growth modeling. Radioimmune assay of receptors in mammalian cells. Field trips to regional biotechnology companies. Spring. Prer., BIOL 491 and BIOL 591.

**BIOL 493-3. Research Practicum in Genetics.** Laboratory course for advanced biology students and graduate students interested in molecular biology, microbial genetics, and biotechnology. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Prer., BIOL 484.

**BIOL 494-3. Research Practicum in Biochemistry.** Laboratory course for advanced biology students and graduate students interested in biochemistry. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Meets 9 hours per week. Prer., BIOL 481, BIOL 482, BIOL 486, and consent of instructor.

**BIOL 495-3. Research Practicum in Exercise Physiology.** Laboratory course for advanced biology students and graduate students interested in exercise physiology and nutrition. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Meets 9 hours per week. Prer., BIOL 330, BIOL 481, and consent of instructor.

**BIOL 496-3. Tumor Biology.** A limited enrollment course that emphasizes the basic science of tumor growth and the clinical approach to cancer treatment. Fall, Spring. Prer., Senior or graduate status and consent of instructor.

**BIOL 497-3. Research Practicum in Immunology.** Laboratory course for advanced biology students and graduate students interested in Immunology. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Meeting 9 hours per week. Consent of instructor required. Limited enrollment. Prer., BIOL 110, BIOL 111, BIOL 115 and BIOL 116.

**BIOL 500-1 to 4. Current Topics in Biology.** Specialized topics of current issues are considered, thus subject matter will change depending upon individual instructors and time of offering. The topic in any given semester will be specified in the semester schedule. May be repeated for credit. Prer., Graduate students only or consent of instructor. Meets with BIOL 400.

**BIOL 501-1. Seminar in Biology.** Review and discussion of pertinent research subjects. Students will present seminars. Fall. Prer., Senior or graduate standing.

**BIOL 503-3. Health and Fitness.** A review of exercise prescription and health evaluation techniques including a special section on nutrition. Prer., BIOL 201 and BIOL 202.

**BIOL 504-3. Computer Skills for Biologists.** The goal of this course is to train biologists to use and understand some of the methods currently employed by computational (molecular) biologists. Additionally, students will be taught how to solve biological problems with the PERL programming language. Prer., BIOL 110 and BIOL 115. Meets with BIOL 404.

**BIOL 505-3. Technology Transfer and Biotechnology.** The purpose of this course is to inform students about the process of Technology Transfer, from academic discovery and invention, to commercialization of a product. Prer., Bachelor's degree. Meets with BIOL 405.

**BIOL 509-3. Methods in Immunology.** Introduces students to a variety of current techniques in Immunology, including cell culture, flow cytometry, protein chemistry and Western blot, and DNA technology (PCR). Includes required safety and animal training. Prer., BIOL 110 and BIOL 302. Meets with BIOL 409.

**BIOL 510-3. Biological and Physical Research for Teachers.** Discover how fundamental laws of nature shape the

evolution of life and how the human body functions and adjusts to space. This course does not apply to the Biology MBS program. Pass/Fail. Extended Studies offering. Meets with CURR 5542.

**BIOL 514-3. Virology.**

Covers viral structure, genetics and pathogenesis. Prer., Permission of instructor. Meets with BIOL 314.

**BIOL 515-4. Field Botany.**

Topics include plant life cycles, systematics, life zones, and the use of field guides for identifying cyanobacteria, protists, bryophytes, seedless vascular plants, vascular plants, gymnosperms and angiosperms in Colorado foothills, Montane, subalpine and alpine life zones. Includes lecture and field study. Prer., BIOL 115 and BIOL 116. Meets with BIOL 415.

**BIOL 523-3. Injury Prevention and Treatment.**

A survey of typical sports related injuries, their causes, treatment, rehabilitation and prevention. Prer: BIOL 201 and BIOL 202 or consent of instructor.

**BIOL 526-4. Biogeography.**

An examination of the distribution of the life on the Earth's surface. The relationship between environmental factors and plant and animal distributions will be the central theme. Changes in distributions through time will also be examined. Required field trip. Prer., GES 100 or consent of instructor. Meets with BIOL 426, GES 426 and GES 526.

**BIOL 528-4. Mammalogy.**

Lecture, lab, and field studies. Origin, evolution and adaptation, geographic distribution, ecology, and taxonomy of mammals. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Meets with BIOL 428.

**BIOL 530-3. Advanced Exercise Physiology.**

Lect. Advanced treatment of physiological mechanisms underlying the body's responses to varying muscular and environmental stresses. Prer., BIOL 430 or consent of instructor.

**BIOL 531-3. Advanced Immunology.**

An advanced course in Immunology to follow a junior- senior level introductory Immunology course. Prer., BIOL 391. Meets with BIOL 431.

**BIOL 535-4. Advanced Functional Human Anatomy.**

A functional approach to human anatomy, focusing on (a) musculoskeletal

structures; how they are arranged and interact to achieve performance, adapt, sustain trauma, and repair, and (b) a structural and functional analysis of the cardiovascular, respiratory, digestive, endocrine and reproductive systems. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Meets with BIOL 435.

**BIOL 543-4. Animal Ecology.** Problems concerned with the distribution of animals and their relations to each other and to their environment are considered. Local ecosystems are visited and sampled with special attention to sampling the animal communities. Prer., BIOL 110, BIOL 111, BIOL 115, and BIOL 116. Meets with BIOL 443.

**BIOL 544-2. Genetics Laboratory.** Laboratory course designed to illustrate concepts of genetics as described in lecture (BIOL 383). Hands-on laboratory with emphasis on molecular techniques. Spring. Prer., BIOL 383 Genetics or concurrent enrollment. Meets with BIOL 384.

**BIOL 545-4. Anatomy and Exercise Science: Fundamentals and Applications to Golf.** Course integrates musculoskeletal anatomy and scientific principles of relevant sport science disciplines (biomechanics, physiology, nutrition, psychology and technology), in a lecture/lab setting, to provide PGM and Exercise Science students a comprehensive understanding of exercise science applications to golf. Meets with BIOL 345.

**BIOL 555-3. Biomechanics/Kinesiology.** An introduction to the mechanics of human movement. Includes the application of kinematics, kinetics, hydrodynamics, kinesiology and analytical techniques to human movement. Periodic trips to the International Center for Aquatic Research for analytical methods. Spring. Prer., BIOL 201 and BIOL 202.

**BIOL 560-3. Biomechanics of Musculoskeletal Injury.** A comprehensive survey of the biomechanics of musculoskeletal injury. The course explores the various bases of musculoskeletal injury to understand causal mechanisms, effects of injury on tissues, and how biomedical sciences contribute to injury management and prevention. Prer., BIOL 201 (Anatomy) or equivalent. Meets with BIOL 460.

**BIOL 570-4. Conservation Biology.** The major focus is the application of biological and ecological principles to preserve biodiversity. Ultimate sources and current worldwide losses of biological diversity are emphasized. Because conservation biology demands multidisciplinary approaches, historical, legal, economic,

and ethical issues are also included. Prer., BIOL 115, BIOL 370 recommended. Consent of instructor required. Meets with GES 375 and BIOL 375.

**BIOL 571-1 to 12. Externship in Biology.** A program of study and learning outside the classroom. Practical exposure to field of interest is intended to provide appropriate experience to a student's career orientation. A variety of opportunities exists, and students may explore their own avenues as well. Some externships are in open competition. Students must have departmental permission and completed permission form to register. It is strongly suggested that students interested in this program plan their participation one semester before they plan to enroll. (Note: Externship is to be performed off campus at an institution performing biologically-oriented work, e.g., medical clinics and research laboratories.) Fall, Spring.

**BIOL 572-1 to 12. Externship in Biology.** Exercise Science. Fall, Spring.

**BIOL 573-1 to 12. Externship in Biology.** Biochemistry. Fall, Spring.

**BIOL 574-1 to 12. Externship in Biology.** Biotechnology. Fall, Spring.

**BIOL 575-1 to 2. Biology Journal Interpretation and Research Seminar.** Involves the preparations and delivery of seminars by students and faculty on current research articles in the recent published literature. Topics include biochemistry, cell biology, ecology, genetics, physiology and molecular biology.

**BIOL 577-3. Human Metabolism.** An advanced course in exercise physiology/biochemistry. Topics will involve extensive review of the scientific literature. These topics involve a review of current trends in sports science and are designed to give the student a practical application and interpretation of the sports sciences. Spring. Prer., BIOL 330.

**BIOL 578-2. DNA Technology for Teachers.** Introduction to elements of DNA technology and genetic engineering. Practical applications to biotechnology. Discussion of safety and ethical issues. Prer., One year of CHEM or BIOL.

**BIOL 579-3. Basic Laboratory Methods in Sports Physiology.** A course designed to teach students how to test and evaluate acute and chronic responses and adaptations to exercise. The course is intended to make students proficient in laboratory techniques for assessing human performance primarily from a metabolic standpoint. Spring. Prer., Consent of instructor.

**BIOL 580-3. Analytical Methods in Sports Physiology.** A laboratory course designed to teach students techniques used in exercise biochemistry, exercise testing and evaluation of human performance. This course is an extension of Basic Laboratory Methods in Sports Physiology with emphasis in exercise biochemistry. Spring. Prer., Consent of instructor.

**BIOL 581-3. General Biochemistry.** (CHEM 481) Lect. Topics include structure, conformation, and structure and functions of properties of proteins; enzymes; mechanisms and kinetics; intermediary metabolism; carbohydrates, lipids; and amino acids; energetics and metabolic control; and photosynthesis. Fall. Prer., Organic chemistry or consent of instructor. Meets with BIOL 481, CHEM 481 and CHEM 581.

**BIOL 582-4. General Biochemistry.** Continuation of BIOL 481/581. Topics include control of metabolic flux through transcriptional and post transcriptional mechanisms, macromolecules; nucleic acids, metabolism of nitrogen-containing compounds; biosynthesis and function of macromolecules including DNA, RNA, and proteins; biochemistry of subcellular systems and special topics. Spring. Prer., Organic Chemistry.

**BIOL 584-3. Molecular Biology.** Detailed examination of replication, recombination, transposition, transcription and translation in prokaryotes and eukaryotes at the molecular level. Fall. Prer., BIOL 383. Meets with BIOL 484, CHEM 484, and CHEM 584.

**BIOL 585-3. Molecular Biology Laboratory.** A laboratory course emphasizing techniques in molecular biology, including DNA cloning, and analysis of gene expression. Fall. Prer., BIOL 484/584. Meets with BIOL 485.

**BIOL 586-3. Biochemistry and Molecular Biology Laboratory.** Designed to provide laboratory skills and techniques. Experiments are selected to demonstrate principles and application of current techniques and the use of instrumentation. Spectrophotometry, enzymology, centrifugation and electrophoresis are stressed. Spring. Prer., One semester of biochemistry or cell biology and one semester of organic chemistry. Meets with BIOL 486, CHEM 486, CHEM 586.

**BIOL 587-3. Biochemistry and Molecular Biology of Lipids and Membranes.** An in-depth look at the structure and function of acyl and prenyl lipids (e.g. phospholipids and cholesterol) in biology. Focus on lipid synthesis and metabolism and their roles in signal transduction and membrane



physiology, emphasis on biomedical ramifications of triacylglycerol, cholesterol and prostaglandin homeostasis in humans. Prer., BIOL 481/581 or BIOL 482/582.

**BIOL 588-2. Principles of Flow**

**Cytometry.** A comprehensive introduction to the instrumentation, techniques and biological applications of flow cytometry, high speed single cell analysis and cell sorting. Topics to be studied include light sources, fluidics, fluorescent dyes, data collection and analysis, and applications in biological research and clinical medicine. Summer. Prer., Consent of instructor.

**BIOL 589-3. Advanced Flow Cytometry.**

A seminar and laboratory course for in-depth study of flow cytometric techniques and applications. Topics to be studied include detection and quantitation in single cells of nucleic acids and other nuclear, cytoplasmic and cell surface macromolecules with emphasis on oncology and immunobiology. Fall, Spring. Prer., BIOL 488/588.

**BIOL 590-3. Pathobiology.** Designed primarily for the biology major and pre-health profession students. The course will cover mechanisms of human disease from cellular through organ and systemic pathologies. Major and pertinent health problems will be discussed. Lab materials are primarily from autopsy materials. Spring (odd years). Prer., BIOL 110, BIOL 111, BIOL 115 and BIOL 116. Open to junior, senior or graduate students. Meets with BIOL 490.

**BIOL 591-4. Biotechnology I.** Lect. and lab. in Biotechnology; part I of a two semester sequence emphasizing practical techniques in several areas. Instrumentation principles, applied immunology, tissue culture, handling radioisotopes, recombinant DNA, cloning and characterization of genes. Special topics required for graduate credit. Fall. Prer., CHEM 331 and CHEM 332; BIOL 383 and BIOL 481; PES 101 and PES 102; senior standing or consent of instructor.

**BIOL 592-4. Biotechnology II.** Lect. and lab. Continuation of Biotechnology I. Recombinant DNA techniques, methods in microbial genetics. Engineering gene expression. Biomass conversion with engineered microbes. Computer applications, tumor growth modeling. Radioimmune assay of receptors in mammalian cells. Field trips to regional biotechnology companies. Spring. Prer., BIOL 491 and BIOL 591.

**BIOL 636-2. Advanced Biomechanics.**

An advanced study of biomechanics. Includes methods of smoothing raw

data, joint force and torque calculations, three-dimensional theory and kinematics and kinetics in three dimensions. Prer., Consent of instructor.

**BIOL 693-3. Research Practicum**

**in Genetics.** Laboratory course for advanced biology students and graduate students interested in molecular biology, microbial genetics, and biotechnology. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Prer., BIOL 484.

**BIOL 694-3. Research Practicum in**

**Biochemistry.** Laboratory course for advanced biology students and graduate students interested in biochemistry. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Meets 9 hours per week. Prer., BIOL 481, BIOL 482, BIOL 486, and consent of instructor.

**BIOL 695-3. Research Practicum in**

**Exercise Physiology.** Laboratory course for advanced biology students and graduate students interested in exercise physiology and nutrition. Course includes experimental design, laboratory projects, and interpretation and presentation of data from individual projects. Meets 9 hours per week. Prer., BIOL 330, BIOL 481 and consent of instructor.

**BIOL 696-3. Tumor Biology.** A limited enrollment course that emphasizes the basic science of tumor growth and the clinical approach to cancer treatment. Fall, Spring. Prer., Senior or graduate status and consent of instructor.

**BIOL 700-1 to 6. Masters Thesis.**

**BIOL 940 to 948-1 to 3. Independent Study in Biology.** Advanced students (usually seniors) are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course, the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member (selected by the student) who supervises the effort. Students must have consent of instructor and completed permission forms to register. Fall, Spring, Summer.

**BIOL 941-1 to 3. Independent Study**

**in Biochemistry.** Advanced students (usually seniors) are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is

available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course, the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member (selected by the student) who supervises the effort. Students must have consent of instructor and completed permission forms to register.

**BIOL 942-1 to 3. Independent Study in Micro Genetics.**

Advanced students (usually seniors) are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course, the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member (selected by the student) who supervises the effort. Students must have consent of instructor and completed permission forms to register.

**BIOL 943-1 to 3. Independent Study in Exercise Science.**

Advanced students are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course the student must submit an acceptable written table proposal of the area or problem to be studied to the faculty member who supervises the effort. Students must have consent of instructor and completed permission forms to register.

**BIOL 944-1 to 3. Independent Study in Plant Molecular Biology.**

Advanced students (usually seniors) are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears the problem being considered. Prior to being admitted to this course, the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member (selected by the student) who supervises the effort. Students must have consent of instructor and completed permission forms to register. Meets with BIOL 954.

**BIOL 945-1 to 6. Independent Study in Biochem Genetics.**

**BIOL 946-1 to 3. Independent Study in Tumor Biology.** Advanced students (usually seniors) are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course, the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member (selected by the student) who supervises the effort. Students must have consent of instructor and completed permission forms to register.

**BIOL 947-1 to 3. Independent Study Organismic Biology.** Advanced students (usually seniors) are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course, the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member (selected by the student) who supervises the effort. Students must have consent of instructor and completed permission forms to register.

**BIOL 949-3. Senior Thesis.** For advanced students who wish to pursue independent research for honors standing in biology. Description follows that for Independent Study in Biology (BIOL 941 and 942). The course involves four phases: 1) A proposal must be submitted including a statement of the research goal, materials and methods, review of pertinent literature, and anticipated results. The proposal will be reviewed for acceptability; 2) Research must be carried out; 3) The thesis as a write-up of research should be in the form of a scholarly publication and will be reviewed for acceptability; 4) A seminar on the research must be presented to faculty and students in biology. It is strongly suggested that students initiate their work at the start of the last semester of their junior year. Fall, Spring.

**BIOL 950 to 958-1 to 3. Independent Study in Biology.** Same as BIOL 940-948 and to be performed at the graduate level. Fall, Spring, Summer.

**BIOL 951-1 to 3. Independent Study in Biochemistry.**

**BIOL 952-1 to 3. Independent Study in Micro Genetics.**

**BIOL 953-1 to 3. Independent Study in Exercise Science.** Advanced students are encouraged to pursue independent research in some specific area or problem where extensive reference to biological literature on that subject is available. Also encouraged is the design and execution of original research, either in the laboratory or field, that bears on the problem being considered. Prior to being admitted to this course the student must submit an acceptable written proposal of the area or problem to be studied to the faculty member who supervises the effort. Students must have consent of instructor and completed permission forms to register.

**BIOL 954-1 to 3. Independent Study in Plant Molecular Biology.** Meets with BIOL 944.

**BIOL 955-1 to 3. Independent Study in Biochem Genetics.**

**BIOL 956-3 to 5. Independent Study in Cell Biology.** Students will pursue independent research in cell biology. They are encouraged to design and execute original research. Prior to being admitted to this course, the student must submit an acceptable written proposal, of the area or problem to be studied, to the faculty member (selected by the student) who supervises the effort. Students must have the consent of the instructor and completed permission forms to register. Fall, spring, summer. Prer., BIOL 302, Cell Biology.

**BIOL 957-1 to 3. Independent Study in Exercise Physiology.**

**BIOL 958-1 to 3. Independent Study in Cell Physiology/ End.**

**BIOL 959-1 to 3. Independent Study Senior Thesis.**

**BIOL 999-0. Candidate for Degree.**

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## CHEMISTRY

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**CHEM 100-3. Chemistry in the Modern World.** Lecture. A brief introduction to chemical principles and study of their application to biochemical materials and processes, consumer chemistry, energy problems, air and water pollution and toxic chemicals. This course may be taken with or without the lab course CHEM 110. Counts towards fulfillment of the LAS natural science area requirement.

**CHEM 101-4. Introduction to Chemistry.** Lecture and Recitation. This is a first-semester course in chemistry with an emphasis on principles and practical applications. The course is designed for two groups of individuals. Paramedical majors and nursing students comprise

one of these groups. The second group will be made up of students who are required to take CHEM 103 but who have not had a high school chemistry course or who have inadequate backgrounds. Students who have not taken algebra in high school or college should take an algebra course before taking CHEM 101. The course covers measurements, matter, atoms, bonding, energy, phases of matter, acid-base and redox reactions, solutions, equilibria, electrolytes, inorganic and nuclear reactions. Counts towards fulfillment of the LAS natural science area requirement. Prer., One year of high school algebra.

**CHEM 102-4. Introduction to Organic and Biochemistry.** Lecture, recitation, and lab. This is the second part of a one year course and should be taken after completion of CHEM 101. Students who are required to take CHEM 103-106 should not take both 101 and 102. The course includes a survey of organic functional group and biochemical reactions. A large emphasis is placed on structure and function of organic and biomolecules. Prer., CHEM 101 with a grade of "C" or higher.

**CHEM 103-5. General Chemistry I.** Lecture, recitation, and lab. A first college-level chemistry course for students with adequate high school chemistry. Emphasis on the structure and composition of matter: elements and compounds, atoms and molecules, and states of matter including solutions. Students having marginal mathematics backgrounds are advised to solidify their mathematics proficiencies before taking this course. To proceed to CHEM 106 a grade of C is necessary. Counts towards fulfillment of the LAS natural science area requirement. Prer., 1 year high school chemistry and 2 years high school math.

**CHEM 106-5. General Chemistry II.** Lecture, recitation, and lab. This is the second course of the general chemistry sequence. Emphasis is on acid-base and solution chemistry, equilibria, kinetics, redox chemistry, transition metal chemistry, nuclear chemistry and organic chemistry. Counts towards fulfillment of the LAS natural science area requirement. Prer., CHEM 103 with a grade of "C" or higher.

**CHEM 108-1. Introduction to Chemistry Lab Research.** Research methodology in chemistry is introduced by conducting an investigation involving the synthesis and determination of the physical and chemical properties of a series of metal coordination compounds of acetylacetone and its analogies. Concurrent enrollment in CHEM 106 required.

**CHEM 110-1. Chemistry in the Modern World Laboratory.** When taken along with CHEM 100, these courses count toward fulfillment of the LAS natural science requirement and lab requirement. Experiments have been chosen that illustrate the principles discussed in the lecture. Prer., Concurrent registration in CHEM 100 or prior completion of CHEM 100. Satisfies the LAS natural science laboratory requirement.

**CHEM 115-4. Preparatory Chemistry.** Preparatory chemistry lecture and lab for students who have not taken high school chemistry. Prepares students for general chemistry (CHEM 103-106). Credit is granted only if no other college chemistry credits have been earned. Does not count towards the LAS natural science area requirement. Prer., One year high school algebra or concurrent enrollment in MATH 104. For students with little or no chemistry background in preparation for CHEM 103.

**CHEM 121-3. Introduction to Physical Science.** An integrated presentation of the basic concepts of physics and chemistry for non-science majors. Topics include motion, heat, sound, light, atomic and molecular structure, chemical reactions, acids and bases, and radioactivity. Counts towards fulfillment of the LAS natural science area requirement. Prer., Two years of high school mathematics. Meets with PES 121.

**CHEM 124-1. Physical Science Laboratory.** A laboratory to accompany CHEM/PES 121. Includes experiments on mechanics, heat, sound, light, electricity, chemical reactions, stoichiometry, acid-based chemistry, and reaction kinetics. Counts towards fulfillment of the LAS natural science area requirement. Meets with PES 124.

**CHEM 151-3. Environmental Science.** Introduction to atomic molecular structure and to biological structure and function. Environmental contaminants in air and their reactions, water quality and its analysis, wastewater treatment, the ecology of natural systems and genetic adaptation. Counts towards fulfillment of the LAS natural science area requirement. Meets with BIOL 151.

**CHEM 153-1. Environmental Science Laboratory.** This lab is designed to accompany BIOL 151 and CHEM 151. Counts towards fulfillment of the LAS natural science area requirement. Meets with BIOL 153.

**CHEM 301-3. Materials Science.** Lecture. An introductory development of the physical and chemical properties of materials, including metals, alloys, ceramics, polymers, and composite

materials. Intended for science and engineering students. Prer., Grades of "C" or higher in CHEM 106, PES 111 and MATH 135, or permission of the instructor.

**CHEM 330-3. Organic Chemistry.** Lecture for biology majors and non-chemistry majors taking only one semester of organic chemistry. This is a survey of organic nomenclature, structure, preparations, and reactions. The course includes bio-organic topics, such as carbohydrates, peptides, and proteins, as well as a general introduction to important functional groups. Fall semester. Prer., CHEM 106 with a grade of "C" or higher. Students must also enroll concurrently for the lab course, CHEM 340.

**CHEM 331-3. Organic Chemistry I.** For biochemistry option and non-chemistry majors. Topics include structure and reactions of alkanes, alkenes and alkyl halides. Organic nomenclature stereochemistry, reaction mechanisms and kinetics. Prer., Grade of "B" or higher in CHEM 106. Concurrent registration for CHEM 333 is required.

**CHEM 332-3. Organic Chemistry II.** For biochemistry option and non-chemistry majors. Topics include structure and reactions of alcohols, carboxylic acids, aldehydes, ketones, amines, aromatic compounds, heterocycles, sugars and amino acids. Emphasis is on organic synthesis and reaction mechanisms. Prer., CHEM 331 and either 333 or 337 with grades of "C" or higher.

**CHEM 333-2. Organic Chemistry Laboratory I.** For biochemistry option and non-chemistry majors. Instruction of experimental techniques of modern organic chemistry including microscale techniques. Emphasis is also on reactions of alkenes, alkynes, alkyl halides and on stereochemical modeling. Prer., Grade of "C" or higher in CHEM 106.

**CHEM 334-2. Organic Chemistry Laboratory II.** For biochemistry option and non-chemistry majors. Emphasis is on spectroscopic techniques and on syntheses of alcohols, aldehydes, ketones, carboxylic acids and their derivatives. Prer., CHEM 331 and 333 with grades of "C" or higher. Students must register for lecture and lab. Coreq., CHEM 332.

**CHEM 337-2. Practical Organic Chemistry I.** An introduction to organic laboratory methods for chemistry majors. Prer., Grade of "C" or higher in CHEM 106. Coreq., CHEM 331.

**CHEM 338-2. Practical Organic Chemistry II.** Laboratory. An introduction to organic, synthetic and spectroscopic

methods for chemistry for chemistry majors. Prer., CHEM 331 and CHEM 337 with grades of "C" or higher. To be taken concurrently with CHEM 332.

**CHEM 340-2. Organic Chemistry Laboratory.** Laboratory for biology majors and non-chemistry majors. Lab section to accompany CHEM 330. Instruction in experimental techniques, organic synthesis, analysis, and spectroscopy. Fall semester. Prer. or Coreq., CHEM 330. Laboratory course to be taken concurrently with CHEM 330.

**CHEM 341-3. Environmental Chemistry.** An in-depth survey and discussion of problems of the environment from a chemical point of view. Air, water, land, pollution, and their effect on the ecology of living organisms. Prer., CHEM 106 with grade of "C" or higher.

**CHEM 395-3. Cooperative Education in Chemistry.** Students arrange a program with appropriate faculty members through the auspices of local government or industrial facilities. The program will generally require independent laboratory and/or literature work, resulting in a report or series of reports.

**CHEM 401-3. Modern Inorganic Chemistry** An introduction to the physical inorganic concepts of modern inorganic chemistry. Topics include atomic structure and periodic properties, ionic and covalent bonding and a survey of inorganic main group reactions. Prer., CHEM 417 and 451, with grade of "C" or higher.

**CHEM 402-4. Inorganic Chemistry Laboratory.** A detailed study of structure, characterization and synthesis of transition metal complexes. Laboratory demonstrates appropriate examples of synthesis and characterization techniques. Prer., CHEM 401 with grades of "C" or higher.

**CHEM 405-1 to 4. Topics in Chemistry.** Examination of selected topics in chemistry in lecture, seminar and/or laboratory format. Topic will change according to the interest of the instructor and students. Students may repeat the course for credit when the topic changes. Consult the schedule of courses for topic.

**CHEM 411-3. Nuclear Magnetic Resonance Spectroscopy.** Lecture and lab. Theory and practice of advanced techniques in NMR spectroscopy including complex spectra, double resonance, paramagnetic systems, and rate-processes.

**CHEM 417-4. Analytical Chemistry I.** Lecture and lab. Emphasis is on chemical equilibrium, quantitative analysis by means of titration, spectrophotometry, electrode potentials, and analytical

separation techniques. Prer., Grade of "C" or higher in CHEM 106.

**CHEM 418-3. Analytical Chemistry**

**II.** Emphasis is on instrumental methods of analysis, including spectral, electroanalytical and separations methods. Prer., PES 112, CHEM 417 with grades of "C" or higher and concurrent enrollment or completion of CHEM 452. Coreq., CHEM 420.

**CHEM 420-2. Practical Instrumental**

**Analysis.** Laboratory work in instrumental methods of analysis, including spectrochemical, electroanalytical and chromatographic techniques. Prer., CHEM 417 and CHEM 452. Coreq., CHEM 418.

**CHEM 451-3. Physical Chemistry I.**

The application of thermodynamics to phase changes, chemical reactions and electrochemical cells. The rates and mechanics of chemical reactions. Prer., Grades of "C" or higher in PES 112, PES 115, MATH 136 and CHEM 332.

**CHEM 452-3. Physical Chemistry II.**

The application of quantum mechanics to atomic and molecular structure and spectra. The application of statistical mechanics to the prediction of thermodynamic properties. Transition state theory of reaction rate. Prer., CHEM 451 with a grade of "C" or higher. Coreq., CHEM 454 or CHEM 455.

**CHEM 454-1. Experimental Physical**

**Chemistry.** Laboratory. Error analysis and experiments in thermodynamics and kinetics. Prer., CHEM 417 and CHEM 451 with grades of "C" or higher. Coreq., CHEM 452. Meets with CHEM 455.

**CHEM 455-2. Experimental Physical**

**Chemistry.** Laboratory. Instruction in the experimental techniques of modern physical chemistry with emphasis on experiments illustrating the fundamental principles of chemical thermodynamics, quantum chemistry and chemical kinetics for BS chemistry majors. Prer., CHEM 417 and CHEM 451 with grades of "C" or higher. Meets in part with CHEM 454.

**CHEM 456-3. Surface Chemistry.**

A study of the physical chemistry of surfaces and interfaces. Topics will include interfacial tension, wetting, monolayers, adsorption, heterogeneous catalysis, surface diffusion, kinetics of phase transformations, electrocapillarity, and the characterization of solid surfaces. Prer., CHEM 452 (for chemistry majors); or PES 213 and either PES 340 or PES 342 (for physics and engineering majors). Meets with CHEM 556.

**CHEM 481-3. General Biochemistry.**

Lecture. Topics include structure, conformation, and structure and functions

of properties of proteins; enzymes; mechanisms and kinetics; intermediary metabolism; carbohydrates; lipids; and amino acids; energetics and metabolic control; and photosynthesis. Fall. Prer., BIOL 302 and CHEM 332. Meets with CHEM 581, BIOL 481, BIOL 581.

**CHEM 482-4. Biochemistry II.**

Lecture. Continuation of CHEM 481. Topics include control of metabolic flux through transcriptional and post transcriptional mechanisms, macromolecules; nucleic acids, metabolism of nitrogen-containing compounds; biosynthesis and function of macromolecules including DNA, RNA, and proteins; biochemistry of subcellular systems and special topics. Prer., Organic Chemistry. Meets with CHEM 582, BIOL 482, BIOL 582.

**CHEM 483-3. Biochemistry Principles.**

A comprehensive one semester introduction to cells, proteins, catalysis; metabolism of carbohydrates, lipids and nitrogen compounds; and storage and utilization of genetic information. Prer., BIOL 110, BIOL 111 and CHEM 332. Meets with BIOL 483.

**CHEM 484-3. Molecular Biology.**

Detailed examination of replication, recombination, transposition, transcription and translation in prokaryotes and eukaryotes at the molecular level. Spring. Prer., BIOL 383. Meets with CHEM 584, BIOL 484, and BIOL 584.

**CHEM 486-3. Biochemistry Laboratory.**

Designed to provide laboratory skills and techniques. Experiments are selected to demonstrate principles and application of current techniques and the use of instrumentation. Spectrophotometry, enzymology, centrifugation and electrophoresis are stressed. Prer., One semester of biochemistry or cell biology and one semester of organic chemistry. Meets with CHEM 586, BIOL 486, BIOL 586.

**CHEM 488-3. Forensic Chemistry.**

Introduces students to the various elements of clinical chemistry and forensic toxicology. Introduces concepts of pharmacokinetics and pharmacodynamics, as well as chemical reaction mechanisms associated with drug metabolism and effects on neurotransmission. Prer., CHEM 103, CHEM 106, CHEM 331, and CHEM 332.

**CHEM 495-1. Chemistry Seminar I.**

A capstone course designed to familiarize students with the chemical literature and to allow for ten to thirty presentations. Prer., CHEM 332 and either CHEM 417 or CHEM 451.

**CHEM 496-1. Chemistry Seminar II.**

A capstone course designed to familiarize

students with the chemical literature and to allow for formal presentations. Prer., CHEM 495.

**CHEM 511-3. NMR Spectroscopy.**

Lecture and lab. Theory and practice of advanced techniques in NMR Spectroscopy including complex spectra, double resonance, paramagnetic systems, rate process and one and two-dimensional pulse methods. Meets with CHEM 411.

**CHEM 517-3. Electrochemistry.**

Electrochemical methods of analysis, analytical instrumentation. Topics will include redox thermodynamics and kinetics, electrochemical techniques, and modern applications. Prer., Physical chemistry with a grade of C or higher.

**CHEM 518-3. Chromatography and**

**Analysis.** Lecture and labs. Analytical separation processes with special reference to theory and practice of liquid and gas chromatography. Analysis methods include mass spectrometry and nuclear magnetic resonance spectroscopy. Prer., Undergraduate physical chemistry and instrumental methods of analysis.

**CHEM 531-3. Advanced Organic**

**Chemistry I.** Lecture. Survey of organic chemistry including mechanistic and synthetic organic chemistry. Prer., One year of organic chemistry with a grade of "C" or higher.

**CHEM 532-3. Advanced Organic**

**Chemistry II.** Lecture. Modern concepts of physical organic chemistry and their use in interpreting data in terms of mechanisms or organic reactions and reactivities of organic compounds. Prer., One year of organic chemistry and CHEM 451 with grades of "C" or higher.

**CHEM 556-3. Surface Chemistry.**

A study of the physical chemistry of surfaces and interfaces. Topics include interfacial tension, wetting, monolayers, adsorption, heterogeneous catalysis, surface diffusion, kinetics of phase transformations, electrocapillarity, and the characterization of solid surfaces. Meets with CHEM 456.

**CHEM 581-3. Advanced General**

**Biochemistry.** Lecture. Topics include structure, conformation, and structure and functions of properties of proteins; enzymes; mechanisms and kinetics; intermediary metabolism; carbohydrates, lipids; and amino acids; energetics and metabolic control; and photosynthesis. Fall. Prer., Organic chemistry or consent of instructor. Meets with CHEM 481, BIOL 481, BIOL 581.

**CHEM 582-4. Biochemistry II.**

Lecture. Continuation of CHEM 581. Topics include control of metabolic flux through transcriptional and post transcriptional

mechanisms, macromolecules; nucleic acids, metabolism of nitrogen-containing compounds; biosynthesis and function of macromolecules including DNA, RNA, and proteins; biochemistry of subcellular systems and special topics. Spring. Prer., Organic Chemistry. Meets with CHEM 482, BIOL 482, BIOL 582.

**CHEM 584-3. Molecular Biology.**

Detailed examination of replication, recombination, transposition, transcription and translation in prokaryotes and eukaryotes at the molecular level. Spring. Prer., BIOL 383. Meets with CHEM 484, BIOL 484, and BIOL 584.

**CHEM 586-3. Biochemistry Laboratory.**

Designed to provide laboratory skills and techniques. Experiments are selected to demonstrate principles and application of current techniques and the use of instrumentation. Spectrophotometry, enzymology, centrifugation and electrophoresis are stressed. Spring. Prer., One semester of biochemistry or cell biology and one semester of organic chemistry. Meets with CHEM 486, BIOL 486 and BIOL 586.

**CHEM 700-1 to 6. Masters Thesis.**

**CHEM 940-1 to 3. Independent Study in Chemistry.**

Undergraduate. Consent of instructor required. For upper-division students.

**CHEM 950-1 to 3. Independent Study in Chemistry - Graduate.**

**CHEM 999-0. Candidate for Degree.**

## COMMUNICATION

**COMM 100-3. Contemporary Mass Media.**

Examines the mass media and their interaction with society, looking at journalism and the mass media in historical, intellectual, political, and social contexts. Same as Journalism 100. (Pre-journalism students should register for JOUR 100). Meets with JOUR 100.

**COMM 102-3. Interpersonal Communication.**

A lecture-discussion approach to communication theory and its applications in everyday communication. Intended to give students a point of view and certain basic knowledge that will help them become better communicators regardless of their fields of specialization.

**COMM 103-3. Principles of Communication.**

A study of human communication from its classical foundations in Aristotelian rhetoric through contemporary interpersonal theory. Emphasis include basic models of communication and approaches to communication as a discipline. Contemporary theoretical considerations

include current interpersonal research in such areas as person perception, attraction, and conflict. Prer., COMM 102.

**COMM 111-3. Introduction to Leadership.**

An introductory exploration of the relationship between leadership theory and practice. The course examines both foundational and emerging leadership paradigms to provide the student a basic understanding of leadership.

**COMM 201-3. Oral Communication in the Workplace.**

Designed to develop and enhance oral communication skills in business and professional settings. Course includes four components: a) basics of business communication, including emphasis on diversity; b) interpersonal skills, including listening and job interviewing; c) working in groups, including problem solving and effective meetings; and d) preparing and delivering effective business presentations.

**COMM 210-3. Public Speaking.**

A lecture-recitation approach to the basic principles of speechmaking. Intended to give students basic information for the preparation and delivery of a variety of public presentations.

**COMM 215-3. Male/Female Communication.**

A lecture-discussion approach to the study of contemporary theories and research in male/female communication. The course will involve reading and discussion in such areas as gender differences in self-perception, social and media images of men and women, language usage and nonverbal behavior differences between genders. Prer., COMM 102. Meets with WMST 215.

**COMM 224-3. Introduction to Organizational Communication.**

An introduction to models of human communication and definitions of organizational communication with emphasis on communication process, information flow, individual communication roles and group process for problem solving and decision making: introduction to auditing. Prer., COMM 102 and COMM 103.

**COMM 225-3. Introduction to Film and Video.**

A study of the principles and techniques of film-making, including practical experience in planning, shooting, lighting, editing, and sound mixing. The study of film as visual language will be integrated with experience and making short video production.

**COMM 227-3. Beginning Television Production.**

An introductory course in creative television production. Course is geared toward developing the writing, directing, and production skills necessary to make intelligent and imaginative

programs in a variety of basic formats. Designed for majors and nonmajors, includes lecture and lab.

**COMM 250-3. Research Methods.**

Introduction to the nature of social scientific methods including research design, measurement, survey methods and introductory statistics. Prer., I D 105.

**COMM 260-3. Family Communication.**

The role of communication in long-term relationships as found in families. It is a descriptive approach designed to provide an understanding of the extent to which communication affects and is affected by the family.

**COMM 290-3. Writing for the Media.**

Fundamentals of news gathering and writing, news story forms. Meets with JOUR 290.

**COMM 310-3. Directing Studio Performance.**

Overview of directing studio and location performance using multicamera, videotape, and/or film formats. Observation and hands-on approach to basic performance techniques in news and entertainment programs.

**COMM 315-3. Communication Competency in Groups and Teams.**

Theory and practice in group discussion processes, decision making, and participant and laboratory. Prer., COMM 102 or consent of instructor.

**COMM 323-3. Nonverbal Communication.**

Consists of the study of nonverbal communication through proxemics, kinesics, physical appearance, and paralanguage as well as an application of nonverbal communication theory to work, group, and home settings.

**COMM 324-3. Business and Professional Communication.**

Theory and practice in oral and written communication competency for business and the professions. Topics include presentational speaking, business writing, interpersonal communication in organizations, small group process and the role of the leader-manager, and communication trends in business organizations of the future. Prer., ENGL 131 and ENGL 141.

**COMM 327-3. Intermediate Television Production.**

A study advancing the principles and techniques of television production to include extended experiences doing multicamera studio productions, with an introduction to electronic field production techniques. Topics include production planning and procedures, directing, lighting, and editing. Lecture and lab. Prer., COMM 225 and COMM 227.

**COMM 328-3. Intercultural**

**Communication.** An examination of the philosophy, process, problems, and potentials unique to communication across cultural boundaries. Implications for personal and social innovations. Comparative study in communication in selected cultures.

**COMM 330-3. Script Writing.** A course in writing for non-print media. Students will learn key elements of fiction and non-fictional media formats, story structures, and exposition. Prer., JOUR/COMM 290, COMM 225, and COMM 227.

**COMM 344-3. Leadership**

**Communication.** An examination of contemporary theories and research pertaining to the communication of leadership in interpersonal, group, organizational, and societal settings, including consideration of the nature of power, vision, and creativity in leadership.

**COMM 345-3. The History of TV**

**Programming.** Examines the history of television through its programming. It will study genres such as the sitcom and hour-long drama, as well as principles of programming for broadcast and cable TV.

**COMM 350-3. American Cinema.**

An introductory film course surveying American cinema as art, industry, and system of representation and communication. Students acquire knowledge of film history and genres, technical and critical vocabulary terms, and how popular genres extend to broader social context. Meets with FILM 350.

**COMM 365-3. Mass Media and Society.**

The interrelationships among mass media, society, and communication are explored. The theoretical foundations of mass communication are delineated.

**COMM 400-3. Rhetorical Dimensions**

**in Communication.** The theory of oral discourse is examined in light of classical thought and practice, historical development, and modern rhetorical processes. Prer., COMM 102 and COMM 103.

**COMM 410-3. Advanced Public**

**Speaking.** Advanced exploration of the theory, preparation, delivery and evaluation of public speeches. Prer., COMM 210 or equivalent. Meets with COMM 510.

**COMM 415-3. Communication for the Classroom Teacher.**

This course is intended to be both theoretical and practical in nature and will provide teachers and prospective teachers the rationale for using appropriate communication strategies in the classroom. It will include methods for

analysis, development, and facilitation of teachers' and their students' communication behaviors. Meets with COMM 515.

**COMM 417-3. Documentary Film and Video.**

Students will research, write and produce non-fiction films or videos. Students will develop their abilities to write and speak critically about historical and contemporary documentaries. Prer., COMM 225, COMM 227, COMM/JOUR 290.

**COMM 420-3. Persuasion.** The theory of motivation and change as it operates in individuals and groups, consideration of attitudes, beliefs, values, credibility, message variables, ethical ethics, and effects. Analysis of persuasive campaigns.

**COMM 422-3. Creative Communication.**

Exploration of the relationship between creativity and communication. Topics include: theories and models of creativity and language, the creative process in groups and organizations, and creative influence. Meets with COMM 522.

**COMM 424-3. Advanced Organizational**

**Communication.** Major perspectives for the study of organizational communication, communication auditing procedures, and communication training and development practices. Prer., COMM 102, COMM 224, COMM 250, and COMM 324. Meets with COMM 524.

**COMM 425-3. Advanced Interpersonal Communication: Conflict Management.**

A lecture-discussion approach to the study of contemporary theories and research in conflict. Course will involve reading and discussion of both original research reports and secondary sources in such areas as perception, destructive communication, manipulative communication, and communication in developing and terminating relationships. Prer., COMM 102.

**COMM 426-3. Organizational Communication in the Global Environment.**

Theory-based examination of virtual and changing organizational forms, international/intercultural communication, telemediated organizational communication, and legal issues in communication in the workplace. Course additionally prepares students for both technical and human proficiencies necessary for the workplace of the future. Prer., COMM 224.

**COMM 427-3. Advanced Television**

**Production.** Studio and advisory support for video programs initiated, designed, organized, and produced by advanced students. Students work in production groups to arrange and gain approval for program plans prior to execution. May be repeated up to a maximum of 6 hours.

Prer., COMM 225, COMM 227 and COMM 327.

**COMM 429-3. Sustainability and Corporate Social Responsibility.**

Examines the communication challenges and opportunities organizations face dealing with sustainability and corporate social responsibility. Course combines theoretical and applied perspectives, focusing on issues of: corporate governance, ethics, global corporate citizenship, stakeholder management and social auditing/reporting. Meets with COMM 529.

**COMM 445-3. Advertising Media.**

A seminar in the theory and practice of advertising as an art and science. Students will participate in cases and campaigns providing a dynamic approach to the field.

**COMM 450-3. Media Management.**

Analysis of managerial problems in industrial, governmental, and nonprofit media organizations. Case studies, local managers, and outside readings will examine public relations/marketing, inventory, personnel, and legal aspects of managing a media facility. Prer., COMM 100 and COMM 227.

**COMM 451-3. Quantitative Methods**

**for Communication Research.** Course covers introductory statistics, t-tests, simple ANOVAs, bivariate regression and measurements issues. Students are also introduced to the use of statistical software. Prer., COMM 250 and I D 105. Meets with COMM 551.

**COMM 460-3. Contemporary Theories of Human Communication.** An exploration of essentials of theory development and construction as related to the human communication process with primary emphasis on contemporary theories of human communication. Taught in a seminar format. Prer., COMM 102 and COMM 103. Meets with COMM 560.

**COMM 461-3. Principles and Practice of Public Relations.**

Designed to provide majors and non-majors an introduction to the principles and practice of contemporary public relations. Students will increase their understanding and knowledge of the formation and implication of public opinion, and the elements and the practice of public relations in contemporary society.

**COMM 469-3 to 6. Internship**

**in Communication.** Supervised opportunities for obtaining knowledge and experience concerning the role of communication in the world of work. Prer., For Org Comm and Recording Arts/ Media Management majors only.

**COMM 475-3. Communication Law.**

Examines legal principles of public communication including the First Amendment, defamation, privacy, political speech, commercial speech, obscenity, news gathering, intellectual property rights, and regulation of broadcast, cable and online communications. Meets with COMM 575.

**COMM 490-1 to 3. Special Topics in Communication.**

Advanced exploration of timely topics and issues related to communication in various contexts. Topics vary from semester to semester. May be taken up to two times for credit with permission of department chair. Prer., Vary from topic to topic.

**COMM 495-3. Seminar in Leadership and Organizational Change.**

A dynamic and practical project-based course focusing on contemporary leadership approaches and the demands the current environment of change and innovation place on organizational leadership. Prer., COMM 111 and LEAD 211. Meets with COMM 595.

**COMM 499-3. Multicultural Diversity and Communication- A Team Teaching Approach.**

It will examine the process and theory of communication and its application to a multicultural society. It will explore cases of successes and failures in interpersonal, group, and mass communication. It will also examine the process of verbal and nonverbal communication expressed in a variety of channels, systems, and codes. Meets with COMM 599.

**COMM 510-3. Advanced Public Speaking.**

Advanced exploration of the theory, preparation, delivery and evaluation of public speeches. Prer., COMM 210 or equivalent. Meets with COMM 410.

**COMM 515-3. Communication for the Classroom Teacher.**

This course is intended to be both theoretical and practical in nature and will provide teachers and prospective teachers the rationale for using appropriate communication strategies in the classroom. It will include methods for analysis, development, and facilitation of teachers' and their students' communication behaviors. Meets with COMM 415.

**COMM 522-3. Creative Communication.**

Exploration of the relationship between creativity and communication. Topics include: theories and models of creativity, creativity and language, the creative process in groups and organizations, and creative influence. Meets with COMM 422.

**COMM 524-3. Seminar in Organizational Communication.**

Explores major

theoretical perspectives for the study of organizational communication, examines culture and communication relationships, describes the role and responsibilities of organizational communication professionals, and surveys current research in organizational communication. Students make application of organizational communication principles to a variety of case studies and organizational experiences. Meets with COMM 424.

**COMM 529-3. Sustainability and Corporate Social Responsibility.**

Examines the communication challenges and opportunities organizations face dealing with sustainability and corporate social responsibility. Course combines theoretical and applied perspectives, focusing on issues of: corporate governance, ethics, global corporate citizenship, stakeholder management and social auditing/reporting. Meets with COMM 429.

**COMM 551-3. Quantitative Methods Communication for Research.**

Course begins with a review of elementary statistics and measurement concerns and moves on to T-test, ANOVA, Chi-squares, bivariate and multivariate regression. Prer., COMM 250 and I D 105. Meets with COMM 451.

**COMM 560-3. Contemporary Theories of Human Communication.**

An exploration of essentials of theory development and construction as related to the human communication process with primary emphasis on contemporary theories of human communication. Taught in a seminar format. Meets with COMM 460.

**COMM 569-1 to 3. Problems in Radio-**

**Television and Film.** Opportunity for students to explore, upon consultation with the instructor, areas in radio-TV and film which the normal sequence of offering will not allow. Prer., Consent of instructor.

**COMM 570-3. Instructional Media.**

Comprehensive examination of communication and learning theory, instructional design, and media production.

**COMM 575-3. Communication Law.**

Examines legal principles of public communication including the First Amendment, defamation, privacy, political speech, commercial speech, obscenity, news gathering, intellectual property rights, and regulation of broadcast, cable and online communications. Meets with COMM 475.

**COMM 577-3. Leadership Communication in a Global Environment.**

Advanced exploration of contemporary leadership theory and research with an emphasis on global leadership

communication issues. Strategic communication methods are investigated through case analysis with emphasis on the relationship between leadership and culture, leadership style, transformational leadership, charisma, corporate culture, leadership challenges in dealing with diverse populations, ethical leadership and followership, and the global leadership challenges of the future.

**COMM 580-3. Qualitative Research Practices in Communication Studies.**

Introduces graduate students to the qualitative communication research process by: locating and critically reviewing scholarly literature, critically analyzing scholarly research, describing various qualitative research methods used in communication research, developing a communication research proposal, and carrying out a project. Prer., COMM 601.

**COMM 595-3. Seminar in Leadership and Organizational Change.**

A dynamic and practical class offering assessment activities and dialogues focusing on the demands the current environment of change and innovation place on organizational leadership. Meets with COMM 495.

**COMM 599-3. Multicultural Diversity and Communication.**

It will examine the process and theory of communication and its application to a multicultural society. It will explore cases of successes and failures in interpersonal, group, and mass communication. It will also examine the process of verbal and nonverbal communication expressed in a variety of channels, systems, and codes. Meets with COMM 499.

**COMM 601-3. Introduction to Graduate Work in Communication.**

Intended to familiarize students with the philosophical, ideological and methodological bases of study in communication. Required for all departmental graduate students.

**COMM 602-3. Communication Research Practicum.**

A project-based graduate course designed to involve students in communication research and/or creative work from the proposal stage through conference presentation/publication/production. Prer., COMM 601 and/or instructor consent.

**COMM 610-3. Communication Competency: Theory, Assessment, and Pedagogy.**

In a seminar format, this course examines the historical development of various theories, present conceptualizations, and models of communication competency. Models are related to assessment in various contexts. Students develop and present an oral communication competency assessment program.

**COMM 625-1 to 6. Problems in Communication.** Explores various graduate-level subjects in communication not normally offered on a regular basis. See Schedule of Courses for current offerings and prerequisites.

**COMM 626-3. Communication, Training, and Development.** Examines the field of training and development from both theoretical and pragmatic perspectives. Although the primary emphasis will be on corporate training and development, the course will also address broad principles relating to adult education in a variety of training contexts.

**COMM 651-3. Intermediate Quantitative Methods for Communication Research.** Course begins with a review of elementary statistics and measurement concerns and moves to t-test, ANOVA, Chi-Squares, bivariate and multiple regression. Prer., COMM 451/551 or permission of instructor.

**COMM 699-3. Emerging Communication Technologies.** Examination of new communications technologies with regard to use and capability and impact on interpersonal, small group, organizational, and international contexts. Special emphasis on impact of technologies for problem solving, decision making, power relationships, geographically diverse work teams, and changing communication theory.

**COMM 700-1 to 9. Masters Thesis.**

**COMM 940-1 to 4. Independent Study in Communication.** Individually developed and implemented research projects in communication. Prer., COMM 102, COMM 103 and consent of instructor.

**COMM 950-1 to 6. Independent Study in Communication.** Individually developed and implemented research projects in communication. A student desiring independent study credit must present to the faculty a well-defined topic for research. Prer., Graduate status.

**COMM 999-0. Candidate for Degree.**

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## ECONOMICS

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**ECON 100-3. The Economics of Social Issues.** The Economics of Social Issues introduces the student to economics in a less rigorous manner than ECON 101. Economic issues are introduced in examining wealth, poverty, energy, crime, education, health, discrimination, unemployment and inflation. May not be taken for credit by students who have already completed ECON 301.

**ECON 101-3. Introduction to Microeconomics.** An analysis of the market system and its role in allocating

goods and services; problems of market failure (e.g., monopoly, environmental pollution, and public goods), and alternative government responses to such problems.

**ECON 202-3. Introduction to Macroeconomics.** An examination of the forces which determine national income, employment, and prices; use of government policy to combat inflation and unemployment; balance of payments problems; theories of growth for developed and less developed economies, poverty, and consideration of alternative economic systems. Prer., ECON 101.

**ECON 281-3. Introduction to Statistics and Computing in Economics.** Uses of descriptive and inferential statistics in economics. Introduction to probability, random sampling, confidence intervals, hypothesis testing and simple linear regression.

**ECON 301-3. Intermediate Microeconomic Theory.** Production, price, and distribution theory under conditions of perfect and imperfect competition. Prer., ECON 101.

**ECON 302-3. Intermediate Macroeconomic Theory.** Keynesian, classical, and monetarist theories of national income determination. Problems of unemployment, inflation, international exchange, and growth. Prer., ECON 102 or ECON 202.

**ECON 315-3. Great Books of Economics.** A study of economic principles as developed in the original works of great writers, especially Adam Smith, David Ricardo, and Karl Marx. Prer., ECON 101 and ECON 202.

**ECON 321-3. Economics of the Public Sector.** Analysis of the role of government in a capitalist economy. Effects of alternative tax structures; local, state, and federal expenditure and revenue policies. Use of fiscal policy in seeking goals of full employment, stable prices, and growth. Prer., ECON 101.

**ECON 328-3. International Political Economy.** Overview of the world political economy, especially in the post-WWII period. The central goal of the course is to provide information and develop analytical tools necessary for students to grasp the political issues inherent in international economic relations. Prer., ECON 100, ECON 101 or ECON 202. Meets with P SC 428.

**ECON 330-3. Environmental Economics.** An examination of the economic basis for and possible solutions of the environmental crisis. Particular attention will be placed on the ways in which legal and political institutions

affect economic decisions that have an impact on the environment. Specific problems considered will include air and water pollution, solid waste disposal, population control, energy resources, and conservation. Prer., ECON 101 or consent of instructor.

**ECON 341-3. International Economics.** Analysis of the basis for and consequences of opening an economy to the international arena. Specific issues considered are the benefits and costs of international trade, the reason for barriers to trade, the determination of exchange rates and the effect of government policies of international good and factor flows. Prer., ECON 101 and ECON 202, or consent of instructor.

**ECON 350-3. Economic History of the United States.** American economic organization and institutions and their development from colonial times to the present. Prer., ECON 101 and ECON 202.

**ECON 366-3. Economics and Community Problems.** Students build on an introductory level knowledge of economics to see the economic aspects of social problems and their solutions through service-learning assignments in the community. Individual journals and oral presentations also required. Prer., ECON 100 or ECON 101 or ECON 202.

**ECON 369-3. Economics of Business.** Examines the application of economic theory to business behavior, strategy, and market structure. Prer., ECON 101.

**ECON 371-3. Comparative Economic Systems.** Comparison of resource allocation and stabilization policies under capitalism, socialism, and fascism. Examination of experiences of selected countries. Prer., ECON 101 or consent of instructor.

**ECON 377-3. Economic Development.** This course examines the sources of economic development and underdevelopment. Through examination of the situation of high, middle, and low income countries recommendations for growth strategies are developed. Prer., ECON 101 or ECON 202.

**ECON 385-3. Law and Economics.** Examines how economic theory has been applied in legal theory and been used to shape legal outcomes. Numerous cases are examined. Prer., ECON 101 or instructor consent.

**ECON 398-3. Special Topics in Economics** A study of special topics in economics. Topics vary from semester to semester and generally emphasize the application of economic analysis to current issues. Prer., ECON 101.



**ECON 401-3. Advanced Microeconomic Theory.** Study of the core of microeconomic theory using calculus. Topics include: consumer theory of the firm, profit maximization, efficiency and market failure. Several advanced topics from recent developments in microeconomics are also examined. Prer., ECON 301 and MATH 112 (or 135) or consent of instructor.

**ECON 423-3. Public Expenditures Evaluation and Policy Analysis.** Provides training in methods of public policy analysis and evaluation. Covers benefit-cost and cost-effectiveness analysis and research design. Prer., ECON 301, ECON 321 is recommended or consent of instructor. Meets with P AD 5320.

**ECON 431-1 to 3. Understanding Our Economy.** Explores a variety of topics applicable to the study and teaching of economics. The emphasis will be on themes, topics and structures as ways to motivate students interested in economics. This course will be taught through the Division of Continuing Education. Pass/Fail only.

**ECON 441-3. Advanced International Economics.** Through development of advanced models, this course examines the likely effects of globalization on the U.S. and other countries. Prer., ECON 301, ECON 302, ECON 341.

**ECON 461-3. Labor Economics.** The determination of wages and working conditions in the U.S. Economy. A study of the supply and demand for labor under competitive and noncompetitive conditions. Includes the economic effects of trade unions, internal labor markets, migration and labor mobility, as well as analysis of occupational choice, women in the labor force, and the causes and consequences of discrimination. Prer., ECON 301.

**ECON 481-3. Introduction to Econometrics.** Development and application of multiple regression techniques in testing economic theories. Prer., ECON 301 or 302; ECON 281 or consent of instructor.

**ECON 501-3. Economics for Educators.** An exploration into the functioning of a market economy and the role of the government. Includes coverage of microeconomic and macroeconomic concepts and models of particular relevance to K-12 educators. Prer., Undergraduate degree and current K-12 teacher.

**ECON 603-1 to 2. Methods for Teaching Elementary Economics.** Uses literature and activity based economics to develop the tools necessary for elementary

economics instruction. Prer., ECON 501.

**ECON 604-3. Methods for Teaching Economics.** Presents activity based economics materials and methods to prepare the secondary-level teacher to teach economics. Prer., ECON 501.

**ECON 631-1 to 3. Teaching Economics.** The seminar will explore a variety of topics applicable to the study and teaching of economics. The emphasis will be on themes, topics and strategies most appropriate to motivate students' interest in economics. Courses offered through the council for economic education. Not an option for ECON majors or grad students. Pass/Fail only.

**ECON 940-1 to 3. Independent Study in Economics.**

**ECON 941-1 to 3. Independent Study in Macroeconomics.**

**ECON 950-1 to 3. Independent Study in Economics.**

## ENGLISH

**ENGL 099-3. Components of Writing.** Introductory writing course offered through Extended Studies: 262: 4071. Students develop strategies for managing academic reading and writing assignments. Emphasizes the writing process: generating topics, drafting, revising and editing academic prose. Students receive one-on-one support throughout the writing process with special attention to writing conventions and the development of ideas. Critical reading and discussion skills are an integral part of this course. ENGL 099 is taught in a computer-mediated environment. Designed to prepare students for ENGL 131. Placement Criteria: ACT English score of 18 or below; SAT English score of 449 or below. For additional placement information, call the Writing Program: (719) 262-4040.

**ENGL 131-3. Rhetoric and Writing I: Academic Reading and Analytical Writing.** First semester of a two-semester course, required of all students. Introduces students to academic reading and writing processes. Students develop critical reading, writing and thinking skills through class discussion, the rhetorical analysis of academic texts and the writing of analytical essays. Students write for a variety of purposes and audiences. Emphasis is given to reading and writing processes as multiple, and rhetorically diverse. Students may variously explore multicultural approaches to reading and writing, interdisciplinary approaches to reading and writing, community-specific definitions of literacy and language practices and/or the impact

of technology upon academic reading and writing processes. Requirements include an in-class essay exam and three analytical essays. ENGL 131 is taught in a computer-mediated environment. Students needing additional work on sentence-level editing skills may be asked to enroll concurrently in ENGL 135. Prer., Successful completion of ENGL 099 or equivalent; score of 19+ on the English ACT; or score of 450+ on the English SAT. See general information section of the Schedule of Courses or the Course Bulletin for additional information.

**ENGL 135-1. Sentence Sense: Editing and Style.**

A course in sentence structure and strategies, to be taught in small group workshops in the Writing Center. Students will learn and apply basic grammatical and stylistic principles in small, computer-assisted, interactive group sessions, while also working individually with peer tutors on their own writing. One-hour workshops meet weekly in the Writing Center beginning the third week of classes. Supplements Composition courses. Cannot be repeated for credit.

**ENGL 141-3. Rhetoric and Writing II: Argument and Research.**

Emphasizes argument and research supported through extended inquiry. Students use classical stasis theory to invent arguments as appropriate to audience and situation. Students map complex issues, summarize and negotiate counterclaims, and strategically cast their arguments in stasis deemed effective for their situation. Prer., ENGL 131 or equivalent.

**ENGL 145-1. Independent Writing Workshop.**

A self-study lab course in grammar, sentence structure, and basic writing principles. Student programs are individually designed to meet the student's particular area of need. English 145 students will complete grammatical and syntactical exercises, writing revisions, and/or assigned readings, while working collaboratively with a peer tutor on the student's academic writing assignments. Requires a weekly, two-hour commitment. Allows for concentrated study and ongoing individualized support. Supplements Composition courses. Can be taken twice for credit.

**ENGL 150-3. Introduction to Literature for Non-Majors.**

Fundamental literary analysis of poetry, drama and fiction. This course is a prerequisite to all other literature courses. Prer., ENGL 131 or equivalent, or score of 29+ on English ACT or score of 690+ on English SAT

**ENGL 190-3. Introduction to Literary Studies (For English Majors Only).**

Introduction to study of poetry, drama and fiction designed specifically to prepare majors for advanced work in literature. This course is a prerequisite for English majors to every other literature course in the department of English except ENGL 150. Prer., ENGL 131 or equivalent, or score of 29+ on the English ACT or score of 690+ on English SAT.

**ENGL 203-3. Introduction to Creative Writing - Poetry.**

For the beginning student who wants to write poetry. Workshop approach. Prer., ENGL 131 or instructor consent.

**ENGL 204-3. Introduction to Creative Nonfiction Prose.**

Focusing on writing nonfiction pieces, the course explores this burgeoning genre, represented by literary journalism, essays, memoirs, personal narratives, and confessional writing. Students will write in these formats, and their work will be critiqued in class. Reading includes some of today's best nonfiction. Prer., ENGL 131 or instructor consent.

**ENGL 205-3. Introduction to Creative Writing - Fiction.**

Exercises in perception and voice designed to develop students' abilities to write fiction. Workshop approach. Prer., ENGL 131 or permission of instructor.

**ENGL 251-3. Survey of British Literature I.**

Chronological study of major British writers from the beginnings (Beowulf) through the works of Shakespeare. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 252-3. Survey of British Literature II.**

Chronological study of major British writers from the period following the English Renaissance through the eighteenth century, or from John Donne and John Milton to Thomas Gray and Jane Austen. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 253-3. Survey of British Literature III.**

Chronological study of major British writers from the Romantic period through the rest of the nineteenth century, or from the Romantics (Blake, Burns, etc.) to Yeats. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 254-3. Survey of British Literature IV.**

Chronological survey of major British writers from Joyce to Beckett, or from the start of the twentieth century to the contemporary era. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 260-3. Literature: The Global Perspective I.**

Designed to introduce students to literature from the ancient and early modern world; particular attention to

emerging notions of Western culture and an indebtedness to exchanges with the East. Prer., ENGL 131 and either ENGL 150 or ENGL 190.

**ENGL 261-3. Literature: The Global Perspective II.**

Examines modern works with particular attention to literature outside North America and Great Britain and to how a quickly and often violently changing world affects regional cultures. Prer., ENGL 131 and either ENGL 150 or ENGL 190.

**ENGL 280-3. Film and Fiction.**

This is a course that examines the "transformational" process by which a novel (or short story) is adapted to film. What is gained, lost, altered in that process is then used as a means of coming to understand that novel or short story. Most typically what will not really "transform" itself to film is used as the basis of critical analysis. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 290-3. Topics in Literature.**

While the topic varies by semester and instructor, this course will always focus on national diversity and/or global awareness through the study of how literature and socio-political conditions are reciprocally influenced. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190.

**ENGL 291-1 to 3. Topics in Literature.**

Topics will vary from year to year and may or may not be offered in any given semester. See individual course schedules for Fall or Spring. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 300-3. Literary Criticism in Theory and Practice.**

Introduces students to various critical methods, which they will apply to novels and works from other literary genres; students will also have opportunities to hear English faculty members engage in critical interchange. Prer., ENGL 131 and ENGL 150 or ENGL 190.

**ENGL 301-3. Advanced Composition.**

Writing workshop that offers students the opportunity to work on advanced writing projects and enhance their repertoire of rhetorical strategies. Specific writing projects may vary. TEP sections of ENGL 301 also emphasize instructional strategies for managing the writing process in public school settings. Prer., ENGL 131 and ENGL 141 or equivalent.

**ENGL 302-3. Intermediate Rhetoric and Writing.**

Extends writing and rhetorical strategies mastered in the core composition sequence. Students further develop research and argument skills in unique contexts such as service learning

and writing in the community. Learning and research sites may vary. Prer., ENGL 131 and ENGL 141 or equivalents.

**ENGL 303-3. Intermediate Creative Writing - Poetry.**

For the experienced writer of poetry. Workshop approach. Prer., ENGL 203 or consent of instructor.

**ENGL 304-3. Intermediate Creative Non-Fiction.**

Focusing on personal narrative writing, this course explores the genre of memoir and autobiographical writing. This course is workshop intensive using in-class writing assignments, class critiques, close reading, and discussion of essays. Through memoir, students learn to lift the raw material of life and shape experiences, transform events and deliver wisdom. Prer., ENGL 204 or consent of instructor.

**ENGL 305-3. Intermediate Creative Writing: Fiction.**

Exercises in perception and voice and critical discussion of student work in the forms of fiction. Limited to 21 students. By consent of instructor only. Based upon demonstrated desire and ability to write. Workshop approach. May be taken twice for credit.

**ENGL 307-3. Business and Administrative Writing.**

For all students and especially business and professional writing students who foresee the need for proposal writing, report writing, data collection, and presentation. Prer., ENGL 131 or equivalent.

**ENGL 309-3. Technical Writing and Presentation.**

This course is designed to teach students how to present technical information effectively both through written reports and through oral presentations. It is taught in an electronic classroom with access to software tools for the design of both written and oral presentations. Prer., ENGL 131 or equivalent.

**ENGL 311-3. Advanced Grammar.**

Provides a theoretical, historical, and practical study of grammar and the rules governing language use, particularly as they apply to professional writing. The emphasis is on the standard conventions of grammar, usage, mechanics, and syntax. Students will practice a variety of techniques for applying these skills to their own writing. Prer., ENGL 131 or equivalent or a bachelor's degree.

**ENGL 312-3. Technical Editing and Style.**

Focuses on editing strategies for improving the stylistic features of professional writing. In particular, it is concerned with a document's organization, clarity, conciseness, consistency, completeness, and accuracy. Students will practice a variety of techniques for applying these skills to their own writing. Prer., ENGL 131 or

equivalent and ENGL 311 or a bachelor's degree or instructor consent.

**ENGL 313-3. Web and Print Document**

**Design.** Examines print and web-based design strategies in specific types of documents for a variety of professional audiences. Each project requires a proposal, a progress report, and a preliminary draft for peer review before submission of the final copy. Prer., ENGL 131 or equivalent and ENGL 307 or ENGL 309 or a bachelor's degree or instructor consent.

**ENGL 314-3. Managing Writing Projects in Business and Industry.**

Provides a theoretical framework for managing writing projects and practice in working collaboratively in self-managed teams. Each team completes major writing projects collaboratively produced. Prer., ENGL 131 or equivalent and ENGL 307 or ENGL 309 or a bachelor's degree or instructor consent.

**ENGL 315-1 to 3. Professional**

**Writing Internship.** Gives students an opportunity to apply writing theory to a work environment and to gain practical experience in writing on the job. Working for an organization participating in the Internship Program, students perform 40 hours of writing-related duties over the course of the semester for 1 credit, 80 hours for 2 credits, and 120 hours for 3 credits. Interns are evaluated by a supervisor at the host organization, keep a weekly log of their experiences, and write a final report to the instructor, summarizing and evaluating their internship experience. Prer., ENGL 131 or equivalent or a bachelor's degree, and at least 9 credits in Professional Writing courses.

**ENGL 316-3. Tools for Technical Writers.**

Students will learn to use the standard software tools critical to technical writers in print and online documentation, for example, FrameMaker, Adobe Acrobat, MS Word, MS PowerPoint, FrontPage, and PaintShop Pro among others. Prer., ENGL 131 or equivalent and ENGL 307 or ENGL 309 or instructor consent.

**ENGL 320-3. Women Writers and**

**Women's Experience.** Study of some women writers deserving attention because of their artistry and depiction of women's lives. May be repeated for credit with permission of department chair. Prer., ENGL 150 or ENGL 190. Meets with WMST 320.

**ENGL 332-3. Born in the USA:**

**Masterpieces of American Literature.** A study of the works by American masters of fiction, poetry, drama, and prose non-fiction, emphasizing the relationship of the literature to its cultural and historical

contexts. Examining works of cultural diversity and giving various perspectives of America, the course includes readings by Native-American, African American, Asian American, and Latino/a writers. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 338-3. Survey of American**

**Literature I.** Surveys the foundational texts of American Literary history from the literatures of European encounters with New World Amerindians (Columbus, Cabeza de Vaca, Smith), through the American Romantics (Poe, Hawthorne, Melville) with attention to the cultural and social contexts in which these literatures were produced. Includes study of Puritan literary forms (the Jeremiad, the Captivity Narrative, the meta-physical poetry of Bradstreet and/or Taylor) and reflects on how these forms were revised by such authors as Douglass and Whitman in light of antebellum engagements with the problems of race, class, and gender. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 339-3. Survey of American**

**Literature II.** Surveys the development of American Literary voices from the Civil War era experimentations of Davis, Crane and Dickinson, through development of American Modernism in poetry and prose (Williams, Eliot, Stevens, Anderson, Hemingway, Faulkner), concluding with the Native American Renaissance of the 1960s and 70s. Includes such writers as Twain, James, Wharton and/or Chopin with the attention to race-relations, immigration and the New Woman, as well as surveying the development of the African-American literary tradition through the writings of Washington, DuBois, Toomer, Wright, and/or Hurston. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 346-3. Race, Writing & Difference in the Contemporary American**

**Novel.** A study of major writers and developments in the fast-expanding field of American ethnic minority literature, the course examines a representative group of novelists who write of the African American, Latino/a or Hispanic, Asian American, and Native American experiences. The ethnic minority novel transmits ethnic identity and cultural history and recovers lost histories and suppressed voices. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190 or EST 200. Meets with EST 346.

**ENGL 353-3. Literature of the English Renaissance, Excluding Shakespeare.**

Explores the cultural currents in the time of Shakespeare through four important literary genres: lyric, drama (non-Shakespearean), epic/romance, and various forms of prose. Prer., ENGL 131

or validated equivalent and ENGL 150 or ENGL 190 or EMST 200.

**ENGL 355-3. Native American**

**Literature.** Provides students with the necessary cultural and literary background required to understand and appreciate some of the major works of Native American literature. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with EMST 355.

**ENGL 360-3. Contemporary African American Literature.**

Provides students with the necessary cultural and literary background required to understand and appreciate some of the major works of African American Literature. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190 or EMST 200. Meets with EST 360.

**ENGL 380-3. Introduction to Peer**

**Tutoring Writing.** Study of theoretical underpinnings of Writing Center practice, with instruction and practice in the tutoring of writing. Students will also further develop own writing abilities. Includes one hour of supervised tutoring in the Excel Writing Center weekly. Required class for employment as a Writing Center peer tutor. All majors encouraged to enroll. Prer., ENGL 131 and ENGL 141.

**ENGL 381-3. Writing Across the Curriculum: Tutoring Critical Thinking**

**Across the Disciplines.** Course examines the inquiry processes in the Sciences, Social Sciences and Humanities, and how that knowledge is expressed through specific writing styles, forms and conventions. Students will complete a practicum component either in the Writing Center or classroom. Prer., ENGL 131 and ENGL 141.

**ENGL 385-1 to 3. Advanced Topics in Professional Writing.**

In this course, students intensively study selected topics in professional writing. Topics and instructors vary from semester to semester. Prer., ENGL 307 or ENGL 309 or instructor's consent.

**ENGL 390-3. Topics in Literature.**

While the topic varies by semester and instructor, this course will focus on national awareness and/or global awareness through the study of how literature and socio-political conditions are reciprocally influenced. Prer., ENGL 131 and either ENGL 150 or ENGL 190.

**ENGL 391-1 to 3. Topics in Literature.**

Topics will vary from semester to semester. Check Fall and Spring schedules. May be taken up to two times for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 395-3. Chaucer.** Study of major works with emphasis on "Canterbury Tales." Readings will be in middle English; short introduction to the language will precede study of the poetry. Prer. ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 397-3. Shakespeare I.** Comedies and Histories. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 398-3. Shakespeare II.** Tragedies and Romances. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190.

**ENGL 410-3. Advanced Creative Writing.** Focuses on generating new material, revising existing work with an eye towards completion of a manuscript for publication, and furthering the development of critical voice. Students must bring a high level of dedication to their writing and a demonstrated proficiency in their craft. Workshop approach and independent projects required. Genres vary. Prer., Intermediate courses in the genre or instructor approval.

**ENGL 420-3. The Eighteenth-Century British Novel: Defoe to Austen.** Traces the emergence of the novel from its subliterary roots in early 18th century to its stunning transformation by early 19th century. Examines historical context, narrative techniques, theory of character, and major themes. Authors include Defoe, Richardson, Fielding, Sterne, and Austen. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 520.

**ENGL 421-3. The Nineteenth-Century British Novel.** Continuation of 420, but may be taken without previous novel course. Examines major British novels of the 19th century and early 20th century. Authors include the Brontes, Dickens, Eliot, and Hardy. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 521.

**ENGL 423-3. Development of the American Novel I.** Study of the American novel from its beginnings, with the work of Charles Brockden Brown, through the 19th century, concluding with the work of Henry James. Will examine both artistic development of American writers and the novels' functions as vehicles of cultural history. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 523.

**ENGL 424-3. Development of the American Novel II.** Continuation of ENGL 423. Covers development of the "modern" realistic novel, from beginning of the 20th century through 1945, and examines work of Wharton, Hemingway, Fitzgerald, Dreiser, Wright and others. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 524.

**ENGL 425-3. Contemporary Novel.** Study of major novelists and developments in the genre, with emphasis on British and American novels written since 1965. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 525.

**ENGL 430-3. Studies in American Literature and Culture.** Advanced study of such topics as early American and modern American poetry and literature of the American frontier. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 530.

**ENGL 440-3. Genre Studies.** Topics may include medieval epic and romance, lyric poetry, dramatic comedy, medieval comedy, satire. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 540.

**ENGL 450-3. Studies in Anglo-Saxon and Medieval Literature.** Study of major works in prose, poetry, and drama of medieval Europe. May be repeated for credit with permission of the department chair. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 550.

**ENGL 483-3. Rhetoric and Writing: Survey in Contemporary Approaches to Teaching Writing.** Theoretical and practical study of writing processes across diverse contexts. Explores the rhetorical nature of writing, and applies rhetorical theory and research to the teaching and practice of writing. See the Schedule of Courses for the topic in any given semester. Prer., Upper-division standing or permission of instructor, and ENGL 131 and ENGL 141 or course equivalents. Meets with ENGL 583.

**ENGL 484-3. Practicum for Writing Instructors.** Training practicum for writing instructors at the college level. Theoretical inquiry and practical development of syllabi, course plans, and instructional materials. May be taken for a grade or Pass/Fail. Meets with ENGL 584.

**ENGL 485-3. History of the English Language.** Outline of the history of the English language including a brief survey of sound changes, of grammatical forms and of the vocabulary. Meets with ENGL 585.

**ENGL 486-3. Special Topics in Rhetoric and Writing:** Advanced, in-depth study of the theoretical and practical accomplishments of writers and rhetors across diverse historical contexts.

Rhetors, theorists, and historical contexts shift with topics. Prer., ENGL 131 and ENGL 141 or equivalent courses. Meets

with ENGL 586.

**ENGL 495-3. Seminar in Literary Topics.** Course topic will vary by semester. Check Schedule of Courses each term for specific course content. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 595.

**ENGL 498-3. Seminar in Major Authors.** Author varies from semester to semester and may not be offered in any given year. Check schedule of courses for specific information. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 598 and WMST 498, if appropriate.

**ENGL 520-3. The Eighteenth-Century British Novel: Defoe to Austen.** Traces the emergence of the novel from its subliterary roots in early 18th century to its stunning transformation by the early 19th century. Examines historical context, narrative techniques, theory of character, and major themes. Authors include Defoe, Richardson, Fielding, and Austen. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 420.

**ENGL 521-3. The Nineteenth-Century British Novel.** Continuation of 520, but may be taken without previous novel course. Examines major British novels of the 19th century and early 20th century. Authors include Bronte, Dickens, Eliot, and Hardy. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 421.

**ENGL 523-3. Development of the American Novel I.** Study of the American novel from its beginnings with the work of Charles Brockden Brown, through the 19th century, concluding with the work of Henry James. Will examine both artistic development of American writers and the novel's functions as vehicles of cultural history. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 423.

**ENGL 524-3. Development of the American Novel II.** Continuation of ENGL 523. Covers development of the "modern" realistic novel from beginning of the 20th century through 1945 and examines work of Wharton, Hemingway, Fitzgerald, Dreiser, Wright and others. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 424.

**ENGL 525-3. Contemporary Novel.** Study of major novelists and developments in the genre, with emphasis on British and American novels written since 1965. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 425.

**ENGL 530-3. Studies in American Literature and Culture.** Advanced study of such topics as early American and modern American poetry and literature of the early American frontier. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 430.

**ENGL 540-3. Genre Studies.** Topics may include medieval epic and romance, dramatic comedy, medieval comedy, satire. May be repeated for credit with permission of department chair. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 440.

**ENGL 550-3. Studies in Anglo-Saxon and Medieval Literature.** Study of major works in prose, poetry, and drama of medieval Europe. May be repeated for credit with the permission of the department chair. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190. Meets with ENGL 450.

**ENGL 583-3. Rhetoric and Writing: Survey in Contemporary Approaches to Teaching Writing.** Theoretical and practical study of writing processes across diverse contexts. Explores the rhetorical nature of writing and applies rhetorical theory and research to the teaching and practice of writing. Recommended for students and professionals interested in teaching writing in the public schools or at the college level, also intended for students interested in pursuing graduate studies in Rhetoric and Composition. Designed as a graduate seminar. Meets with ENGL 483.

**ENGL 584-3. Graduate Practicum for Writing Instructors.** Graduate training practicum for writing instructors at the college level. Theoretical inquiry and practical development of syllabi, course plans, and instructional materials. May be taken for a grade or Pass/Fail. Meets with ENGL 484.

**ENGL 585-3. History of the English Language.** Outline of the history of the English language including a brief survey of sound changes, of grammatical forms and of the vocabulary. Meets with ENGL 485.

**ENGL 586-3. Special Topics in Rhetoric and Writing.** Advanced, in-depth study of the theoretical and practical accomplishments of writers and rhetors across diverse historical contexts. Rhetors, theorists and historical contexts shift with topics. Prer., ENGL 131 and ENGL 141 or equivalent courses. Meets with ENGL 486.

**ENGL 595-3. Seminar in Literary Topics.** Course topic will vary by semester. Check the Schedule of Courses each term for specific course content. May be repeated for credit with permission of department chair. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 495.

**ENGL 598-3. Seminar in Major Authors.** Authors to vary from semester to semester and may not be offered in any given year. Check Schedule of Courses for specific information. May be repeated for credit with permission of department chairperson. Prer., ENGL 131 or equivalent and ENGL 150 or ENGL 190. Meets with ENGL 498 and WMST 498, if appropriate.

**ENGL 696-3. Renaissance Drama Exclusive of Shakespeare.** Graduate study in the major plays of Elizabethan and Stuart drama from the 1580s to the closing of the theaters in 1642. Consideration of representative sub-genres of comedy, history, tragedy, and romance in the context of their culture. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190.

**ENGL 940-1 to 3. Independent Study in English.** Students may not enroll for independent study in this course without prior consent of the English faculty. A student desiring independent study credit must present to the faculty, in writing, a well-defined topic for research which is not included in the regular English course offerings. Approval for such study must be secured from the department chair before registration. May be repeated for credit with permission of department chairperson.

**ENGL 950-1 to 3. Independent Study in English.**

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## ENERGY SCIENCE

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**ENSC 150-3. Introduction to Energy Science I.** Brief history of human energy use; rudimentary energy concepts and fundamental dimensions; fossil fuels; magnetism and electricity; and environmental effects of energy production and use. Meets with PES 150.

**ENSC 151-3. Introduction to Energy Science II.** Brief history of human energy use; rudimentary energy concepts and fundamental dimensions; automobiles; solar energy; wind energy; other alternative energy approaches; environmental effects of energy production and use; and solid waste management. Meets with PES 151.

**ENSC 160-3. Introductory Solar Energy.** Brief history of human solar energy use; rudimentary energy concepts and fundamental dimensions; basic operation

of the sun; fundamentals of thermal energy transfer and storage; economics and application of solar principles to construction; frequent computer simulation and web activities. Meets with PES 160.

**ENSC 162-1. Solar Energy Laboratory.** Hands-on lab class emphasizing experimental techniques and the scientific method applied to solar phenomena (position and intensity) and both passive and active solar energy systems. Prer., or Coreq., ENSC 160. Meets with PES 162.

**ENSC 250-3. Energy Fundamentals.** Past, present, and future of human energy use; rudimentary energy concepts and fundamental dimensions; efficiency of energy conversions; heat transfer; commercial electricity; alternative energy sources; environmental ramifications; energy conservation; computer simulation and web activities. This survey course is designed for science majors and assumes some knowledge of calculus and the physical sciences. Meets with PES 250.

**ENSC 320-4. Practical Meteorology.** An introduction to weather elements and meteorological phenomena with emphasis on physical principles and practical applications. Includes weather elements, air masses, clouds, precipitation, storms and other weather systems, weather map analysis, forecasting, weather control and modification, and current developments in the field of meteorology. Local and current weather facilities will be used to relate meteorological principles to actual observations. Meets with GES 320.

**ENSC 361-3. Solar Energy Design.** A study of selected design tools for component sizing and performance prediction of active and passive solar thermal systems. Graphic and computer average monthly performance tools and numerical simulation methods will be covered. Meets with PES 361.

**ENSC 365-3. Nuclear Energy.** Nuclear structure, radioisotopes, nuclear reactions, fission, and fusion. Emphasis on nuclear power production and its environmental impact.

**ENSC 367-3. Exotic Energy Sources.** A survey of the technology of wind, geothermal, and ocean energy conversion, including climatic aspects, site selection, mechanics of the energy system, legal aspects, and environmental relationships.

**ENSC 406-4. Introduction to Remote Sensing.** The acquisition and interpretation of environmental and natural resource data by using aerial photography and other imagery. This is a project oriented course which involves the use of various types of photography and analysis techniques. Prer., GES 100 or GES 101.

Meets with GES 406 and GES 506.

**ENSC 409-4. Image Processing.** An introduction to the advanced methods of resource analysis using remotely sensed imagery. All relevant portions of the electromagnetic spectrum will be discussed. Emphasis will be placed on the digital image analysis (by microcomputer) of LANDSAT data. No previous programming experience required. Prer., ENSC 406 or GES 406. Meets with GES 409 and GES 509.

**ENSC 460-3. Advanced Solar Energy.** Fundamental, technical principles of solar energy. Solar radiation; data and models. Radiative and convective heat transfer. Optical properties of materials. Optical and thermal analysis of flat-plate and concentrating collectors. Analysis of active and passive system performance, including high temperature application. Introduction to photovoltaics. Prer., PES 213 and MATH 236. (PES 250 and 342 are recommended). Meets with PES 460.

## **ETHNIC STUDIES**

**EST 200-3. Introduction to Ethnic Studies.** Introduction to Ethnic Studies focuses upon, and historically contextualizes, the perspectives and cultural expressions of U.S. minority groups. Among other things, this course will consider key concepts such as racial/ethnic formation and examine the inter-relationship among race, ethnicity, gender, class and power.

**EST 201-3. Introduction to Race and Gender.** Through critical analysis, this course will examine race and gender in society. It will focus on how systems of inequality are maintained and perpetuated. A strong emphasis will be placed on the concept of social change. Meets with WMST 201.

**EST 205-3. Jazz History.** Examines the history of Jazz music and culture. Starting with the mid-1800s, explores the influences and developments of this American art form throughout the twentieth century. Learn about the main contributors, the developing musical styles, and how jazz engaged with social and political issues throughout the course of history. Meets with MUS 205.

**EST 211-3. Introduction to Teatro Chicano.** An introductory survey of the historical development of contemporary Teatro Chicano from Spanish drama and an introduction to methods of theatre: acting, directing, staging and script writing. Meets with THTR 211.

**EST 290-3. Special Topics.** Offered to allow lower division study in a specific

area on a demand basis. Prer., EST 200 recommended.

**EST 300-3. Race and Gender at the Movies.** Through critical analysis, this class will focus on race and gender in movies to facilitate an understanding of students' own identities, roles, and behavior in society, and the potential for social change. Prer., WMST/EST 200 or WMST/EST 201. Meets with WMST 300 and FILM 390.

**EST 305-3. Race and Ethnicity in American Politics.** An examination of the role of U.S. ethnic minority groups in American politics from the perspectives of the groups themselves. Topics will include historical and contemporary perspectives on the political activities, interests and legal status of U.S. ethnic minorities; the relationship of power, race/ethnicity and class in determining the effects of the political system on these groups; and the impact of these groups on the political system. Meets with P SC 305.

**EST 310-3. Women of Color: Image and Voice.** An examination of the ways in which the intersections of race, ethnicity, and gender are constructed both within and against traditional American feminism and gender critiques. The course will address areas of divergence from mainstream feminism, as well as the construction of alternative representations by women of color. Prer., WMST 100 or EST 200. Meets with WMST 310.

**EST 323-3. The Chicana/o Community.** Study of the origin, development, and current order of the Chicano community. Includes studies of the "Barrio," ethnic identity, social values, consequences of prejudice and discrimination. Prer., SOC 111 or SOC 220. Meets with SOC 323.

**EST 324-3. African American Community.** Study of the origin, development, and contemporary nature of black community. Includes understanding of black culture and values, consequences of prejudice and discrimination. Prer., SOC 111 or SOC 220 or EST 200. Meets with SOC 324.

**EST 325-3. The Prehistory and History of Native American Cultures of the Southwest.** The prehistory and ethnography of the Indian cultures of the Southwest. Meets with ANTH 325.

**EST 328-3. The Asian American Community.** This course provides a general introduction to Asian American Studies. It surveys Asian American social organization and political history from the 1800s to the present through the lens of immigration, family, labor, community, activism and resistance. Prer., SOC 111 or SOC 220 or EST 200.

**EST 329-3. Perspectives on Race and Ethnic Relations.** A survey of racism, discrimination, prejudice, and relationships between dominant and minority groups in selected areas of the world. Prer., SOC 220 or consent of instructor. Meets with SOC 329.

**EST 342-3. North American Indians.** A survey of the native cultures of America north of Mexico. Examines major institutions by culture area and type of social organization. Prer., ANTH 104 or ANTH 240 or consent of instructor. Meets with ANTH 342.

**EST 343-3. African American Art.** Introduction to contemporary (1970-) African-American art forms with inclusion of traditional African art's influence on American Black culture. Meets with ANTH 343.

**EST 346-3. Race, Writing & Difference: Contemporary American Literature.** A study of the major writers and developments in the fast expanding field of U.S. ethnic minority literature. Prer., ENGL 150 or ENGL 190 or EST 200 and ENGL 131 or validated equivalent. Meets with ENGL 346.

**EST 350-3. Chicana/o History to 1910.** A panoramic sketch of Chicano history to about 1910. This course integrates events, ideas and personalities from both sides of the border to illuminate the evolution of Spanish-speaking people of the American Southwest. Meets with HIST 350.

**EST 351-3. Chicana/o History Since 1910.** A broad sketch of Chicano history since 1910. This course integrates events, ideas, and personalities from both sides of the border to illuminate the evolution of Spanish-speaking people of the American Southwest. Meets with HIST 351.

**EST 352-3. History of Latinas/os in the US.** Course covers the history of US Latino communities and Latin American immigrants to the US from the 1820s to the present. Meets with Hist 352.

**EST 355-3. Native American Literature.** This course is designed to provide students with the necessary cultural and literary backgrounds to understand and appreciate some of the major works of Native American literature. Prer., ENGL 190 or ENGL 350 or EST 200 and ENGL 131 or validated equivalent. Meets with ENGL 355.

**EST 358-3. Immigrant Histories.** The history of immigrants/migrants from Latin America, Africa, the Middle East, and Europe as of 1840 to the present will be examined. Emphasis will be placed on

US immigration laws, the development of ethnic based communities and connections to US policy. Meets with HIST 358.

**EST 360-3. Contemporary African American Literature.** Provides students with the necessary cultural and literary background required to understand and appreciate some of the major works of African American literature. Prer., ENGL 131 or validated equivalent and ENGL 150 or ENGL 190 or EMST 200. Meets with ENGL 360.

**EST 363-3. Gender and Race in Biblical Literature.** Course examines the presence(s), result(s), and interpretation(s) of gender and race in biblical literature and the issues and problems those categories present to the reader. Prer., EST 200 recommended. Meets with PHIL 363 and WMST 363.

**EST 366-1 to 4. Ethnic Minority Communities: Service and Learning.** Provides students the opportunity to put into practice the theoretical knowledge gained in EST courses within the context of placements with community-based organizations that serve women and/or address issues of gender in Colorado Springs. Prer., EST 200 or consent of instructor. Meets with WMST 366.

**EST 372-3. From Slavery to Freedom: Slavery and the African American Experience, 1619-1877** Introduces students to the major political, social and cultural developments in the history of African Americans from 1619 through Reconstruction. Meets with HIST 372.

**EST 373-3. Vision & History in Native American and African American Narratives.** Examines via biography/ autobiography how North America impacts the perspective and reality of American Indian and African American people(s), circa 1790-2000. Meets with HIST 373.

**EST 374-3. African American Social and Political Thought, 1790-1980.** Surveys the historical basis of socio-political thought in North America's diaspora (African American) communities. Meets with HIST 374.

**EST 390-1 to 3. Special Topics.** Offered to allow intermediate study in a specific area on a demand basis. Prer., EST 200 recommended.

**EST 401-3. Special Topics.** Offered to allow intensive study in a specific area. May be repeated for credit with permission of the Program Director. Prer., EST 200 or consent of instructor.

**EST 442-3. US Hispanic/Latino Literature.** Study of the works of the leading Chicano, Puerto Rican, and Cuban-

American writers in the United States. Taught in Spanish. Prer., SPAN 310 or consent of instructor Meets with SPAN 442 and SPAN 542.

**EST 443-3. US Latina/o Drama.** Theatrical work of Chicano, Puerto Rican and US Cuban writers including Valdes, Piñero, Muñoz and Morton. Taught in Spanish. Meets SPAN 443 and SPAN 543.

**EST 444-3. Hispanic, Chicana/o, and Mexican American Literature.** The literary manifestation individuals of Mexican origin in theater, prose, and poetry. Taught in Spanish. Prer., SPAN 319 and SPAN 320. Meets with SPAN 444 and SPAN 544.

**EST 445-3. US Cuban Literature.** Since 1960, and even in the 19th century, Cubans migrated to the US and began to write poems, essays, fiction, and theater; a study of these works. Taught in Spanish. Prer., SPAN 319 and SPAN 320. Meets with SPAN 445.

**EST 471-3. Asian American History.** Course will trace the social, political, economic, and cultural history of Asian Americans from the early settlements of the nineteenth century to the present. Meets with HIST 471.

**EST 940-1 to 3. Independent Study in Ethnic Studies.** Provides an opportunity to advanced students with good scholastic records to independently pursue the study of some subject of special interest. Prer., EST 200 and consent of Director.

## FOREIGN AND CULTURAL STUDIES

**F CS 101-4. Selected Topics in Strategic Languages I.** Elementary Language Study-written, oral, and aural in a less commonly taught languages: Arabic, Cambodian, Chinese, Farsi (Persian), Korean, Thai, and Vietnamese. Permission of Department Chair.

**F CS 102-4. Selected Topics in Strategic Languages II.** Elementary Language Study continued-written, oral and aural in a less commonly taught languages: Arabic, Cambodian, Chinese, Farsi (Persian), Korean, Thai, and Vietnamese. Permission of Department Chair. Prer., F CS 101.

**F CS 318-3. German and Austrian Civilization and Culture.** Lectures, film, readings, discussions in English; knowledge of German not required. Study of development of German and Austrian culture and institutions from 1700 to 1918, emphasizing literature, art, philosophy, and music. Meets with GER 318.

**F CS 319-3. 20th Century German and Austrian Civilization and Culture.** Lectures, films, readings, discussions in English; knowledge of German not required. Study of development of German and Austrian cultures and institutions from 1919 to the present emphasizing literature, design, art, and film. Meets with GER 319.

**F CS 322-3. Japanese Culture and Civilization.** Main currents of Japanese civilization from its beginning to the contemporary period. History, art, plus case studies of cultural differences (taught in English).

**F CS 323-3. Southwestern Culture Studies.** Taught in English. A cultural socio-history of the southwestern United States and its Mexican presence.

**F CS 324-3. Modern French Culture and Civilization: France from 1700-1917.** Studies the creation of modern France from its roots in the culture of the Ancient Regime through the upheaval of Enlightenment and Revolution to the Industrial Revolution and World War I. Emphasis will be on intersections of historical schools of thought, cultural movements and institutional structures in the development of France.

**F CS 337-3. Origins and Development of Russian Cultural Traditions.** Traces the development of Russian cultural traditions from the earliest recorded history of the Slavic people to contemporary society. The impact of religion, foreign domination and invasion, and geography on the Russian mind and behavior are examined. Special emphasis is given to the flowering of Russian literature, music and art in the 19th and early 20th centuries as well as to the role of the arts in the Soviet period.

**F CS 339-1 to 3. Internships in Foreign Cultures.** The Language and Culture department will offer to advanced language students the opportunity to apply their knowledge in settings such as schools, social support agencies, etc. May be repeated up to three times. Prer., 300 Level courses and permission of the department.

**F CS 345-3. German Film.** Screenings, lecture, discussion; knowledge of German not required. German film in a cultural context from beginnings to the present featuring such directors as Lang, Von Sternberg, Riefenstahl, Sagan, Thiele, Fassbinder, Schlöndorff, Wenders, Adlon, and Tykwer. Meets with GER 345 and FILM 345.

**F CS 349-1 to 3. Internship in Foreign Cultures.** The Language and Culture department will offer to advanced language students the opportunity to

apply their knowledge in settings such as schools, social support agencies, etc. May be repeated for credit up to three times. Prer., 300 Level courses and permission of the department.

**F CS 356-3. German Literature in Translation.** Masterworks of German literature representing the major literary genres. Reading knowledge of German not required (in English). Meets with GER 350.

**F CS 359-3. Deaf Culture.** Examines the culture of deaf people. The course will explore their customs, values, norms and heritage of the deaf community in America. Prer., ASL 101 and ASL 102. Meets with ASL 359.

**F CS 369-3. Topics in Hispanic Film.** The cinematic manifestations of the richness and the variety of Hispanic culture as expressed through an artistic and humanistic vision. May be repeated twice for credit if the topic is different. Meets with FILM 369 and SPAN 369.

**F CS 385-3. Austrian and Central European Film.** Screening, lecture and discussion are included in this course. Knowledge of German is not required for non-German minors. A survey of Austrian cinema in a cultural context from the beginning to the present and its relationship with Hungarian and Czechoslovakian film. Directors such as Kolm-Fleck, Korda, Forst, Hartl, Marischka, Corti, Ruzowitzky and Haneke are featured. Meets with FILM 385 and GER 385.

**F CS 389-1 to 3. Field Studies in Language and Culture.** Designed to study both on campus and in the field any aspect of aspects of departmental offerings in language, culture, and/or civilization. May be repeated once for credit, provided that the field trip destination is not duplicated. Prer., Consent of instructor.

**F CS 399-3. Topics in Foreign Culture.** Offered to allow intensive study in a specific area of interest. Prer., Permission of instructor.

**F CS 421-3. Hispanic Heritage of Colorado.** The study of the history and traditions of Hispanics in the state from the 16th century to the present. Meets with SPAN 421.

**F CS 450-1 TO 3. Seminar in Foreign and Cultural Studies.** Seminars and conferences on Foreign Studies subjects including languages and ethnicity. Only offered through Extended Studies.

**F CS 589-3. Field Studies in Language and Culture.** An on-campus and off-campus travel study class that explores a specified topic in language, culture,

and civilization. May be repeated once for credit if the topic and field trip are different. Prer., Consent of instructor.

## FILM STUDIES

**FILM 100-3. Introduction to Film Studies.** Basic film theory, stylistics, and genre analysis in Western dominant and avant garde cinema. Themes include sociopolitical and feminist critique, surrealism, semiotics, metafilm, neorealism, and postmodernism.

**FILM 200-3. Narrative Film.** A continuation of basic film study and analysis from FILM 100. This course explores international cinema history and trends in cinema's aesthetic forms as well as the significant personalities and cultural impact of narrative genres. Prer., FILM 100, or consent of instructor.

**FILM 280-3. Film and Fiction.** Examines the "transformational" process by which a novel (or short story) is adapted to film. What is gained, lost, and/or altered in that process is then used as a means of coming to understand that novel or short story. Most typically what will not really "transform" itself to film is used as the basis of critical analysis.

**FILM 333-3. Film, Video and the Avant-Garde.** An examination of the relationship between avant-garde film and video, and the history of modern and contemporary art. The course will include the film and video works of artists such as Man Ray, Maya Deren, Andy Warhol, and Issac Julien. Meets with A H 333.

**FILM 345-3. German Film.** Screenings, lecture, discussion; knowledge of German not required. German film in a cultural context from beginnings to the present featuring such directors as Lang, Von Sternberg, Riefenstahl, Sagan, Thiele, Fassbinder, Schlöndorff, Wenders, Adlon, and Tykwer. Meets with F CS 345 and GER 345.

**FILM 350-3. American Cinema.** An introductory film course surveying American cinema as art, industry, and system of representation and communication. Students acquire knowledge of film history and genres, technical and critical vocabulary terms, and how popular genres extend to broader social context. Meets with COMM 350.

**FILM 369-3. Topics in Hispanic Film.** The cinematic manifestations of the richness and the variety of Hispanic culture as expressed through an artistic and humanistic vision. May be repeated once for credit if the topic is different. Meets with F CS 369 and SPAN 369.

**FILM 371-3. Great European Film**

**Directors: A Historical View, 1945-1994.**

A study of the history of cinema, through works of great European directors of Post WWII period: from De Sica, Antonioni, Fellini, Pasolini, to Tarkovsky, Paradjanov, Wajda, Jarman, and Greenway. Course will be a valuable elective for all arts and sciences majors. Meets with I D 371.

**FILM 372-3. Russian Avant-Garde Cinema: A Historical View, 1915-1995.**

A study of history of nearly 100 years of Russian and Soviet cinema through works of great directors: Eisenstein, Tarkovsky, Paradjanov, Shepit'ko, and others; from 1910's through 1990's. Every 4 hour session includes a complete feature film, some rare and never released on video. A valuable elective for all arts and sciences majors. Meets with I D 372.

**FILM 373-3. Russian Art Cinema Today:**

**A Historical View: 1989-1997.** An in-depth study of the latest page in the history of its best directors: classics, such as Loseliani, Solouir, Muratova, as well as young talented directors, bound to become classics tomorrow. Every 4-hour session includes a complete feature film, often unavailable commercially. Available elective for all arts and science majors. Meets with I D 373.

**FILM 385-3. Austrian and Central European Film.** Screening, lecture and discussion are included in this course. Knowledge of German is not required for non-German minors. A survey of Austrian cinema in a cultural context from the beginning to the present and its relationship with Hungarian and Czechoslovakian film. Directors such as Kolm-Fleck, Korda, Forst, Hartl, Marischka, Corti, Ruzowitzky and Haneke are featured. Meets with F CS 385 and GER 385.

**FILM 390-3. Special Topics in Film Studies.** Selected topics in the theory, history and aesthetics of film. Prer., FILM 100 or FILM 200, or consent of instructor.

**FILM 395-3. Women in Film.** Selected topics dealing with the various roles of women in international cinema history.

**FILM 403-1 to 3. Internship in Film Studies.** Supervised opportunities for advanced film studies students to apply their knowledge and obtain experience in the film industry and at film festivals. Prer., FILM 100 and FILM 200. Film minors only.

**FILM 411-3. French or Francophone Film.** The evolution of French cinema from the 1940's to the "new wave." About six movies will be viewed and analyzed both as objects and as reflections of the evolution of French society from 1940 to present. Taught in English. Meets with FR 411.



**FILM 450-3. Film Theory.** Explores various theoretical approaches to film including the Bakhtin and Frankfurt schools, auteur theory, structuralism, feminism, semiotics, textual analysis, postcolonial and digital theories. Prer., FILM 100, FILM 200 and permission of the instructor.

**FILM 940-1 to 3. Independent Study.** Independent work for undergraduates only. By special arrangement with the faculty. Prer., FILM 100 and FILM 200 and advanced standing. For VAPA majors or by consent of instructor.

## **FRENCH**

**FR 101-4. Beginning French I.** Essentials of French, oral-aural skills stressed with additional reading, writing and grammar.

**FR 102-4. Beginning French II.** Essentials of French continued. Additional oral-aural skills practice with increased grammar, reading, and writing. Prer., FR 101 or equivalent.

**FR 211-4. Intermediate French I.** French at the intermediate level with concentration on conversation, culture and civilization, or literature at that level. Prer., FR 102 or its equivalency.

**FR 212-3. Intermediate French II.** An intermediate French course continuing conversational usage and cultural integration utilizing contemporary materials, newspapers, etc. Prer., FR 211 or equivalent.

**FR 293-3. Business French.** The vocabulary and usage of the world of finance and commerce. Applied business correspondence, marketing and accounting terminologies. Prer., FR 212 or FR 217.

**FR 300-3. Advanced Grammar.** A course designed to review extensively the functional application of modern French. Prer., FR 212 or 217 or equivalent.

**FR 301-3. French Conversation and Composition I.** Practice in conversation with emphasis on pronunciation and diction; exercises in grammar review and oral communication. Prer., FR 212 or equivalent.

**FR 302-3. French Conversation and Composition II.** Practice in conversation with emphasis on pronunciation and diction; exercises in grammar review and oral communication. Prer., FR 301 or equivalent.

**FR 303-3. Advanced French Conversation & Composition.** Prer., FR 302 or equivalent.

**FR 304-2. Advanced Pronunciation and**

**Phonetics.** A supplemental course for the advanced student emphasizing the “why’s and wherefore’s” of native pronunciations. Working from a solid knowledge structure of French, pronunciation work will stress the whole phrase as well as the relationship between grammar and speech. Prer., FR 300 or 301 or 302 or concurrent enrollment.

**FR 310-3. Interpretive Practice: French Literature.** An introduction to approaches to literature and genre studies in French. The course will provide an initial contact with all major literary genres in French as well as practical application of the major schools of literary interpretation. Prer., FR 212 or equivalent.

**FR 311-3. Main Currents of French Literature I.** An introductory survey. Selected literary texts representing major trends in the development of French literature. Prer., FR 212 or equivalent.

**FR 312-3. Main Currents in French Literature II.** An introductory survey of French literature from Neoclassicism to the present. Prer., FR 212 or equivalent.

**FR 317-3. Advanced French Readings, Conversation and Composition.** This course in advanced French bases classroom discussion and written assignment on contemporary journals, newspaper and nonliterary writings. Prer., FR 301, FR 302 or equivalent.

**FR 323-1. Applied Conversation.** Conversation at the advanced level on contemporary topics in French culture. Prer., FR 212, 217 or equivalent.

**FR 324-3. Modern French Culture and Civilization: France from 1700-1917.** Study of the creation of modern France from its roots in the culture of the Ancient Regime through the upheaval of Enlightenment and Revolution to the Industrial Revolution and World War I. Emphasis will be on intersections of historical schools of thought, cultural movements and institutional structures in the development of France.

**FR 325-3. 20th Century France: Civilization & Culture.** Study of French culture and institutions as they have developed from 1919 to the present, emphasizing the relationship between changing social structures and value systems and their representation in literature, design, art and film. Prer., FR 301, FR 302 or equivalent.

**FR 327-3. Francophone Cultures.** An intensive examination of linguistically defined cultures, treating particular cultural difference and issues of choice in relation to the imperial (culturally, politically or economically) culture and

language. Readings will be drawn from a variety of sources ranging from historical documents and travel literature to contemporary writings (literary and others) from Francophone areas. Taught in French.

**FR 339-1 to 3. Internship in Applied French.** The Language and Culture department will offer to advanced French language students the opportunity to apply their knowledge of French in settings such as schools, social support agencies, etc. May be repeated up to three times for credit. Prer., 300 Level French courses and departmental permission.

**FR 349-1 to 3. Internship in Applied French.** The Language and Culture department will offer to advanced French language students the opportunity to apply their knowledge of French in settings such as schools, social support agencies, etc. May be repeated up to three times for credit. Prer., 300 Level French courses and departmental permission.

**FR 350-3. Special Topics in French.** Varying topics of current importance in literary and socio-cultural study. May be repeated once for credit if the topic is different. Prer., FR 212 or equivalent.

**FR 411-3. French or Francophone Film.** The evolution of French cinema from the 1940’s to the “new wave.” About six movies will be viewed and analyzed both as objects and as reflections of the evolution of French society from 1940 to present. Taught in English. Prer., FR 301 and FR 302 if taken for French credit. Meets with FILM 411.

**FR 930-1 to 4. Independent Study in French: Undergraduate.** Independent work for undergraduates. By special arrangement with the faculty. Only for students presenting strong French preparation. May be repeated up to three times for credit. Prer., Consent of instructor.

**FR 940-1 to 4. Independent Study in French: Undergraduate.** Independent work for undergraduates. By special arrangement with the faculty. Only for students presenting strong French preparation. May be repeated up to three times for credit. Prer., Consent of instructor and department chair.

**FR 950-1 to 4. Independent Study in French: Graduate.** Independent work for graduate students only, by special arrangement with the faculty. Only for students presenting strong French preparation. May be repeated up to three times for credit. Prer., Consent of instructor and department chair.

## **GALLERY MANAGEMENT**

### **G M 404-3. Gallery Management I.**

Seminar and practical hands-on experience in administration, fundraising, curatorial selection, publicity, and installation of contemporary exhibits. Organization and research of programs at the gallery for contemporary art will be the focus of activities in addition to case studies and evaluation of pertinent off-campus exhibits.

### **G M 405-3. Gallery Management II.**

Continuation of G M 404 with emphasis on development of concepts of gallery management and exhibition organization.

**G M 940-1 to 4. Independent Study in Gallery Management.** Independent study in gallery management to be arranged with director.

## **GEOLOGY**

**GEOL 101-4. Physical Geology.** Study of surface features of the earth and how they were formed: rocks that make up the crust of the earth. GEOL 101L must be taken concurrently.

### **GEOL 102-4. Historical Geology.**

Development of the science of geology, study of earth history and development of life forms throughout geologic time. Three lectures and one field trip or laboratory per week. Prer., GEOL 101, GES 101, or concurrent enrollment.

**GEOL 153-4. Geological Development of Colorado and the West.** Three lectures and one field trip or laboratory per week. An outline of the development, through time, of the geology of Colorado. Includes a summary of the evolution of life. Last part of course is devoted to history of development of economic resources, including placer and hard rock mining, coal, oil and gas production, and oil shale. This is a course for nonmajors designed as a follow-up for those who have had GEOL 101.

**GEOL 317-3. Geology and Our National Parks.** Promotes an interest in and an appreciation of the geologic aspects of our national parks. The student will be given fundamental background in the geological processes which have worked to evolve the spectacular or unique scenery found in the national parks. Because the approach to this class is of a qualitative nature, the prospective student need not have a prior background in the earth sciences. Field trips are included as part of the course content.

**GEOL 352-3. Oceanography.** Oceans and their basins, water masses, circulation patterns, climate regulation, life zones, bottom sediments, and resources.

Geologic aspects of the sea, both modern and ancient.

### **GEOL 370-4. Environmental Geology.**

Interaction of industrial society with earth resources and geologic processes. Investigation of geologic hazards to engineering systems and problems related to resource development. Evaluation of criteria for urban planning, land utilization, waste disposal, and resource conservation. Prer., GEOL 101 or GES 101. Field trips required.

### **GEOL 403-4. Introduction to Hydrology and Ground Water.**

Occurrence, movement and properties of subsurface water; introduction to groundwater geology and hydrology. Prer., GEOL 101, GES 101 or concurrent enrollment in MATH 104.

### **GEOL 411-3. Geologic Field Methods.**

Methods of geologic mapping including Brunton compass and plane table surveying utilization. Coreq., GEOL 312. Additional field work required. Meets with GEOL 511.

### **GEOL 436-4. Glacial and Periglacial Geology.**

Introduction to glaciology and periglacial geology and their influence on topography, crustal rebound, and sea level; and glacial chronology for northern North America. A study of cold-climate geomorphic and climatic processes. Prer., GEOL 101 OR GES 101. Meets with GEOL 536.

### **GEOL 463-4. Principles of**

**Geomorphology.** Systematic study of weathering, mass-wasting, fluvial, wind, and marine processes and the landforms resulting therefrom. Field work and trips required. Prer., GEOL 101 or GES 101 or consent of instructor. Meets with GEOL 563, GES 431 and GES 531.

### **GEOL 466-1 to 4. Field Study in Geology.**

A field trip to an area of special geologic interest such as the Grand Canyon, Death Valley, Yellowstone, Northern Rockies and the Mojave Desert. Field trips usually occur during the Winter, Spring, or Summer breaks. Meets with GEOL 566.

### **GEOL 491-4. Engineering Geology.**

Intensive literature review and field investigations leading to a recognition of the engineering and construction problems associated with natural hazards and earth materials such as mass movement, dam location, highway development, and building construction. Basic courses in physics, mathematics, and geology recommended. Meets with GEOL 591.

### **GEOL 503-4. Introduction to Ground**

**Water.** Same as GEOL 403 with additional work required.

**GEOL 536-4. Glacial and Periglacial Geology.** Same as GEOL 436 with

additional work required. Prer., GEOL 101, GES 101, GEOL 463 preferred. Meets with GEOL 436.

### **GEOL 563-4. Principles of**

**Geomorphology.** Systematic study of weathering, mass-wasting, fluvial, wind, and marine processes and the landforms resulting therefrom. Field work and trips required. Prer., GEOL 101 or GES 101 or consent of instructor. Meets with GEOL 463, GES 431, and GES 531.

### **GEOL 566-1 to 4. Field Study in Geology.**

Same as GEOL 466 with additional work required. Meets with GEOL 466.

### **GEOL 591-4. Engineering Geology.**

Intensive literature review and field investigations leading to a recognition of the engineering and construction problems associated with natural hazards and earth materials such as mass movement, dam location, highway development, and building construction. Basic courses in physics, mathematics, and geology recommended. Will require additional field work. Meets with GEOL 491.

### **GEOL 700-1 to 6. Masters Thesis.**

**GEOL 940-1 to 4. Independent Study in Geology: Undergraduate.** Independent work for undergraduates. By special arrangement with faculty. Only for students presenting strong geology preparation. Prer., Consent of the instructor.

### **GEOL 960-1 to 4. Independent Study**

**in Geology: Graduate.** Independent work for graduate students. By special arrangement with faculty only. Prer., Consent of instructor.

### **GEOL 999-0. Candidate for Degree.**

## **GERMAN**

### **GER 101-4. Beginning German I.**

Essentials of German, oral-aural skills stressed with additional reading, writing, and grammar.

### **GER 102-4. Beginning German II.**

Essentials of German continued. Additional oral-aural skills practice with increased grammar, reading, and writing. Prer., GER 101 or its equivalency.

### **GER 211-4. Intermediate German I.**

German at the intermediate level with concentration on conversation, culture, and civilization or literature at that level. Prer., GER 102 or equivalent.

### **GER 212-3. Intermediate German II.**

An intermediate German course continuing conversational usage and cultural integration utilizing contemporary materials, newspapers, etc. Prer., GER 211 or equivalent.

**GER 293-3. Business German.** German for business studies: exercises in German business correspondence, terminology, readings and translations in the area of business German. Prer., GER 211 or equivalent.

**GER 300-3. Advanced German Grammar.** A course designed to review intensively the functional application of Modern Germany. Prer., GER 212 or 217 or its equivalency.

**GER 301-3. German Conversation and Composition I.** Practice in conversation; exercises in written communication. Prer., GER 212.

**GER 302-3. German Conversation and Composition II.** Practice in conversation; exercises in written communication. Prer., GER 212 or its equivalency.

**GER 313-3. 18th Century German Literature.** A survey of German language literature from 1700 to 1800. Readings and analysis of literature of the phases of the Enlightenment and of Classicism including such authors as Leibnitz, Lessing, Goethe, and Schiller. Prer., GER 300 or 301 or its equivalency.

**GER 314-3. 16th and 17th Century German Literature.** A survey of German language literature from 1500 to 1700. Readings and analysis of literature of the Renaissance, Reformation and Baroque including such authors as Martin Luther, Hans Sachs, Gryphius, and Von Grimmelshausen. Prer., GER 300 or GER 301 or its equivalency.

**GER 316-3. 20th Century German/Austrian Literature.** A survey of German language literature from 1900 to the present. Lecture course. Readings and analysis of different periods and styles from impressionism through feminism and post-modernism including authors such as Holz, Schnizler, Thomas Mann, Kaiser, Brecht, Boll, Bachmann, Durrenmatt, Muller, and Wolf. Prer., GER 300 or GER 301 or its equivalency.

**GER 317-3. 19th Century German/Austrian Literature.** A survey of German language literature from 1800 to 1890s. Lecture course. Readings and analysis of literature of late Romanticism, Realism, Naturalism, including such authors as Goethe, Kleist, Eichendorff, Stifter, Buchner, Keller, Hauptmann. Prer., GER 300 or 301 or its equivalency.

**GER 318-3. German/Austrian Civilization and Culture From 1700-1918.** Lectures, films, readings, discussions in English; knowledge of German not required. Study of development of German and Austrian culture and institutions from 1700 to 1918, emphasizing literature, art,

philosophy and music. Meets with F CS 318.

**GER 319-3. 20th Century German and Austrian Civilization and Culture.** Lectures, films, readings, discussions in English; knowledge of German not required. Study of development of German and Austrian cultures and institutions from 1919 to the present emphasizing literature, design, art, and film. Meets with F CS 319.

**GER 323-1. Applied Conversation.** Conversation at the advanced level on contemporary topics in German culture. Prer., GER 212, 217, its equivalency.

**GER 339-1 to 3. Internship in Applied German.** The foreign language department will offer to advanced German language students the opportunity to apply their knowledge of German in settings such as schools, social support agencies, etc. Prer., 300 level German courses and departmental permission.

**GER 345-3. German Film.** Screenings, lecture, discussion; knowledge of German not required. German film in a cultural context from beginnings to the present featuring such directors as Lang, Von Sternberg, Riefenstahl, Sagan, Thiele, Fassbinder, Schlöndorff, Wenders, Adlon, and Tykwer. Prer. GER 212 or equivalent if taken for German credit. Meets with F CS 345 and FILM 345.

**GER 350-3. Special Topics in German/Austrian Literature.** Varying topics of current importance in literary and socio cultural study. May be repeated once for credit if topic is different. Prer., GER 300, GER 301, or its equivalency. Meets with F CS 356.

**GER 385-3. Austrian and Central European Film.** Screening, lecture and discussion are included in this course. Knowledge of German is not required for non-German minors. A survey of Austrian cinema in a cultural context from the beginning to the present and its relationship with Hungarian and Czechoslovakian film. Directors such as Kolm-Fleck, Korda, Forst, Hartl, Marischka, Corti, Ruzowitzky and Haneke are featured. Meets with FILM 385 and F CS 385.

**GER 920-1 to 4. Independent Study.** Independent work for undergraduates. By special arrangement with the faculty. Only for students presenting strong German preparation. May be repeated up to three times for credit. Prer., Consent of instructor.

**GER 930-1 to 4. Independent Study.** Independent work for undergraduates. By special arrangement with the faculty. Only for students presenting strong German

preparation. May be repeated up to three times for credit. Prer., Consent of instructor.

**GER 940-1 to 4. Independent Study.** Independent work for undergraduates only, by special arrangement with the faculty. Only for students presenting strong German preparation. May be repeated up to three times for credit. Prer., Consent of instructor and department chair.

**GER 950-1 to 4. Independent Study.** Independent work for graduate students only, by special arrangement with the faculty. Only for students presenting strong German preparation. May be repeated up to three times for credit. Prer., Consent of instructor and department chair.

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## GEOGRAPHY AND ENVIRONMENTAL STUDIES

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**GES 100-4. Environmental Systems: Climate and Vegetation.** A general introduction to energy and mass budgets, including atmospheric motion, solar radiation, and water budgets. Includes consideration of climatic elements as they interact with vegetation, animals, and humans in ecosystems. This class is taught in a variety of learning situations, including lecture, laboratory, web-based and tutorials.

**GES 101-4. Environmental Systems: Landforms and Soils.** An introductory survey primarily concerned with the agents and processes of landform shaping and soil genesis. Major emphasis is on the genesis, distribution, and utility of surface features in a variety of learning situations, including lecture, web-based, laboratory, tutorials, and field trips.

**GES 105-4. Introduction to Map & Compass.** A basic introduction to topographic maps will be given. This will include the process involved with making and field-checking maps; discussion of symbolization, scale, and landform representation. The development of the compass will be outlined and basic skills will be taught.

**GES 198-3. World Regional Geography.** A survey of world regions that explores the diversity of human culture within the wider global context. This issues-oriented class examines the cultural, political, economic and environmental forces that shape each region and the impacts of globalization on our increasingly interconnected world.

**GES 199-4. Introduction to Human Geography.** A systematic introduction to the broad field of human-land interactions and spatial order. Emphasis is placed

on the major themes of geographic inquiry including population numbers and distribution, changing resource use, location decisions, settlements, transportation, political units, and a geography of the future.

**GES 200-3. Geographic Regions of the World.** An introduction to the world's geographic realm and their human and physical characteristics. A variety of geographic themes such as population growth, urbanization, economic development and environmental deterioration are set in their regional contexts.

**GES 201-3. Economic Geography: Resources, Development, and the Future.** Introductory consideration of the location of resources, the role of natural resources in economic and technological development and resource utilization and the future. Use of the theory of spatial organization and behavior in economic activity including agriculture, manufacturing, transportation, service activities, urban location, systems of cities, and growth patterns. Case studies.

**GES 210-3. Humans and Environments.** An overview of global environmental issues including climate change, sustainable agriculture, waste management, deforestation, population and energy. Individual, local, state, regional, national and international decisionmaking tools and implications will be explored through case studies in industrialized and nonindustrialized countries.

**GES 298-1 to 6. Professional Experience I.** Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations.

**GES 305-4. Introduction to Cartography.** An introduction to the principles and theory of map-making. The emphasis will be on the design of maps for research and publication using advanced computer hardware and software. The course entails the creation of reproducible, thematic maps using the various computer techniques available to the cartographer.

**GES 320-4. Practical Meteorology.** An introduction to weather elements and meteorological phenomena with emphasis on physical principles and practical applications. Includes weather elements, air masses, clouds, precipitation, storms and other weather systems, weather map analysis, forecasting, weather control and modification, and current developments in the field of meteorology. Local and current weather facilities will be used to relate meteorological principles to actual observations. Meets with ENSC 320.

**GES 321-4. Basic Weather Analysis and Forecasting.** An expanded application of meteorological principles with emphasis on modern techniques for interpreting and forecasting weather. The course includes a review of basic principles, interpretation of various types of weather charts, and forecast techniques. Lecture sessions will be followed by student preparations of weather analysis and forecast charts. Prer., GES 100 or 320.

**GES 325-3. The Geography of Climate Change.** Students investigate the theory and evidence of climate change from a geographical perspective. The course incorporates the interactions and interrelationships of humans and the environmental system while in the study of global environmental changes in different locations. Students use readings, lectures, discussion, research, computer simulation, and their own critical and analytical thinking skills in the process of forming their own conclusions about the status of climate change in different locations. Written and oral presentation skills will be enhanced as the students present and defend their theory and findings to their peers.

**GES 360-3. Geography of American Folk and Ethnic Music.** Music is ubiquitous in America today. This course will analyze the geographic context of American folk and ethnic music. A variety of geographic concepts and their relationship to the development of American folk and ethnic music will be discussed.

**GES 366-3. Community Service: Theory and Practice.** Combines theory with practical application; includes reading assignments, seminars, and community service. Prer., Sophomore standing and consent of instructor.

**GES 375-4. Conservation Biology.** The major focus is the application of biological and ecological principles to preserve biodiversity. Ultimate sources and current worldwide losses of biological diversity are emphasized. Because conservation biology demands multidisciplinary approaches, historical, legal, economic, and ethical issues are also included. Prer., BIOL 115, BIOL 370 recommended. Consent of instructor required. Meets with BIOL 375 and BIOL 570.

**GES 380-3. Regional Geography of the Pikes Peak Area.** A regional rather than synoptic approach is taken to the study of two formal regions: the Great Plains and the southern Rocky Mountains, and an informal region to include Colorado Springs, Cripple Creek and the nearby western High Plains.

**GES 382-3. Mexico, Central America, and the Caribbean.**

Study of culture and society, and human relationship to the physical environment of Mexico, the Central American countries, and the Caribbean islands.

**GES 385-3. Historical Geography of the United States.** Historical geography as a method for study of changing and evolving landscapes.

**GES 386-3. Geography of American's Southwest.** Examines the physical and cultural environment of the American Southwest. Includes an analysis of landforms, vegetation, climate, prehistoric cultures, modern native American peoples, Hispanic settlement, and modern demographic and social changes.

**GES 390-3. Historical Geography of the British Isles.** Traces the historical evolution of the British landscape from prehistoric times to the present day. Particular regions like Wales, Yorkshire, the Lake District and Western Ireland will be examined in detail. Meets with HIST 300 SEC 001.

**GES 400-4. Statistical Analysis in Geography.** The application of statistical and other quantitative techniques to geographically organized data, areal, distributions, and the solution of geographic research problems. Meets with GES 500.

**GES 401-4. Technology, Development and Economic Geography.** Theory and issues in contemporary economic geography. Explores process leading to interregional change, spatial interaction between places, and the homogenization of economies and cultures.

**GES 405-4. Introduction to GIS.** An introduction to Geographic Information Systems (GIS) as a research tool. Students will use ArcView and/or Arc/Info to complete a series of geographic projects. A basic understanding of cartography and computer use is expected. Prer., GES 305 or instructor consent. Meets with GES 505.

**GES 406-4. Introduction to Remote Sensing.** The acquisition and interpretation of environmental and natural resource data by using aerial photography and other imagery. This is a project-oriented course which involves the use of various types of photography and analysis techniques. Meets with ENSC 406 and GES 506.

**GES 408-4. Advanced Geographic Information Systems (GIS).** Continued application of GIS for spatial analysis. Focuses on Arc/Info and complete original research projects. Prer., GES 405 or consent of instructor. Meets with GES 508.

**GES 409-4. Image Processing.** An introduction to the advanced methods of resource analysis using remotely sensed imagery. All relevant portions of the electromagnetic spectrum will be discussed. Emphasis will be placed on the digital image analysis (by microcomputer) of LANDSAT data. No previous programming experience required. Prer., GES 406. Meets with ENSC 409 and GES 509.

**GES 410-3. Global Positioning System with GIS.** Explores the theory of GPS, provide practical experience using numerous GPS units, and explore the interaction between GIS and GPS through use of ArcPad, ArcGIS, and Trimble Pathfinder software. Prer., GES 305, or instructor consent. GES 405 is preferred. Meets with GES 510.

**GES 411-4. Introduction to Field Techniques.** A field-based course that demonstrates the multiple techniques used by geographers for data gathering and analysis. These techniques will include elementary surveying, GPS, hydrologic and landform measurements, map and compass use, dendrochronology analysis, and cultural/economic landuse mapping. Extended field trip(s) required.

**GES 416-2 to 4. Teaching Geography.** Practicum and/or tutorial, by special arrangement only, in the teaching of geography (for example, serving as small-group leaders or proctors in introductory courses, or developing and/or testing curriculum materials).

**GES 417-3. Geographic Writing Seminar.** Course provides opportunities for student-instructor interaction aiming to improve geographic writing skills.

**GES 422-3. Synoptic Climatology.** The physical processes involved with the development and transportation of weather systems. Selected topics include relationships between upper atmospheric flow and surface weather phenomena, synoptic evaluation of air masses and techniques for environmental analysis. Prer., GES 100. Meets with GES 522.

**GES 426-4. Biogeography.** An examination of the distribution of life on the Earth's surface. The relationship between environmental factors and plant and animal distributions will be the central theme. Changes in distributions through time will also be examined. Required field trip. Prer., GES 100 or consent of instructor. Meets with GES 526, BIOL 426 and BIOL 526.

**GES 427-4. Advanced Biogeography.** A project-oriented class with students studying the distribution of plants as related to environmental factors. This

class will combine lecture, fieldwork, and data processing, resulting in maps and reports. The geographical area of study will be changed each time. Prer., GES 426/GES 526 or instructor consent. Meets with GES 527.

**GES 428-4. Plant Communities of the Western United States.** An examination of plant assemblages in the contiguous United States west of the one-hundredth meridian. The distribution of major plant species will be used to illustrate plant community interactions with environmental factors such as climate and landforms. Prer., GES 426/GES 526. Meets with GES 528.

**GES 429-4. Plant Communities of Colorado.** An examination of plant assemblages in Colorado. Major plant communities will be examined in the context of environmental factors such as climate and land forms. Required field trip. Prer., GES 426 or consent of instructor. Meets with BIOL 429 and GES 529.

**GES 431-4. Principles of Geomorphology.** Systematic study of weathering, mass-wasting, fluvial, wind, and marine processes and the landforms resulting from these processes. Prer., GES 101, GEOL 101, or consent of instructor. Field projects, trips required. Meets with GES 531, GEOL 463, GEOL 563.

**GES 432-3. Mountain Environmental Systems.** Field course emphasizing study of landforms produced by weathering and soils, mass movement, erosional processes under all climatic and altitudinal conditions. Includes front range glacial geology and glaciology. Prer., GES 100 or consent of instructor. Meets with GES 532.

**GES 434-4. Soils.** Covers the nature and distribution of soils through an investigation of the basics of soil genesis and development. It will stress the environmental components involved in soil production and the geographic distribution of soil types. Prer., GES 101 or GEOL 101 or instructor consent. Meets with GES 534.

**GES 441-3. Resource Management and Conservation.** Inventory, policy, and management of natural resources. Nature, significance, distribution, and problems associated with water, forest, wildlife, soils, and recreational resources. Emphasis is on experience in the United States, but other global problems may be included. Meets with GES 541.

**GES 445-3. Analysis of Environmental Systems.** An analysis of the various factors involved in the routing of environmental impact statements. Emphasis will be on analytical procedures

associated with the evaluation of environmental systems and applications specific environmental impact problems. Meets with GES 545.

**GES 446-1 to 6. Field Studies in Geography.** Field investigations focused on a specific aspect of the landscape in a selected area. Topic and credit vary from year to year. Field trips required.

**GES 448-3. Environmental Problems of Colorado.** A discussion and investigation of the environmental problems of the State of Colorado with an emphasis on land planning and land use, pollution, transportation, energy, and hazards. Programs to alleviate as well as to minimize any further related environmental problems will be developed. Meets with GES 548.

**GES 450-3. Water Resources and Water Problems.** A descriptive interpretation and detailed inventory of hydroclimatic data, surface water, and ground water. The use of water is critically evaluated with emphasis on problems associated with geographic maldistribution, appropriation, irrigation, industry, pollution, and regional development. Meets with GES 550.

**GES 451-3. Applied Hydrology.** Exploration of the principles of hydrology and their application to environmental investigations. Prer., GES 100 or consent of instructor. Meets with GES 551.

**GES 455-3. Disasters and Society.** Case studies of slow and quick developing disasters will be discussed in a local, national, cross-cultural, and global framework. Issues covered will include technological hazards, the role of environmental perception, risk-taking, decision-making and the impact legislative changes at the local, state, and national levels. Meets with GES 555.

**GES 460-3. The Cultural Landscape.** Students will learn to interpret the American cultural landscape, particularly everyday surroundings that they frequently take for granted. We will emphasize how culture shapes the world around us, from modifications to the natural terrain to the cities in which we live. Meets with GES 560.

**GES 461-3. Urban Geography.** Course addresses topics in urban location, urban morphology and design, urban function, and urban social issues. We analyze why cities look as they do and the role cities play in society. Emphasis is on cities in the United States. Meets with GES 561.

**GES 470-1 to 4. Geographic Issues.** Geographic perspectives or dimensions of selected areas such as pollution, poverty, world conflict, natural hazards, landscape perception or women's communities will

be presented. Topics vary from year to year.

**GES 473-3. Geography of Population.**

National and social patterns of population distribution; organization of populations; and methods of census, demographic analysis and mapping. Meets with GES 573.

**GES 475-3. Recreation, Tourism, and the Environment.**

An inquiry into the spatial distribution and environmental/cultural impacts of recreation and tourism, including international tourism. Recreational values, cultural norms and change, economic tradeoffs, and future trends are included. Meets with GES 575.

**GES 476-3. Women's Space, Women's Place: Women's Role in Changing the Face of the Earth.**

A re-examination of traditional aspects of cultural and regional geography from a feminist perspective. Understanding the full richness of the human experience in utilizing earth as habitat requires a conscious effort to explore the omissions about where, how, and why women live, work, migrate, perceive their environment, and generally contribute to the intricate mosaic of spatial organization. The geographical origins and distributions of differing roles of women in a number of societies are also explored. Meets with WMST 476.

**GES 477-3. Development of Geographic Thought.**

The course will focus upon discussions and studies of the development of geographic thought and philosophies. Both past and present literature will be appraised with particular emphasis placed upon the themes and topics significant to the growth of modern geographic philosophy. Prer., GES 199 or consent of instructor. Meets with GES 577.

**GES 491-3. The World of Wines and Vines.**

Focus on the physical and cultural geography of the world's grape-producing regions. Coverage will include the study of terrain, soils, climate, and other aspects of physical geography; the historical geography of viticulture; the procedures and processes associated with growing grapes and making wines; and a detailed analysis of specific regions such as the Bordeaux area, the Napa Valley, and German wine regions. Prer., Must be 21 years of age.

**GES 494-4. Seminar: Practicum in Image Processing.** Prer., GES 405 or GES 409 and consent of instructor required.

**GES 497-3. Honors in Geography.**

Independent research and thesis for geography majors who have maintained a superior scholastic performance in their overall program and within the department

of geography and environmental studies. For superior students who wish to attain honors in the field of geography. May be taken in lieu of GES 499.

**GES 498-1 to 12. Professional Experience II.**

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations.

**GES 499-3. Senior Thesis.** A one semester research project. The student will write a formal research paper drawing on primary sources and pertinent secondary material. The student will work under the direction of a full time member of the department and have a second member as an additional reader.

**GES 500-4. Quantitative Methods.**

Research-oriented quantitative methods seminar. Advanced data analysis techniques for use in geographic and environmental research. Meets with GES 400.

**GES 501-3. Seminar: Geographic Research.**

An analysis of research topics and methodologies in geography. Students will define a research topic, review literature in their field of interest, and prepare a research proposal. Prer., BA or BS.

**GES 505-4. Introduction to GIS for Graduate Students.**

Information Systems (GIS) as a research tool. Students will use ArcView or Arc/Info to complete a series of geographic projects and pursue the application of GIS to their own research areas. Prer., GES 305 or consent of instructor. Meets with GES 405.

**GES 506-4. Seminar: Advanced Remote Sensing.**

Intensive work on data acquisition using manual methods of imagery analysis. Specific research methods will be discussed. Students will accomplish several exercises and at least one major independent project. Meets with GES 406 and ENSC 406.

**GES 508-4. Advanced GIS for Graduate Students.**

Continued application of GIS for spatial analysis. Students will learn ARC/Info and complete original research projects in their field of interest. Prer., GES 405, GES 505 or instructor consent. Meets with GES 408.

**GES 509-4. Image Processing.**

An introduction to advanced image processing techniques used by the remote sensing community. Image restoration, enhancement, and classification will be emphasized. Prer., GES 406/GES 506. Meets with GES 409 and ENSC 409.

**GES 510-3. Global Positioning System with GIS.**

Explores the theory of GPS, provide practical experience using

numerous GPS units, and explore the interaction between GIS and GPS through use of ArcPad, ArcGIS, and Trimble Pathfinder software. Prer., GES 305, or instructor consent. GES 405 is preferred. Meets with GES 410.

**GES 516-4. Workshop in Geographic Education.**

A course outlining methods of teaching geography in K-12. Includes discussion of important geographic concepts and their integration into the classroom. Students will develop teaching activities and materials for incorporation into their curriculum. Prer., Consent of instructor.

**GES 517-2 to 4. Seminar: Research Methods.**

Intensive work in using various forms of data and field investigation for analysis of geographic problems. Case studies and field experience.

**GES 522-3. Synoptic Climatology.**

The physical processes involved with the development and transportation of weather systems. Selected topics include relationships between upper atmospheric flow and surface weather phenomena, synoptic evaluation of air masses and techniques for environmental analysis. Prer., GES 100. Meets with GES 422.

**GES 526-4. Biogeography.**

An examination of the distribution of life on the Earth's surface. The relationship between environmental factors and plant and animal distributions will be the central theme. Changes in distributions through time will also be examined. Required field trip. Prer., GES 100 or consent of instructor. Meets with GES 426, BIOL 426 and BIOL 526.

**GES 527-4. Advanced Biogeography.**

A project-oriented class with students studying the distribution of plants as related to environmental factors. This class will combine lecture, field work, and data processing; resulting in maps and reports. Prer., GES 426, GES 526 or instructor consent. Meets with GES 427.

**GES 528-4. Plant Communities of the Western United States.**

An examination of plant assemblages in the contiguous United States west of the one-hundredth meridian. The distribution of major plant species will be used to illustrate plant community interactions with environmental factors such as climate and landforms. Prer., GES 426/GES 526. Meets with GES 428.

**GES 529-4. Plant Communities of Colorado.**

An examination of plant assemblages in Colorado. Major plant communities will be examined in the context of environmental factors such as climate and land forms. Required field trip. Prer., GES 426, GES 526 or instructor consent. Meets with GES 429 and BIOL 429.

**GES 531-4. Topics in Geomorphology.**

Current research in landform processes. Focus on the western United States. Field projects, trips required. Prer. GEOL 101, GES 101 or instructor consent. Meets with GES 431, GEOL 463, GEOL 563.

**GES 532-3. Mountain Environmental Systems Seminar.**

Same as GES 432 but will include additional research work. Field trips optional. Prer., GES 100 or consent of instructor. Meets with GES 432.

**GES 534-4. Seminar: Soils.**

In-depth study of techniques used in analyzing soil classification systems for global soils. Problems in human use and misuse of soils. Prer., GES 101, GEOL 101, or instructor consent. Chemistry recommended. Meets with GES 434.

**GES 539-3. Earth Systems Science.**

This course for middle and high school teachers will include field work, utilizing terrain and geological formations to compare and contrast earth with other planets. This course does not satisfy any requirements for the GES Masters of Applied Geography Degree. Meets with CURR 5540.

**GES 541-3. Seminar in Resource Management and Conservation.**

An investigation of environmental problems with emphasis on land-planning and land use, pollution, water, energy and natural hazards. Prer., Consent of instructor. Meets with GES 441.

**GES 545-3. Seminar: Analysis of Environmental Systems.**

Problems associated with development of environmental impact studies. Case examples and field work. Meets with GES 445.

**GES 548-3. Environmental Problems of Colorado.**

Specific land and resource use problems in Colorado. In-depth analysis of interacting systems of natural resources and human decision-making processes. Meets with GES 448.

**GES 550-3. Topics in Water Resource Management.**

Experience of water resource management in the United States, prospects for the future and problem solving techniques. Critical analysis of issues important in the western United States. Meets with GES 450.

**GES 551-3. Applied Hydrology.**

Exploration of the principles of hydrology and their applications to environmental investigations. Meets with GES 451.

**GES 555-3. Disasters and Society.**

The impact of extreme geophysical events on human society. Emphasis upon adaptations to extreme events and ways of reducing vulnerability and damage.

Meets with GES 455.

**GES 560-3. The Cultural Landscape.**

Students will learn to interpret the American cultural landscape, particularly everyday surroundings that they frequently take for granted. You will see clues about our culture and society from modifications to the natural terrain, including the cities in which we live. Meets with GES 460.

**GES 561-3. Urban Geography.**

Course addresses topics in urban location, urban morphology and design, urban function, and urban social issues. We analyze why cities look as they do and the role cities play in society. Emphasis is on cities in the United States. Meets with GES 461.

**GES 573-3. Seminar: Population**

**Geography.** The geographic aspects of population characteristics including fertility, mortality, migration, distribution, and composition. Both theoretical and empirical considerations are included. Meets with GES 473.

**GES 575-3. Seminar: Recreation**

**Geography.** An inquiry into the spatial distribution and environmental conditions of recreation. Emphasis is on outdoor recreation in nonurban settings. The implications of recreational values to resource managers and land use decisions will be included. Meets with GES 475.

**GES 577-3. History and Nature of**

**Geography.** A history of geographical ideas from Greek classical efforts through the 19th century. Prer., Consent of instructor. Meets with GES 477.

**GES 602-4. Data Processing in Earth**

**Science.** Advanced data processing using digital image models and Geographic Information Systems. Students will be responsible for extensive individual project design and completion. Prer., GES 517 or GES 409/GES 509.

**GES 700-1 to 6. Master's Thesis.****GES 940-1 to 4. Independent Study**

**in Geography.** Independent work for undergraduates. By special arrangement with faculty only. Only for students presenting strong geography preparation.

**GES 950-1 to 4. Independent Study**

**in Geography: Graduate.** Independent work for graduate students. By special arrangement with faculty only. Prer., Consent of instructor.

**GES 960-1 to 4. Independent Study**

**in Geography: Graduate.** Independent work for graduate students. By special arrangement with faculty only. Prer., Consent of instructor.

**GES 999-0. Candidate for Degree.**

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**GREEK**

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**GRK 101-4. Introduction to Ancient**

**Greek.** An introduction to classical Attic Greek based on readings in all the major genres of classical Greek literature. Acquisition of the fundamentals of grammar, vocabulary, syntax and morphology will be emphasized as a means to understanding Greek thought and culture.

**GRK 102-4. Intermediate Classical**

**Greek.** Course is designed to complete grammatical, morphological and vocabulary work initiated in GRK 101. Students will read selections of Greek prose and poetry from Homer through the Medieval period. Prer., GRK 101.

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**GERONTOLOGY**

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**GRNT 204-3. Biomedical Aspects of**

**Aging.** A comprehensive study of the normal and pathological aspects of the aging process in human beings. The course treats cellular through organ system function, examining causes and changes related to aging. Immunity, nutrition and biopsychological factors are studied. The course also examines the concept of wellness as it applies to aging. Meets with BIOL 204 and HSCI 280.

**GRNT 300-3. Introduction to**

**Gerontology.** A comprehensive introduction to the experience of aging, including an overview of the biological, psychological, and social aging of individuals as well as the issues that confront us as an aging society.

**GRNT 462-3. Sociology of Aging.**

Examination of the aging process in American society. Focus on development from late adolescence through old age and death. Meets with SOC 462.

**GRNT 463-3. Psychology of Aging.**

An overview of geropsychology covering such topics as the aging central nervous system, cultural contexts of aging, personal transitions in later life, mental disorders, and geropsychology in the future. Prer., PSY 100. Meets with PSY 351.

**GRNT 498-1 to 6. Professional Field Experience in Gerontology.**

Designed learning experiences involving application of specific, relevant concepts and skills in supervised Gerontology related employment situations. (Pass/Fail grading only). Prer., GRNT 300 and consent of instructor. Sign up for no more than 3 credits per semester.

**GRNT 940-1 to 6. Independent Study in**

**Gerontology: Undergraduate.** Hours and credits to be arranged. Prer., Consent of instructor required.

## HISTORY

**HIST 101-3. The Ancient World.** A survey of major political, economic, religious, and social themes of the ancient world, from the beginnings of civilization in the Near East to the end of the Roman empire in the West. Students will read a selection of original sources.

**HIST 102-3. Medieval World.** A survey of major political, economic, religious and social developments in Europe from the end of the Roman Empire to 1500. This also includes a brief examination of the rise of Islam and the survival of Byzantium. Students will read a selection of original sources.

**HIST 103-3. The Rise of Modern Europe, 1500-1815.** A survey of major political, economic, social, and cultural developments from the Reformation through the era of the French revolution. Students will read a selection of original sources.

**HIST 104-3. Modern Europe, 1815-Present.** A survey of major political, economic, social, and cultural developments from the fall of Napoleon until today. Students will read a selection of original sources.

**HIST 111-3. Asian History: Southeast Asia.** A survey of Southeast Asian society, culture, politics and economy, from early Southeast Asian civilizations to the present.

**HIST 112-3. Asian History: The Indian Subcontinent.** Survey of South Asian society, culture, politics and economy, from the birth of Indian civilization to the present.

**HIST 113-3. Asian History: China.** The evolution of Chinese society, economy, culture and political systems from the birth of Chinese civilization to the present.

**HIST 114-3. Asian History: Japan.** A survey of Japanese society, culture, politics and economy, from the birth of Japanese civilization to the present.

**HIST 121-3. History of the Middle East.** A survey course covering the history of the Middle East. Special attention will be given to the birth of Islam; the Ottoman empire; European imperialism; the birth of Israel; the Six-Day War; the Camp David accords; the tragedy of Lebanon; the Iraqi revolution; the Gulf War; and steps for peace.

**HIST 140-3. Latin America to 1810.** Survey of the political, social and economic development of Latin America from pre-Columbian beginnings to 1810.

**HIST 141-3. Latin America Since 1810.** Survey of the political, social, and economic development of Latin America since 1810.

**HIST 151-3. US: Birth of a Nation, 1607-1789.** Survey of the development of the US from the colonial period through the ratification of the Constitution, with emphasis on causes, events, and results of the American Revolution.

**HIST 152-3. US: Expansion and Division, 1789-1877.** Survey of the major issues related to interpretation of the Jeffersonian and Jacksonian eras with emphasis on the challenges derived from westward expansion and the social, economic, and political factors contributing to disunion and civil war.

**HIST 153-3. US: Emergence of Modern America, 1865-1920.** Survey of the economic, social and political development of industrial America from the reconstruction through World War I.

**HIST 154-3. US: Recent America, 1918-Present.** Survey of America's social, political, economic and cultural history during the time the U.S. has been a world power. The roots of contemporary society, with emphasis on the emergence of a multicultural America.

**HIST 300-1 to 3. Special Topics.** These courses are usually taught on a one-time basis. The subject matter will change from year to year and will cover an important but rarely taught subject in history.

**HIST 304-3. Sex, Marriage, Death in Pre-Industrial Europe.** Examines the life cycles of Europeans in the pre-industrial period (before c. 1750) through analysis of the theory and practice of procreation, child-rearing, marriage, and death.

**HIST 310-3. Great Thinkers of Europe.** An examination of the major currents of recent thought. Thinkers to include some of the following: Freud, Weber, Lenin, Virginia Woolf, Buber, Brecht, Sartre, and Bann.

**HIST 311-3. Great Thinkers of Europe: The Nineteenth Century.** Following an introduction to the major trends and movements of nineteenth-century European thought, this course will acquaint students with some of the period's most significant and influential works. Readings will be selected from among such authors as Sir Walter Scott, George Sand, the Brothers Grimm, Marx and Engels, John Stuart Mill, and Ibsen.

**HIST 323-3. Fascism and the Holocaust.** An analysis of Nazi Germany's policy of genocide against the Jews in the context of European fascism of the 1920s,

1930s, and 1940s.

**HIST 325-3. Germans and the Holocaust.** An analysis of Germans and the Holocaust from several perspectives: the development of German anti-Semitism; the identity of German Jews; genocide as perpetrated by the Third Reich; subsequent efforts of atonement, commemoration.

**HIST 335-3. Germany, 1763 to 1866.** An examination of major developments of German politics, society, economic life and culture from the end of the Seven Years War to the Austro-Prussian War. Special attention to nationalism and the emergence of national literature.

**HIST 336-3. Germany since 1866.** An examination of major developments of German politics, society, economic life and culture from the end the Austro-Prussian War to today. Inclusion of some German literature.

**HIST 337-3. Hitler and German National Socialism.** An examination of the Nazi leader in terms of the historical situation in which he attained power, his historical significance generally and the policy of genocide for which he was responsible. Some use of psycho-historical approach.

**HIST 338-3. Germany Since 1945.** An analysis of German politics, economics, society, and culture since the end of World War II.

**HIST 342-3. Medieval England.** A survey of the early formation of the English nation, from the coming of the Anglo-Saxons to c. 1500. The focus will be on major economic, political and religious trends as seen through a variety of original sources.

**HIST 344-3. Tudor-Stuart England.** Traces the creation and maintenance of the Tudor state in the 16th century and its dismantlement during the revolutions of the 17th century. The emphasis will be on political, social, and economic structures as seen through a variety of original sources.

**HIST 346-3. Early Modern England.** Survey of early Modern English history from 1688 to 1830 with an emphasis on political and economic developments and their impact on social structure.

**HIST 349-3. History of Ireland.** Traces developments in Irish history since the 1100's, the century in which Ireland's stormy relationship with Great Britain began. Special emphasis will be placed upon that relationship, but the course will also examine the various social groups that coincided Irish society and their relationships with each other. Irish culture in its many facets will be examined



through the study of various works of literature interspersed throughout the course.

**HIST 350-3. Chicano History to 1910.**

A panoramic sketch of Chicano history to about 1910. This course integrates events, ideas and personalities from both sides of the border to illuminate the evolution of Spanish-speaking people of the American Southwest. Meets with EST 350.

**HIST 351-3. Chicano History Since 1910.**

A broad sketch of Chicano history since 1910. This course integrates events, ideas, and personalities from both sides of the border to illuminate the evolution of Spanish-speaking people of the American Southwest.

**HIST 352-3. History of Latinos in the US.**

Course covers the history of US Latino communities and Latin American immigrants to the US from the 1820's to the present. Meets with EST 352.

**HIST 353-3. Religion and Culture in America, 1500-1865.**

Close study using primary and secondary texts of the religious cultures of America from Native American origins to the Civil War.

**HIST 354-3. Religion and Culture in the US, 1865-2000.**

Seminar discussions of the mutual influences of American religion and American culture from the Civil War to the present.

**HIST 358-3. Immigrant Histories.** The history of immigrants/migrants from Latin America, Africa, the Middle East, and Europe as of 1840 to the present will be examined. Emphasis will be placed on US immigration laws, the development of ethnic based communities and connections to US policy. Meets with EST 358.

**HIST 359-3. Latin American History Through Film.**

Exploration of major themes in the history of Latin America such as conquest, colonialism, cultural clashes, revolution, and nationalism through the use of films and texts.

**HIST 360-3. The 1960s.** Examines the social, political and cultural changes arising in the turbulent years of the 1960's. Special attention will be given to the Civil Rights Movement, the domestic aspects of the Vietnam War, and challenges to traditional culture and values.

**HIST 371-3. Good Wives and Nasty Wenches: American Women's History, 1607-1877.**

Study the history of American women from the Colonial era through the Civil Wars concentrating on the nineteenth century. It will introduce students to the changing economic, gender, and familial

roles of American women. Meets with WMST 371.

**HIST 372-3. "From Slavery to Freedom": Slavery and the African-American Experience in Colonial and Antebellum America.**

Introduces students to the major political, social and cultural developments in the history of African Americans from 1619 through Reconstruction. Meets with EST 372.

**HIST 373-3. Vision & History in Native American and African American Narratives.**

Examines via biography/autobiography how North America impacts the perspective and reality of American Indian and African American people(s), circa 1790-2000. Meets with EST 373.

**HIST 374-3. African American Social and Political Thought, 1790-1980.**

Surveys the historical basis of socio-political thought in North America's diaspora (African American) communities. Meets with EST 374.

**HIST 386-3. Popular Culture in 20th Century America.**

How do Americans live, relax, and entertain themselves? The answer involves high culture but also popular culture. Over the course of the century, pop culture forces such as the rise of the auto, advertising, the sexual revolution, radio, TV, movies and music from jazz to rock have transformed modern American civilization.

**HIST 388-3. The History of American Education.**

An examination of the critical developments taking place in the history of American education. The background of pressing issues and challenges facing modern education are covered along with examples of how education has been used to improve human conditions.

**HIST 389-3. History of Colonial India.**

A history of India that details the colonization of South Asia. Topics of special attention are British imperialism, rebellions against British control, and the Indian struggle for freedom and independence.

**HIST 394-3. Theory and Methods in History.**

Seminar discussions and presentations emphasizing research skills and methods in history. Students should take prior to or along with Senior Thesis Seminar, HIST 499.

**HIST 398-3. The Vietnam War Through Film.**

A survey of the war in Southeast Asia through the eyes of Hollywood. Major periods include France's war with Vietnam, early American involvement, the war through Asian eyes (as portrayed in Hollywood), the soldiers' war back home, and the fall of Vietnam.

**HIST 399-3. European Film - European History.**

The study of European film in conjunction with major developments in European society, politics and culture. Topics to include: realism and social commentary; symbolism; historical films; propaganda films; reception; the development of film techniques; the film industry. Emphasis will vary by semester.

**HIST 411-3. Early Medieval Europe.**

Scope of course: 3rd century through 10th century. Themes covered will be Christianization of the Roman Empire, the transformation of the Western Empire into European feudal kingdoms, and the survival of the Eastern Empire.

**HIST 412-3. The Twelfth Century Renaissance.**

Scope of the course: 11th century through the 13th century. Themes covered will be political, social, religious, and economic developments that shaped Medieval Europe into a unique civilization.

**HIST 421-3. History of Christianity: Primitive Church to circa 300.**

An exploration of primitive Christianity through its immediate Judaic and Hellenistic roots, to include extended historical and literary discussion of the literature of the New Testament and an analysis of the historical Jesus.

**HIST 422-3. History of Christianity: circa 300 to circa 1500.**

A history of the Christian church in the West from its acceptance as a legal religion in the 4th century to the eve of its breakup at the Reformation. The focus is especially on theological, organizational, and heretical developments.

**HIST 423-3. Renaissance/Late Middle Ages.**

A survey of the major political, economic, and social developments in Western Europe from the early 14th through the early 16th century. Included will be the expansion of Europe, notably of Spain and Portugal.

**HIST 424-3. The Reformation and Counter-Reformation.**

A survey of Europe from the early 16th century through the mid-17th century from Martin Luther through the Thirty Years War. Emphasis will be given to religious themes and their relation to politics, economics and society.

**HIST 426-3. Europe in the Age of Enlightenment.**

An examination of the eighteenth century, with special emphasis on the enlightenment and popular culture.

**HIST 429-3. Europe and the World: 1492-1750.**

Europe's relations with major portions of the world with focus on factors that contributed to Europe's dominance over much of the world before the Age of Imperialism.

**HIST 449-3. Europe Between the World Wars.** An analysis of the major trends and developments of European politics, society, economics, and culture between the world wars.

**HIST 451-3. The American Revolution: The Forging of the Union, 1763-1789.** A comprehensive survey of the social, political, economic and intellectual transformations in America during the revolutionary era. The focus will be on the causes of the war, the war itself, the consequences of independence and the ratification of the constitution.

**HIST 453-3. History of the US Civil War.**

**HIST 454-3. American Religious Cultures 1945-2000.** Intensive research seminar focusing on primary texts of recent American religions from Cold War Protestantism to New Age Buddhism.

**HIST 458-3. The American West.** A continuation of the study of the westward movement extended to the region beyond the Mississippi, beginning with the Spanish exploration and continuing through the end of the 19th century. Emphasis on the association of Western interests with those of a rapidly developing industrial society in the east.

**HIST 469-3. Colorado History.** A history of Colorado from prehistoric Indians to nuclear projects. Topics covered will include exploration and conquest, the mountain men, settlement and pioneer life, Indians, mining, economic and political developments, exploitation and preservation of the environment, and recent trends.

**HIST 471-3. Asian American History.** Course will trace the social, political, economic, and cultural history of Asian Americans from the early settlements of the nineteenth century to the present. Meets with EST 471.

**HIST 472-3. American Policy in the Pacific** Traces the historical origins of U.S. diplomatic, political, and fiscal relationships in Asia. Topics include the early "China trade", the "opening of Japan", and aspects of American imperialism in East and Southeast Asia. Views U.S. foreign policy with an eye toward congressional and presidential decisions which resulted in American participation in three major wars in the Asian region.

**HIST 473-3. Early China.** A history of China from archaeological origins through the Imperial Ages, the Mongol years to the final dynastic era - the Qing. Special attention focuses on early philosophic ideals, aspects of unity and disunity, as well as social, political and economic events.

**HIST 474-3. Modern China.** An examination of the fall of the Imperial dynastic system and the rise of new political ideas of governance including republicanism, and communism. Important topics include: the 1911 revolution, the warlord years, the creation of the nationalist and Communist parties, WWII in Asia and the rise and fall of Mao Zedong.

**HIST 475-3. Modern Japan.** Included in this semester will be a study of Japan's contact with the West, the Meiji Restoration and the creation of a modern nation, the expansion of the empire, and the rise of militarism and World War II. The course concludes with the postwar occupation and recovery of Japan.

**HIST 476-3. Shoguns of Japan.** Course begins with the establishment of the first military feudal regime in 1185 and ends with the "restoration" of imperial rule in 1868. Included is an examination of the political, cultural, economic, and social aspects of each of the three Shoguns that comprise the era of the Shoguns in Japan.

**HIST 477-3. Vietnam Wars.** A focus on the country, people and U.S. involvement. Guest speakers will supplement the lectures and give first hand accounts of their participation in the war. 'Vietnam' will also define the role of American Foreign Policy during the Cold War.

**HIST 478-3. History of Modern Southeast Asia.** The countries of Malaysia, Indonesia, the Philippines, Singapore, Thailand, Laos, Cambodia and Vietnam in 19th and 20th centuries. Students will consider religious, social, economic and revolutionary trends prior to independence and then look at the problems of post colonial independence from a regional point of view.

**HIST 479-3. The American Military Experience.** An objective examination of the military history of the United States from the colonial period to the present. Significant battles and campaigns are carefully analyzed, but equal attention is given to cause and effect relationships of America's wars in a national and global context.

**HIST 485-3. War and Society: 20th Century US.**

**HIST 487-3. History of the British Empire.** A seminar tracing the evolution of the British Empire from its American roots, through its 19th Century apex in Asia, Africa, and the West Indies, to its dissolution in the late 20th Century.

**HIST 489-3. Environmental History: The West and the World.** A seminar dealing with global environmental history, with particular emphasis being given to the

environmental history of the American West.

**HIST 490-3. Creators of Mathematics: A Historical View.** Prer., I D 105. Meets with I D 445 and I D 545.

**HIST 499-3. Senior Thesis Seminar: Approaches to the Study of History.** A required course for the history degree. The focus is on research methods, organization of ideas, analysis of evidence, and writing history. Under the direction of a faculty member, each member of the seminar will prepare an original piece of research: the Senior thesis. Prer., Junior or Senior status.

**HIST 600-3. Historiography.** Introduction to the professional study of history. Required of all graduate students.

**HIST 611-3. Readings in Medieval European History.** This graduate course analyzes the major secondary literature and historical interpretations in Medieval history, from c. 300 to c. 1300 A.D. Prer., Graduate status.

**HIST 615-3. Readings in the Renaissance and Late Medieval Europe.** This graduate course analyzes the major secondary literature and historical interpretations in the Renaissance and late Medieval Europe, from c. 1300 to c. 1500 A.D. Prer., Graduate status.

**HIST 622-3. Readings in the Reformation and Counter Reformation.** This graduate course analyzes the major secondary literature and historical interpretation in the era of the Reformation and the Counter-Reformation, from c. 1500 to c. 1648 A.D. Prer., Graduate status.

**HIST 625-3. Readings in the Old Regime, 1648 to 1789.** Graduate-level readings in a period of European history. Prer., Admission to program or permission of instructor.

**HIST 631-3. Readings in the Age of Revolution 1789 to 1870.** Graduate-level readings in a period of European history. Prer., Admission to program or permission of instructor.

**HIST 635-3. Readings in Modern Europe, 1870 to the Present.** Graduate-level readings in a period of European history. Prer., Admission to program or permission of instructor.

**HIST 646-3. Readings: Religion and Culture in America, 1500 to 20th Century.** Graduate seminar emphasizing intensive and extensive scholarly readings on religion and culture in America, preparing students for the graduate research seminar paper. Prerequisite to HIST 746.

**HIST 651-3. Readings in US History, 1765 to 1815.** A graduate reading course designed to familiarize graduate students with the historiography of the American Revolution and the early national period. Students will read major works by past masters as well as current historiography.

**HIST 661-3. Readings: US, 1815 to 1876.** Graduate level readings in the major historiographic problems of the early nineteenth century through the Civil War and Reconstruction. Prer., Graduate status in history.

**HIST 666-3. Readings in US History: Emergence of Modern America.** Extensive reading of modern historians in the political, economic, social, and cultural history of the US during the period of the emergence of industrialized America. Prer., Graduate status.

**HIST 669-3. Special Topics.** A readings or research seminar in a particular field not covered in regular graduate courses. Prer., Permission of instructor.

**HIST 671-3. Readings in US History: The Super Power Era, 1918-Present.** Extensive reading of modern historians in the political, economic, social, and cultural history of the US during the period of America as a world superpower. Prer., Graduate status.

**HIST 676-3. Readings in the Trans-Mississippi-West.** A graduate seminar designed to provide an in-depth understanding of the role of the trans-Mississippi American West in the history of the United States.

**HIST 679-3. Readings in Latin American History.** Provides students with a broad introduction to the major themes in Latin American history. Indigenous cultures, colonial history, the emergence of nations in the nineteenth century and revolutions of the twentieth century will be covered.

**HIST 681-3. Readings in the Indian Subcontinent Since 1556.** Graduate seminar designed to provide an in-depth knowledge of South Asia since the advent of the Mughal Empire.

**HIST 686-3. Readings in the Pacific Rim Since 1600.** Graduate seminar designed to provide an in-depth knowledge of East Asia since 1600.

**HIST 699-3. Special Topics.** A readings or research seminar in a particular field not covered in regular graduate courses. Prer., Permission of instructor.

**HIST 711-4. Research in Medieval European History.** Graduate level research and preparation of a scholarly paper, using primary sources, in medieval history. Prer., HIST 611.

**HIST 715-4. Research in Renaissance & Late Medieval History.** Graduate level research and preparation of a scholarly paper, using primary sources, in the Renaissance and late Medieval Europe. Prer., HIST 615.

**HIST 722-4. Research in the Reformation and Counter-Reformation.** Graduate level research and preparation of a scholarly paper, using primary sources, in the Reformation and Counter-Reformation. Prer., HIST 621.

**HIST 725-4. Research in the Old Regime, 1648-1789.** Graduate level research in a period of European history. Prer., HIST 625.

**HIST 731-4. Research in the Age of Revolution, 1789-1870.** Graduate level research in a period of European history. Prer., HIST 631.

**HIST 735-4. Research in Modern Europe, 1870 - Present.** Graduate level research in a period of European history. Prer., HIST 646.

**HIST 746-4. Research in American Religion.** Graduate research seminar emphasizing an individualized research project on any approved topic in religion and culture in American history. Prer., HIST 646.

**HIST 751-4. Research in US History, 1765-1815.** A course in primary research in Revolutionary America. Prer., HIST 651.

**HIST 761-4. Research in US History, 1815 to 1877.** A course in research for M.A. students. Students will be required to use primary sources in American history (1815-1877).

**HIST 766-4. Research in US History: the Emergence of Modern America, 1876 - 1918.** Graduate level research in modern American history. Prer., HIST 666.

**HIST 771-4. Research in US History: The Super Power Era, 1918 - Present.** Graduate level research in modern American history. Prer., HIST 671.

**HIST 776-4. Research in the Trans-Mississippi West.** A graduate seminar in which students will research and write a term paper on a specialized topic in the history of the Trans-Mississippi American West. Prer., HIST 676.

**HIST 779-4. Research in Latin American History.** Students will engage in primary source research of a topic of their choice within the field of Latin American history. Prer., HIST 679.

**HIST 781-4. Research in the Indian Subcontinent Since 1556.** A graduate seminar in which the students will

research and write a term paper on a specialized topic in South Asian history. Prer., HIST 681.

**HIST 786-4. Research in the Pacific Rim Since 1600.** A graduate seminar in which the students will research and write a term paper on a specialized topic in East Asian history. Prer., HIST 686.

**HIST 940-1 to 3. Independent Study in History: Undergraduate.** Prer., Consent of instructor.

**HIST 960-1 to 3. Independent Study in History: Graduate.** Prer., Instructor consent.

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## HUMANITIES

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**HUM 303-3. Humanities: 1848, The Rise of Modernity.** A year of political, industrial, artistic, and technological revolutions, 1848 is studied from such perspectives as Dickens' *Hard Times*, Dumas' *Camille*, the Realism of Courbet, the rise of the women's movement, the Communist Manifesto, and other visual, literary, and aural texts. The theme is the rise of modernity. Prer., ENGL 141 or equivalent.

**HUM 311-3. Film, Technology, and Culture.** A study of film as a cultural medium through which people express anxieties and hopes, vent critical reactions against social norms and modes of behavior, and reflect on possible changes. Prer., ENGL 141 or equiv and Junior standing.

**HUM 313-3. The Baroque** This is an interdisciplinary course focusing on world art and culture of the Baroque period. Issues and themes include the impact of political and religious absolutism, and the rise of modern science on theatre, literature, art, and music. Prer., ENGL 141 or equivalent.

**HUM 314-3. Mythologies.** An examination of myths central to varying cultures and epochs as they are represented in different fields; including music, art, literature, philosophy, film, politics, history, psychology, and popular culture.

**HUM 317-3. Minority Voices.** The voices which celebrate positions and oppositions in race, class, gender, culture and sexual orientation. Selected literature, film, and artistic musical and historical documents. Analysis of social, political, and ethical concerns.

**HUM 399-3. Special Topics in Humanities.** The topic will vary by semester and a specific course may be cross-listed with a course in another department. Students should check each

semester's Schedule of Courses for specific topics.

**HUM 940-1. Independent Study.**

Independent Study in Humanities is set aside for those students needing one credit hour in Humanities to satisfy the General Humanities Requirement. Permission of Director of Humanities is required. Prer., Permission of Director of Humanities.

## INTERDEPARTMENTAL STUDIES

**I D 101-3. Freshman Seminar.**

A three-credit interdisciplinary learning experience to help freshmen succeed in college. Students refine their skills in speaking, writing, teamwork, and technology; examine a topic based on the fundamentals of various disciplines; and work closely with faculty and peers. The course emphasizes faculty coaching, collaborative learning, and campus resources through a variety of assignments, such as electronic journals and PowerPoint oral presentations.

**I D 103-3. Fundamentals of Written/ Oral Communication.**

Fundamentals of written and oral communication necessary for undergraduate academic success. The course focuses on three related components: strategies for writing expository essays; basic conventions of standard written English and oral communication competency. Enrolled students are participants in the pre-collegiate program at UCCS.

**I D 105-3. Quantitative and Qualitative Reasoning Skills.**

Designed to bring incoming students up to a minimum competency in quantitative and qualitative skills. It includes such topics as logic arithmetic, graphing, statistics, problem solving skills, and algebraic skills. The course is one of the means to satisfy the Qualitative and Quantitative Reasoning requirement.

**I D 111-1. Academic Fitness.** In this course, students will study goal-setting, time management, note-taking, test-taking, critical thinking, and oral and written communication. They will develop academic success strategies and apply them to this course and other courses being taken concurrently. Required for LAS second-semester freshman on academic probation and is open to other interested students.

**I D 200-3. Mathematics: A Human Endeavor.** An introductory course in mathematics as a liberal art. Designed to demonstrate the beauty of mathematics, its methods and its place in human endeavors. Recommended for those

who like the subject and for those who think they don't. This course is one of the means to satisfy Qualitative and Quantitative Reasoning requirement.

**I D 205-3. Beyond the Finite.** Shows how infinity, which plays a key role in mathematics and many other areas of human endeavor, appears in arithmetic, geometry, foundations of analysis and the arts. Just as every intelligent person needs at least some acquaintance with discoveries of Einstein and Freud, one needs exposure to George Cantor's discovery of the infinite. Strongly recommended for natural science, math and math education majors, but can be expected to benefit everyone. The course can be used to satisfy 3 of the 12 hour Natural Sciences Area requirement.

**I D 301-1 to 3. Transition Seminar.**

Specifically designed for first-semester transfer students, this course helps students integrate into the UCCS campus community; refine speaking, writing, and technology skills through project-based learning; cultivate critical research competence; and explore academic and career options. Each semester, a topic is investigated according to three broad academic perspectives. Prer., Not open to students who have taken I D 101.

**I D 366-3. Service Learning: Theory and Practice.**

Combines theory with practical application; includes reading assignments, discussion, and a service learning project. Prer., Sophomore standing or consent of instructor.

**I D 371-3. Great European Film Directors: A Historical View 1945-1994.**

A study of the history of cinema, through works of great European directors of post WWII period: from De Sica, Antonioni, Fellini, Pasolini, to Tarkovsky, Parajanov, Wajda, Jarman, and Greenway. Course would be a valuable elective for all Arts and Sciences majors. Meets with FILM 371.

**I D 372-3. Russian Avant-Garde Cinema: A Historical View, 1915-1995.**

A study of the history of nearly 100 years of Russian and Soviet cinema through works of great directors: Eisenstein, Tarkovsky, Paradjanov, Shepit'ko, and others; from 1910's through 1990's. Every 4-hour session includes a complete feature film, some rare and never released on video. A valuable elective for all Arts and Sciences majors. Meets with FILM 372.

**I D 373-3. Russian Art Cinema Today: A Historical View.**

An in-depth study of the latest page in the history of its best directors: classics, such as Loseliani, Soluior, Muratova, as well as young talented directors, bound to become

classics tomorrow. Every 4-hour session includes a complete feature film, often unavailable commercially. Available elective for all Arts and Science majors. Meets with FILM 373.

**I D 401-1. Honors Senior Roundtable: Sharing Passions, Sharing Perspectives.**

Seniors in their graduating semester will reflect on and share with others their passion for their major field, and perspectives as to why this field is important in the context of both the university and society at large. Prer., Consent of instructor required. Open to seniors in graduating semester, by invitation from major department Chair only.

**I D 409-3. Peer Mentoring for Freshman Seminar JTAs.**

Examines the complementary processes of teaching and learning from both theoretical and pragmatic perspectives. Students will study learning styles, develop coaching and mentoring skills, and work with first-year students under the guidance of faculty sponsors. Prer., Instructor consent.

**I D 410-1 to 3. A Sense of Place.**

Focuses on the character of a particular place. An understanding of these places will be accomplished through an analysis of selected aspects such as history, culture, literature, art and geography.

**I D 445-3. Creators of Mathematics: A Historic View.**

An introduction to the history of mathematics and its creators. Traces the lives and works of the greatest mathematicians of all time. Explores birth and discovery of new ideas. Designed for math, math education, and history majors but may also be a valuable experience for science and art majors. Meets with I D 545 and HIST 490.

**I D 446-3. Emergence of Graph Theory: A Historical Exploration of a Mathematical Theory.**

Explores the emergence of Graph Theory through its history. Studies original pioneering papers and their creators. A valuable elective for math., math. ed., history, physics and other majors. Prer., I D 105, I D 200, or consent of instructor. Meets with I D 546.

**I D 450-3. A Serious Course in Recreational Mathematics.**

An exciting, unique introduction to mathematics through the study of mathematical games, puzzles and competition with emphasis on the beauty, elegance, paradox, and ingenuity of mathematical ideas. As part of the course, students and instructor will organize the annual Colorado Mathematical Olympiad for Junior and Senior high school students. Meets with I D 550.

**I D 480-3. What is Mathematics?**

Demonstrates how mathematicians create new results in mathematics; how problems of high school geometry lead to open problems-to mathematical frontiers; how several areas of mathematics join together to solve a problem. Invaluable for math majors and math teachers as well as for all science and math ed. majors. Prer., High school algebra or ID 105 and high school geometry. Meets with I D 580.

**I D 485-3. Geometric Insight in Combinatorial Mathematics.** Geometric insight is a strikingly beautiful tool in mathematics. It demonstrates the power of visualization, experimentation, and imagination in combinatorial mathematics. Designed for math, math education, and natural science majors, but may be taken by anyone who enjoys mathematics. Prer., High school geometry.

**I D 490-3. Mathematical Coloring.**

Shows how coloring can solve mathematical problems; traces ideas of coloring through geometry, combinatorics, number theory, and other areas of mathematics. Allows students to visit a "studio of a mathematician." Invaluable for math majors and math teachers as well as science majors. Prer., High school geometry. Meets with I D 590.

**I D 499-6 to 12. Argonne Semester.**

Students apply to Argonne National Laboratories during their Junior year for acceptance into the long-standing Argonne Scientific research program for undergraduates. Prer., Acceptance by the Argonne National Laboratory and approval by the dean of the college.

**I D 545-3. Creators of Mathematics: A Historic View.** An introduction to the history of mathematics and its creators, the greatest mathematicians of all time, their lives and their works, through birth and discovery of new ideas. Prer., I D 105. Meets with I D 445 and HIST 490.

**I D 546-3. Emergence of Graph Theory: A Historical Exploration of a Mathematical Theory.** Explores the emergence of Graph Theory through its history. Studies original pioneering papers and their creators. A valuable elective for math., math. ed., history, physics and other majors. Prer., I D 105 or consent of instructor. Meets with I D 446.

**I D 550-3. A Serious Course in Recreational Mathematics.** An introduction to mathematics through the study of mathematical games, puzzles, and competitions with the emphasis on the beauty, elegance, paradox, and ingenuity of mathematical ideas. As a part of the course, students and instructor may participate in organizing the Colorado Mathematical Olympiad. Prer., I D 105 or consent of instructor. Meets with I D 450.

**I D 580-3. What is Mathematics?**

Demonstrates how mathematicians create new results in mathematics; how problems of high school geometry lead to open problems-to mathematical frontiers; how several areas of mathematics join together to solve a problem. Invaluable for math majors and math teachers but may be of interest to science majors or others who wish to have a better understanding of mathematics. Prer., High school algebra or I D 105 and high school geometry. Meets with I D 480.

**I D 585-3. Geometric Insight in Combinatorial Math.** Geometric insight is a strikingly beautiful tool in mathematics. It demonstrates the power of visualization, experimentation, and imagination in combinatorial mathematics. Designed for math, math education, and natural science majors, but may be taken by anyone who enjoys mathematics. Prer., High school geometry.

**I D 590-3. Mathematical Coloring.**

Shows how coloring can solve mathematical problems; traces ideas of coloring through geometry, combinatorics, number theory, and other areas of mathematics. Allows students to visit a "studio of a mathematician." Invaluable for math majors and math teachers as well as science majors. Prer., High school geometry. Meets with I D 490.

**I D 940-1 to 3. Independent Study: Undergraduate.** Independent study in interdepartmental studies (Upper Division).

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**ITALIAN**

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**ITAL 101-5. Beginning Italian I.** Essentials of basic Italian, oral-aural skills stressed with additional reading, writing and grammar.

**ITAL 102-5. Beginning Italian II.** Essentials of Italian continued. Additional oral-aural skills practice with increased grammar, reading, and writing. Prer., ITAL 101 or equivalent.

**ITAL 211-3. Intermediate Italian I.** Italian at the intermediate level with concentration on conversation, culture, and civilization, or literature at that level. Prer., ITAL 102 or equivalent.

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**JOURNALISM**

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**JOUR 100-3. Contemporary Mass Media.** Examines the mass media and their interaction with society, looking at journalism and the mass media in historical, intellectual, political, and social contexts. Meets with COMM 100.

**JOUR 290-3. Writing for the Media.** Fundamentals of new gathering and writing

news story forms. Meets with COMM 290.

**JOUR 666-3. Media Ethics.** Selected topics in the area of journalistic ethics and issues. Students examine current theory and practice in journalism and apply these concepts to simulated communications problems. Topics vary each semester; examples include media ethics and social problems from cases in advertising, news and entertainment programming.

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**JAPANESE**

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**JPNS 101-5. Beginning Japanese I.** Skills in listening to and speaking Japanese. Emphasis on useful expressions with cultural orientation. Hiragana and Katakana.

**JPNS 102-5. Beginning Japanese II.** Continued skills in listening to and speaking Japanese. Reading and writing intensified with further study of Hiragana and basic Kanji. Prer., JPNS 101 or its equivalency.

**JPNS 211-3. Intermediate Japanese I.** Conversational Japanese at the intermediate level. Reading and writing with additional study of Kanji. Prer., JPNS 102 or its equivalency.

**JPNS 212-3. Intermediate Japanese II.** Japanese at the advanced intermediate level. Speaking, reading and writing with additional study of Kanji. Prer., JPNS 211 or consent of instructor.

**JPNS 320-3. Japanese Culture and Civilization.** Elements of history, culture, art, music and rituals of the Japanese experience. Meets with F CS 310.

**JPNS 920-1 to 3. Independent Study in Japanese.** Selected topics in Japanese language, literature and culture. May be offered to meet specific student needs. May be repeated up to three times for credit. Prer., JPNS 102.

**JPNS 930-1 to 3. Independent Study in Japanese.** Selected topics in Japanese language, literature and culture. May be offered to meet specific student needs. May be repeated up to three times for credit. Prer., JPNS 211.

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**LATIN**

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**LAT 101-4. Beginning Latin I.** Essentials of Latin. Elements of grammar, reading and writing.

**LAT 102-4. Beginning Latin II.** Continued study of Latin grammar with expanded reading and writing. Prer., LAT 101 or equivalent.

**LAT 211-4. Intermediate Latin I.** Latin at the intermediate level. Readings in

culture, civilization and literature. Prer., LAT 102 or sufficient score on placement test.

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## MILITARY SCIENCE

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**M S 101-1. Fundamental Concepts of Leadership.** An introduction to the fundamentals of leadership. The course helps students be more effective leaders and managers in the future, whether serving in the military or in civilian life. Topics include values, leadership, and "life skills" (communication theory/ practice, interpersonal relationships, and fitness). Students should be prepared to receive more complex leadership instruction by the course end. Lab is required once a week and physical training is required three times a week.

**M S 102-1. Basic Leadership.** An introduction to the "life skills" of problem solving, decision making, and leadership. The course is designed to help students in the near-term as leaders on and off campus. Topics include critical thinking, problem solving methods, leadership theory, followership, group cohesion, goal setting, and feedback mechanisms. Lessons emphasize student discussions and practical exercises. Lab is required once a week and physical training is required three times a week.

**M S 201-2. Advanced Leadership.** Course delves into the theoretical and practical leadership topics. Several communication and leadership topics are examined (assertiveness, motivation, written/oral communication, organizational culture, etc.). A major leadership problem solving case study is included. Students will be grounded in fundamental leadership principles by course end and be able to apply the principles to future life experiences. Lab is required once a week and physical training is required three times a week.

**M S 202-2. Tactics and Officership.** Focuses on the practical application of decision-making and leadership and examines the roots of national and Army values and ethics. Focuses basic knowledge required for a competent leadership (i.e.: physical fitness, consideration of others, operational terms and graphics, duties and responsibilities of an Officer, land navigation, basic tactics and principles of war, leadership skills and attributes). Lab is required once a week and physical training is required three times a week.

**M S 203-3. Military Science and Leadership "Leader's Training Course (LTC).** LTC is the Army's 2-year ROTC Program entry point. Through LTC, students without ROTC Basic Course

experience can qualify for Advanced Course entry. The Army observes these students and determines their Officer potential in a leadership-oriented, challenging, and motivating 5-week training program at Fort Knox, Kentucky. Prer., Minimum of 51 credit hours completed. Must not have completed "all" Basic course requirements (M S 101, M S 102, M S 201, M S 202).

**M S 301-3. Fundamentals of Military Leadership and Training I.** Focuses on building leadership competencies and military skills in preparation for a student's future responsibilities as a military leader. Topics include the principles of war, decision-making, planning models, and risk assessment. Advanced leadership instruction is on motivational theory, the role and actions of leaders, and organizational communications. Lab is required once a week and physical training is required three times per week.

**M S 302-3. Fundamentals of Military Leadership and Training II.** Builds on the skills and knowledge attained in M S 301. Instruction will include individual leader development, planning and execution of small unit operations, individual and team development, and the Army as a career choice. Students should be prepared to attend The Leadership Development Assessment Course (LDAC) at Fort Lewis, Washington the following summer by course completion. Lab is required once a week and physical training is required three times per week.

**M S 303-3. Leadership Development Assessment Course (LDAC).** Mandatory 5-week practicum conducted at Fort Lewis, WA for all Advanced course Army ROTC students. Students are assigned leadership positions at various levels of responsibility, in varied environments and are evaluated on their ability to function within the Army team. Contract Army ROTC students only. Prer., M S 301 and M S 302.

**M S 304-3. Military Science and Leadership Army ROTC Nurse Summer Training Program (NSTP).** This course is a three-week, 120-hour clinical assignment with an Army Nurse Corps preceptor at an Army hospital in the United States or overseas. Improved clinical skills and self-confidence that comes with this experience will enhance performance in nursing curriculum and Military Science. Students receive travel pay and a salary stipend through Military Science. Prer., M S 301, M S 302, M S 303. Restricted to Army ROTC Nurse Juniors/Seniors only.

**M S 401-3. Military Staff Functions.** Provides the student with an

understanding of the U.S. Army staff organizations, the interrelationships of these staffs and their role in support of the commander. Course work also addresses Army values, ethics and military customs and courtesies. Lab is required once a week and physical training is required three times per week. Prer., M S 301 and M S 302.

**M S 402-3. Transition to Lieutenant.** Course completes the transition from student to Lieutenant. It delves into the legal and ethical aspects of decision-making and leadership. Other topics include how the Army organizes for tactical/ strategic operations and how to manage administration and logistics at unit level. Lab is required once a week and physical training is required three times per week.

**M S 498-3. Special Studies in Leadership.** Course is for the student participating in the Army ROTC Advanced Course who wants to pursue further studies in the application of leadership principles and group dynamics. This course is by arrangement with the Professor of Military Science only. Students must be Army ROTC Advanced Course participants. Prer., M S 402.

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## MUSIC

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**MUS 100-3. Introduction to Music.** A music appreciation course. The content is oriented toward classical music which is taught in an historical chronology. Excursions into non-western music and American jazz will supplement the course content. Attending concerts is required.

**MUS 101-3. Music Theory I.** Covers the basic building blocks of music, including overtones, rhythm and meter, scales, chords, harmonic progression and beginning four-voice part writing. The development of written and aural skills is the highest priority. Required for the music minor.

**MUS 131-1. University Choir.** Study and performance of choral music. Open to all qualified students. May be repeated three times for a total of 3 hours' credit.

**MUS 150-1. Applied Music-Private Instruction.** This instruction is open to all students regardless of musical background. Fourteen 45-minute lessons per semester are offered with the meeting time and place to be arranged with the instructor. All students are required to perform or attend two recitals. Lessons will cover technique, interpretation and musical style.

**MUS 201-3. Advanced Music Theory.** Continuation of Music Theory I. Topics of study are advanced four-part writing,

change of key, preparation and resolution of dissonance, chromatic harmonies and working with free rhythmic textures. Advanced Music Theory is required for the minor in music. Prer., MUS 101 or consent of instructor.

**MUS 205-3. Jazz History.** Examines the history of Jazz music and culture. Starting from the mid-1800's, explores the influences and developments of this American art form throughout the twentieth century. Learn about the main contributors, the developing musical styles, and how Jazz engaged with social and political issues throughout the course of history. Meets with EST 205.

**MUS 210-3. Rock and Roll Music.** This introductory level history and music appreciation course will survey the major musical, social and economic trends in Rock and Roll music from its roots in the popular music of the late 1800's to the present. Students will sharpen their musical analysis skills through listening and active participation.

**MUS 225-1. Jazz Ensemble.** Performance oriented course of music from the Jazz tradition in the United States. Prer., Prior musical experience. Meets with MUS 205.

**MUS 315-3. Introduction to Non-Western Music.** An introduction, from the listener's point of view, to the music of various non-western cultures, including those of Africa, Asia and the Americas. Examination, through recordings, readings, and films, of musical styles and esthetics and the relationships between music and culture.

**MUS 375-3. 20th Century Music.** A survey of significant works of music literature in this century. Prer., MUS 101/102 or 185 or consent of instructor.

**MUS 385-3. Symphonic Literature.** Great orchestral works from Bach to Rautavaara will be studied. Includes symphonies, concertos, symphonic poems and oratorios, with an emphasis on music from the nineteenth and twentieth centuries. Attendance at concerts and/or rehearsals is required.

**MUS 403-1 to 3. Internship in Music.** Designed musical experience involving specific application of relevant concepts and skills in supervised professional situations. Pass/Fail only. Prer., Permission of Program Director.

**MUS 493-1 to 3. Advanced Special Topics.** Special topics usually taught on a one time basis. Subjects offered will respond to special interest or rapidly changing topics. Can be taken twice for credit but not more than 6 hours may apply toward graduation. Prer., Basic knowledge of topic.

**MUS 495-1 to 3. Special Topics.** Special topics are usually taught on a one-time basis. Subjects offered will respond to special interest or rapidly changing topics.

## **POLITICAL SCIENCE**

**P SC 101-3. Introduction to Global Politics.** Introductory analysis of the contemporary international system and major state and non-state actors in world politics. Considerable attention is given to internal political features and to the problems/perceptions of the various actors that shape their external behavior.

**P SC 110-3. The American Political System.** A general introduction to the American political system with emphasis on the inter-relations among the various levels and branches of government, formal and informal political institutions, processes, and behavior. Required of all majors. Not open to those who have had other beginning courses in American government.

**P SC 210-3. Politics and Policy in State and Local Communities.** Focuses on regional, state, and local government where politics is face to face and where political decisions regularly affect our daily lives. The political systems that teach children, issue building permits, collect garbage, determine welfare eligibility, operate parks, issue drivers licenses, and enforce traffic rules.

**P SC 250-3. Introduction to Political Inquiry.** An introduction to the basic methods and tools of research in political science. Topics will include discussions of the resources available for political research, the study of politics as a science, common techniques of political analysis, the development of research designs, research report writing, and the ethics of political research. The course will be largely experiential, directly involving students in research experiences.

**P SC 301-3. Women in Politics.** An examination of the role of women in American politics. Topics will include an historical perspective of women's political activity, the political interests and group activities of women, the legal status of women, political attitudes of and toward women, and women's political behavior. Meets with WMST 301.

**P SC 303-3. Political Parties.** Party politics in the United States. Nature, structure, organization, and functions of political parties. Analysis of political behavior.

**P SC 305-3. Race and Ethnicity in American Politics.** An examination of the role of U.S. ethnic minority groups in American politics from the perspectives of

the groups themselves. Topics will include historical and contemporary perspectives on the political activities, interests and legal status of U.S. ethnic minorities; the relationship of power, race/ethnicity and class in determining the effects of the political system on these groups; and the impact of these groups on the political system. Meets with EST 305.

**P SC 311-3. Emerging Nations.** Analysis of third world developmental problems such as lack of economic growth, corruption, military coups, arms sales, international debts, and the role of nature. Approaches to theory are discussed.

**P SC 321-3. Western European Political Systems.** Governments and politics of selected countries of contemporary western Europe, with emphasis on Britain, France, Germany and certain others.

**P SC 322-3. Eastern European Political Systems.** Examines the politics and policies of Eastern Europe during the 20th century and into the 21st century; analyzes Eastern European politics from WWI, the revolutions of 1989 and consideration of issues, problems, and paradoxes of the post-socialist transition.

**P SC 330-3. The Bureaucrats.** National, state, and local public service career systems in the United States and selected foreign countries. How the bureaucracy makes public policy.

**P SC 348-3 to 6. Legislative Internship.** The department places students in legislative internships, usually with state legislators, but Washington internships are possible. Student normally spends 15-20 hours per week working with a legislator or legislating office in the Capitol of Denver. Credit dependent upon hours worked. Prer., 2.8 cum GPA; 45 hrs; consent of instructor.

**P SC 398-3 to 6. Internship: Public Administration.** The department works with students placed in a public agency (governmental or non-profit agencies). Students spend 12 hours weekly working for the host organization in return for 3 credit hours. Prer., Open to upper division students of good academic record and with consent of the instructor.

**P SC 402-3. The American Congress.** A survey of the development, practice, and theory of the contemporary Congress. Particular attention is paid to the origins of lawmaking and institutional change.

**P SC 404-3. Political Interest Groups.** Nature, structure, organization, and functions of pressure groups. Analysis of pressure politics.

**P SC 406-3. State Political Systems.** National, state, and interstate relations;

constitutional development; legislative, executive, and judicial processes and problems; administrative organization and reorganization; state finances; major state services; future of the states. Special attention is given to the government of Colorado.

**P SC 407-3. Urban Politics.** Political and social influence in urban areas; selection of urban leadership; relationship of the political system to governmental and social institutions. Meets with P AD 5626.

**P SC 408-3. US Electoral Process.** Examines campaigns and voting, as well as the roles of parties interest groups and the media in the electoral process in the United States, with special attention to the legal and institutional context in which US elections take place. Prer., P SC 110.

**P SC 413-3. Latin-American Political System.** Governments and politics of selected countries of Latin America. Constitutions and governments in theory and practice. Political parties, movements, and conflicts. The relationships between political problems and physical and social environments. Meets with P SC 514.

**P SC 415-3. United States Space Policy.** Examination of historical origins, policy evolution, and future prospects of the US civilian space program. Meets with P SC 515.

**P SC 418-3. Gender in International Politics.** Looks at issues of gender and sexuality in an international context. Covers war and militarism and their effect on women, the international division of labor, the effects of religious fundamentalism, international trafficking in women and sexual violence issues. Meets with WMST 418.

**P SC 421-3. International Politics.** The system of national states, concepts of national interest, goals of foreign policies, conduct of diplomacy, the role of non-state actors, and the bearing of these elements on the problem of peace. Great powers and regions of the earth in international politics today, their roles in international tensions, and the development of international relations theory. Prer., P SC 101. Meets with P SC 521.

**P SC 422-3. Comparative Politics.** Advanced course examining and comparing the political process in a broad range of political, economic, and socio-cultural environments. Case studies and cross-national analysis of states and non-state actors are utilized to explain and predict political phenomena across a range of states and societies. Prer., P SC 101.

**P SC 423-3. The United States in World**

**Politics.** The foundations, assumptions, objectives, and methods of U.S. Foreign policy. The domestic and external problems of adapting U.S. Policy to the changing world environment.

**P SC 424-3. Russian Foreign Policy.** Foreign policy of the Russian Federation, its impact on international politics, and its relations to domestic developments.

**P SC 425-3. International Law.** A survey of public international law with special emphasis on source of international law and instruments for adjudication as well as on international treaties and the rules of land and sea warfare. Meets with P AD 598 SEC 003.

**P SC 426-3. International Organization.** A comparative analysis of governmental and non-governmental international organizations. Special attention is paid to the United Nations and certain regional organizations such as the European community, NATO and the organization of American states.

**P SC 427-3. Latin America in World Politics.** Basic elements in Latin American international relations. United States-Latin American relations and policies. Foreign policy formulation in major Latin American republics. Formerly P SC 477. Not open to those who have taken P SC 477.

**P SC 428-3. International Political Economy.** Overview of the world political economy, especially in the post-WWII period. The central goal of the course is to provide information and develop analytical tools necessary for students to grasp the political issues inherent in international economic relations. Meets with ECON 328.

**P SC 429-3. International Environmental Politics.** Study of the ways in which the international community reacts to environmental problems of a transboundary nature. Examination of theoretical frameworks used, policies developed, actors involved and analysis of a number of important cases and issues in international environmental politics. Meets with P SC 529.

**P SC 432-3. Public Administration.** Role of administration in government; trends in American public administration; problems in organization; techniques of management.

**P SC 434-3. National Security Organization and Policy Making.** Analysis of the governmental structure and the and the policy-making processes for American national security planning, decision making, and action.

**P SC 435-3. Environmental Policies**

**and Administration.** Resources in the American economy; consideration of constitutional, political, and geographic factors in the development of resources policy; organization, procedures, and programs for administration and development of natural resources.

**P SC 439-3. The Presidency.** An examination of the historical, functional, constitutional, and political aspects of the presidency. An analytical comparison of the presidency with other executive systems.

**P SC 440-3. Government and Society.** Examines the normative and positive theoretical underpinnings of government processes and policies in the United States. Emphasis is placed on the formal theoretical analysis of institutions and policies. Prer., P SC 110.

**P SC 442-3. Political Ideas.** Main currents of political thought from ancient times to the present as seen in the writings of political theorists from Plato and Aristotle through Locke, Hobbes, Rousseau, Kropotkin, and Marx to contemporary exponents of ideologies from right to left.

**P SC 445-3. American Political Thought.** History and development of American political theories and ideas from colonial period to present.

**P SC 446-3. Administrative Law.** General nature of administrative law, types of administrative action and enforcement, analysis of rule-making and adjudication, and administrative due process.

**P SC 447-3. Introduction to Constitutional Law.** Role of the Supreme Court in development of principles of constitutional law, beginning with the concept of judicial review. Federalism, jurisdiction of the federal courts, separation of powers, the taxing power, the commerce power, the doctrine of implied powers and other principles and doctrines which are relevant to contemporary interpretation of the constitution.

**P SC 448-3. The Constitution and Individual Rights.** Nature and scope of American constitutional principles as developed by the U.S. Supreme court, with emphasis on the war power, power of the president, citizenship, the Bill of Rights, and the Civil War amendments.

**P SC 449-3. The Judicial System.** Examination of the principal actors in the legal system police, lawyers, judges, citizens and the roles they play in the political process.

**P SC 450-3. Senior Research Seminar.** A course designed to directly involve Senior



students in political science in major research projects. The emphasis of the course will be on the development by the students of research topics and designs which fit their individual interests. Major papers will be required of all students. Research reports will be presented orally and critiqued in class. Required of all majors.

**P SC 451-3. Defendant's Constitutional Rights.** Nature and scope of American constitutional principles as developed by the United States Supreme Court, with emphasis on habeas corpus, search and seizure, grand jury, double jeopardy, self-incrimination, due process of law, speedy and public trial, right to counsel, trial by jury, bail, and cruel and unusual punishment.

**P SC 452-3. Model Organization of American States (MOAS).** The course assists and supervises students in the preparation and execution of the Model Organization of American States for Universities (MOAS) in Washington, D.C. Students learn about the role, structure and operation of the MOAS by representing a member-state in the Inter-American system, students gain broad understanding of issues in International Politics and the practice of diplomacy and international organizations. Prer., Application and consent of instructor.

**P SC 453-3. Model United Nations.** Course assists and supervises students in preparation and execution of the Model United Nations (MUN) college conference. The course catapults students into the world of diplomacy and negotiation. Students learn about the role, structure and operation of the United Nations. Prer., instructor consent.

**P SC 498-1 to 3. Special Problems in Political Science.** A study of special problems relevant to political science taught by a highly qualified person in the particular problem area. Each semester that the course is offered, a different problem of high impact is studied.

**P SC 515-3. United States Space Policy.** Examination of historical origins, policy evolution, and future prospects of the US civilian space program. Meets with P SC 415.

**P SC 529-3. International Environmental Politics.** Study of the ways in which the international community reacts to environmental problems of a transboundary nature. Examination of theoretical frameworks used, policies developed, actors involved and analysis of a number of important cases and issues in international environmental politics. Meets with P SC 429.

**P SC 598-3. Special Topics.** Each semester that the seminar is offered a different area of political science will be the focus of intensive study and analysis.

**P SC 940-1 to 3. Independent Study in Political Science.** Intended to give an opportunity for advanced students with good scholastic records and with appropriate courses completed to pursue independently the study of some subject of special interest. Subjects are chosen and arrangements are made to suit the needs of each student. Prer., Senior standing, 15 semester hours of political science and consent of instructor.

**P SC 948-3. Prelaw Internship.** Studies are undertaken concerning the practice of law or the administration of justice while the student has full or part-time employment with a law office, court, prosecutor, public defender, administrative hearing officer, or other individual or agency involved with the practice of law or the administration of justice. Prer., Consent of instructor; above average score on LSAT; and Senior status.

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## PHYSICS AND ENVIRONMENTAL SCIENCE

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**PES 100-3. Physics in Everyday Life.** A non-mathematical overview of physics and how it affects our everyday life. Topics to be included are balancing and equilibrium, tornadoes, weather patterns, circus balancing acts, air conditioners, musical instruments and other interesting applications of physics. Recommended for students with no science or mathematics background.

**PES 101-4. Physics for Life Science I.** General physics with an emphasis on applications to life sciences and health professions. Prer., Two years of high school algebra or equivalent.

**PES 102-4. Physics For Life Science II.** General physics with an emphasis on applications to life sciences and health professions. Prer., PES 101.

**PES 104-3. Physics in Science Fiction.** A study of the physics that exists in commonly occurring science fiction themes. Topics include a general discussion of conditions for life on other planets, orbital motion, Einstein's theory of relativity, and electromagnetic phenomena.

**PES 105-3. General Astronomy I.** The methods and results of modern astronomy (solar systems and stars) at an elementary level.

**PES 106-3. General Astronomy II.** The methods and results of modern astronomy (solar systems, stars, galaxies, blackholes, quasars, cosmology) at an elementary level.

**PES 108-3. Science on the Nanoscale.** Explores nanoscale science and applications to technology on the scale of sub-atomic particles, atoms and molecules where concepts of quantum theory are important. After an introduction to concepts of quantum physics, applications to physics, biology and engineering will be examined.

**PES 109-1. General Astronomy Laboratory I.** Evening viewing.

**PES 110-1. General Astronomy Laboratory II.** Evening viewing.

**PES 111-4. General Physics I.** Rigorous calculus-level course in classical physics for science and engineering students. Includes measurements, vectors, motion in one dimension, motion in a plane, particle dynamics, work and energy, linear and angular momentum, rotation of rigid bodies, static equilibrium, oscillation, and gravity. Coreq., MATH 135.

**PES 112-4. General Physics II.** Topics covered include electrostatics, the electric field, Gauss's law, electric potential, capacitors and dielectrics, current and resistance, the magnetic field, Ampere's law, Faraday's law, inductance, oscillations, and electromagnetic waves. Prer., PES 111, Coreq., MATH 136.

**PES 114-1. Introduction to Physics Laboratory.** Experiments designed to qualitatively verify concepts in mechanics, light, hear and optics. To be taken concurrently with PES 100 only. This lab is not required but must be taken if the student wishes credit for a natural science lab course in the natural science requirements. Open only to PES 100 students.

**PES 115-1. General Physics Lab I.** Designed to be taken with PES 111 or PES 101. Experiments on mechanics and graphical analysis of results.

**PES 121-3. Introduction to Physical Science.** An integrated presentation of the basic concepts of physics and chemistry for non-science majors. Topics include motion, heat, sound, light, atomic and molecular structure, chemical reactions, acids and bases, and radioactivity. Prer., Two years of high school mathematics. Meets with CHEM 121.

**PES 124-1. Physical Science Laboratory.** A laboratory to accompany CHEM/PES 121. Includes experiments on mechanics, heat, sound, light, electricity, chemical reactions, stoichiometry, acid-base

chemistry, and reaction kinetics. Meets with CHEM 124.

**PES 131-3. A Lab of Her Own - Science and Women.** Introduction to natural science and its methods for non-science majors. It focuses on women's participation in both the formation of scientific concepts and the development of methodology. Modern concepts of science and mathematics with an emphasis on women's contributions to these fields will be presented. This course will also offer a feminist critique of the traditional methods of science. Meets with PHIL 131 and WMST 131.

**PES 150-3. Introduction to Energy Science I.** Brief history of human energy use; rudimentary energy concepts and fundamental dimensions; fossil fuels; magnetism and electricity; and environmental effects of energy production and use. Meets with ENSC 150.

**PES 151-3. Introduction to Energy Science II.** Brief history of human energy use; rudimentary energy concepts and fundamental dimensions; automobiles; solar energy; wind energy; other alternative energy approaches; environmental effects of energy production and use; and solid waste management. Meets with ENSC 151.

**PES 160-3. Introductory Solar Energy.** Brief history of human solar energy use; rudimentary energy concepts and fundamental dimensions; basic operation of the sun; fundamentals of thermal energy transfer and storage; economics and application of solar principles to construction; frequent computer simulation and web activities. Meets with ENSC 160.

**PES 162-1. Solar Energy Laboratory.** Hands-on lab class emphasizing experimental techniques and the scientific method applied to solar phenomena (position and intensity) and both passive and active solar energy systems. Prer., or Coreq., PES 160. Meets with ENSC 162.

**PES 195-1 to 3. Special Topics.** Course covering subjects of current interest on a one-time basis. See Schedule of Courses for titles.

**PES 197-1 to 3. Special Topics.** Course covering subjects of current interest on a one-time basis. See schedule of courses for titles.

**PES 213-3. General Physics III.** A continuation of PES 112. Topics covered include fluid mechanics, waves temperature, heat and the first law of thermodynamics, kinetic theory of gases, entropy and the second law of thermodynamics, geometrical optics,

interference, diffraction, light, and quantum physics. Prer., PES 112; Coreq., MATH 235.

**PES 215-1. Physics Laboratory II.** Radiation physics, electrostatics, AC and AC circuits, magnetic fields. Prer., PES 115.

**PES 250-3. Energy Fundamentals.** Past, present, and future of human energy use; rudimentary energy concepts and fundamental dimensions; efficiency of energy conversions; heat transfer; commercial electricity; alternative energy sources; environmental ramifications; energy conservation; computer simulation and web activities. This survey course is designed for science majors and assumes some knowledge of calculus and the physical sciences. Meets with ENSC 250.

**PES 306-3. Astrophysics.** A classic look at stellar characteristics, the structure and content of our galaxy and the universe in a rigorously mathematical fashion. The theory of stellar spectra is stressed along with stellar distances, magnitudes, and stellar evolution on the Hertzsprung-Russell diagram. Prer., PES 213.

**PES 313-3. Modern Physics.** Special relativity, development of wave-particle duality, atomic structure, Schroedinger wave equation, the hydrogen atom, atomic and molecular spectra, introduction to the solid state and band theory. Prer., PES 213.

**PES 315-2. Modern Physics Laboratory.** Teaches the methods and procedures of experimental physics at an advanced level, including such topics as physical optics, high resolution spectroscopy, and energies of radioactive decay products.

**PES 317-2. Instrumentation Laboratory I.** Design and operation of integrated circuits used in the making of computer interfaces. Interfacing computers with real world experiments. Requires a knowledge of LABVIEW. Prer., PES 215.

**PES 318-2. Instrumentation Laboratory II.** Design and operation of integrated circuits used in the making of computer interfaces. Interfacing computers with real world experiments. Requires a knowledge of LABVIEW. Prer., PES 215.

**PES 321-3. Classical Mechanics I.** Newtonian mechanics, oscillations, Lagrange's and Hamilton's equations, central forces, scattering, and rigid body motion. Employs vector analysis and calculus. Prer., PES 213; Prer., or Coreq., MATH 235.

**PES 325-3. Mathematical Methods of Physics and Engineering.** Survey of mathematical methods as preparation for advanced physics and engineering

courses. Includes vector calculus, partial differential equations, special functions, Fourier analysis, and generalized functions such as the Dirac delta function.

**PES 331-3. Principles of Electricity and Magnetism.** Elements of the mathematical theory of electricity and magnetism, including electrostatics, magnetostatics, polarized media, direct and alternating current theory, and introduction to electromagnetic fields and waves. Prer., PES 213 and MATH 235.

**PES 332-3. Principles of Electricity and Magnetism II.** Elements of the mathematical theory of electricity and magnetism, including electrostatics, magnetostatics, polarized media, direct and alternating current theory, and an introduction to electromagnetic fields and waves. Prer., PES 331.

**PES 341-3. Thermodynamics and Statistical Mechanics.** Statistical mechanics applied to macroscopic physical systems; statistical thermodynamics; classical thermodynamic systems; applications to simple systems. Relationship of statistical mechanics to thermodynamics. Prer., PES 313.

**PES 365-3. Nuclear Physics and Energy Technology.** Nuclear structure, radioisotopes, nuclear reactions, fission, and fusion. Emphasis on nuclear power production and its environmental impact. Prer., PES 313.

**PES 367-3. Wind Energy.** A survey of the technology of wind energy conversion, including climatic aspects, site selection and tower height, generator and propeller design, control systems, and legal aspects.

**PES 395-1 to 3. Special Topics.** Course covering subjects of current interest on a one-time basis. See schedule of courses for titles.

**PES 397-1 TO 3. Special Topics.** Course covering subjects of current interest on a one-time basis. See schedule of courses for titles. Prer., PES 313.

**PES 415-2. Solid State Laboratory.** Advanced laboratory on the measurement of fundamental properties of solids. Includes introduction to vacuum and cryogenic technologies. One lecture and one laboratory session per week. Prer., PES 215 and 313. Meets with PHYS 515.

**PES 416-1. Thin Films Laboratory.** Introduction to thin film deposition and characterization. Facilities include evaporation, sputtering, Auger electron spectroscopy, ellipsometry and scanning electron microscopy. Coreq., PES 449

**PES 425-3. Quantum Mechanics. A**

sophisticated treatment of quantum theory for students intending graduate work in physics. Topics included are foundation of wave mechanics, wave packets and the uncertainty principle, Schrodinger's equations, operators and eigenfunctions, scattering and matrix mechanics. Prer. PES 313.

**PES 426-3. Quantum Mechanics II.**

A sophisticated treatment of quantum theory for students intending graduate work in physics. Topics included are foundations of wave mechanics, wave packets and the uncertainty principle, Schrodinger's equation, operators and eigenfunctions, scattering and matrix mechanics. Prer. PES 425.

**PES 442-3. Physics of Materials.** An introduction to the physics of materials. Topics will include crystallography and defects, phase diagrams, phase transformations, diffusion, mechanical properties, and electrical properties. Prer., PES 313.

**PES 446-3. Solid State Physics.** Theory of solids including crystal structure, x-ray diffraction, phonons, thermal properties of insulators, theories of metals, band structure, semiconductor impurities and doping semiconductors, junctions, superconductivity, and magnetism. Prer., PES 313. Meets with PHYS 546.

**PES 448-3. Surface and Interface Physics.** An introduction to the solid state physics of surfaces and interfaces including structural, thermodynamic and electrical properties. Gas-surface interactions and characterization techniques will also be examined. Prer., PES 313.

**PES 449-3 to 4. Physics of Thin Films.** A combined lecture/lab course covering common techniques for the production and characterization of thin films and the physics which underlies these methods. Lab equipment includes evaporation, Auger spectroscopy, ellipsometry and scanning electron microscopy. Offered as 3 credit lecture or 4 credits with integrated lab. Prer., PES 313. Meets with PHYS 549.

**PES 451-3. Optics.** An advanced undergraduate treatment of topics in geometrical, physical, and quantum optics. Prer., PES 213 and either PES 313 or 331.

**PES 460-3. Special and General Relativity.** Investigates the theoretical and experimental basis for Einstein's Theory of Relativity. The concept of four dimensional space-time is introduced through Special Relativity. The concept of curved space-time is presented using the mathematics of tensors. Open to juniors

and seniors only. Prer., PES 213. Meets with PHYS 560.

**PES 472-3. Stellar Structure and Evolution.** Basic stellar astronomy and astrophysics. H-R diagrams. Principles of stellar structure including generation and energy transport. Stellar formation and evolution to compact objects. Prer., PES 306 and PES 341.

**PES 481-2. Senior Physics Seminar.** Presentation methods in physics. Students present on a wide variety of topics in physics culminating in a formal presentation by the student on a current research topic. Student is graded by a faculty panel on his/her presentation, defense of topic and general knowledge of physics. Prer., Senior status in physics or consent of instructor.

**PES 485-3. Senior Project.** Special experimental or theoretical research project in a field of physics or physics-related energy science. Project to be chosen in conjunction with instructor and should represent a new contribution to knowledge in the field, or a repetition of current experimental research, or a literature search and demonstrated knowledge of current theoretical research. A written report is required. Prer., Senior status in department and permission of instructor.

**PES 930-1 to 3. Independent Study for Physics, Undergraduate.** Prer., Consent of instructor.

## PHILOSOPHY

**PHIL 100-3. Introduction to Philosophy.** An introduction to the fundamental questions of philosophy through a study of several major philosophers in the history of philosophy.

**PHIL 102-3. Ethics.** Introductory study of major philosophies on the nature of the good for humans, principles of evaluation, and moral choice. Some attention is given to contemporary topics such as violence and abortion.

**PHIL 104-3. Philosophy and Society.** Critical introduction to ideas and values used to justify key institutions of advanced technological society.

**PHIL 105-3. Philosophy and Religion.** An introduction to philosophy through religious topics such as sacredness, faith, reason, revelation, creation, immortality, and God's existence.

**PHIL 110-3. Introduction to Religious Studies.** An introduction to the study of religious phenomena such as myth, symbols and rituals as they relate to religious beliefs. The concepts of sacred

narratives, sacred histories, and religious experiences will be discussed along with different approaches (e.g., psychological, sociological, anthropological) to the study of religion.

**PHIL 112-3. Critical Thinking.** Introduction to the formal and informal standards and critical techniques used in the evaluation of daily reasoning and argument.

**PHIL 115-3. Ethics in the Professions.** An examination of the applicability of some standard ethical theories to the specific moral issues raised by and encountered in the practice of professions such as business, engineering, law, health care, politics, and teaching.

**PHIL 131-3. A Lab of Her Own - Science and Women.** An introduction to natural science and its methods for non-science majors. It focuses on women's participation in both the formation of scientific concepts and the development of methodology. Modern concepts of science and mathematics with an emphasis on women's contributions to these fields will be presented. This course will offer a feminist critique of the traditional methods of science. Meets with PES 131 and WMST 131.

**PHIL 309-3. Philosophies of Asia.** Covers classic and recent representatives of the major philosophical and religious traditions of Asia, including Hindu, Buddhist, Confucian, Daoist and Shinto thought.

**PHIL 310-3. Comparative Religions.** A reading-discussion course which explores the major world religions and the nature of their appeal to the spiritual aspirations of members of the human family.

**PHIL 311-3. Women and Religion.** Examines the way(s) in which women have been, and continue to be viewed in various religions through comparing sacred and other texts with actual religious practices and beliefs. This course engenders an appreciation of the tension between the ideal expectations for and the real possibilities available to women in religious traditions. Meets with WMST 311.

**PHIL 312-3. Greek and Roman Myth.** A philosophical examination of Greek and Roman myth based on a variety of ancient and modern hermeneutical methods, including approaches from the Presocratics, Platonism, Aristotle, Stoicism, Structuralism, Semantic Theory, Psychoanalysis and Ritual Theory.

**PHIL 316-3. Philosophical Issues in Death and Dying.** The meaning of death and dying in the history of Western philosophy from antiquity to contemporary

Existentialism. Detailed examination of ethical issues raised in the care of the dying. Euthanasia and termination of treatment, care of the seriously ill newborn, etc.

**PHIL 317-3. Theories of Knowledge.**

Consideration of the classical and contemporary, contributions to the analysis of the nature, limits, and conditions of knowledge. Meets with PHIL 518.

**PHIL 320-3. Politics and the Law.**

Examination of the most influential recent works expressing the conservative, liberal, Marxist and anarchist contributions to contemporary social and political theory.

**PHIL 322-3. Philosophy of Law.**

A consideration of various views of the nature of law, its role in society and its relation to other disciplines. Examination of the philosophic commitments that underlie and affect legal convention and procedures. Meets with PHIL 526.

**PHIL 323-3. Women's Equality, Women's Differences.**

An introductory course that presents both the history of philosophical treatments of women and contemporary philosophical analyses of women's social, political, artistic, scientific, and philosophical roles. Prer., PHIL 100 or WMST 200. Meets with WMST 323.

**PHIL 324-3. Philosophy of War and Terrorism.**

Critical examination of the philosophic commitments that underlie and affect war, conflict resolution, and peace; evaluation of various questions involved in conducting war and resolving disputes; consideration of the feasibility of pacifism.

**PHIL 330-3. Philosophy of Mind.**

Consideration of the central problems in the philosophy of mind, including the mind-body problem; the knowledge of other minds; free will and determinism; as well as discussion of concepts such as action, intention, motive, desire, memory, etc.

**PHIL 333-3. Understanding Emotion.**

Philosophy has tended to relegate emotions and emotional life to a minor role in the exposition of traditional philosophical questions or to eliminate emotions altogether from consideration. This course will rethink the role of emotions in philosophy. Prer., PHIL 100 or similar.

**PHIL 334-3. Love and Hatred.**

Examines the concepts of love and hatred in philosophy beginning with the Ancient Greeks and continuing through contemporary philosophy in order to examine the influence of the Greeks on contemporary thought and to develop new ideas about what constitutes love and

hatred. Prer., One philosophy course (not PHIL 112).

**PHIL 335-3. Metaphysics.** Traditional and contemporary theories of the basic categories used to describe reality and the human relationship to it, including concepts such as substance, identity, space and time, causality, determination, and systematic ontology. Prer., three hours of philosophy.

**PHIL 339-3. Philosophy of Psychology.**

Course covers classical and contemporary discussions of philosophical issues raised by psychological theory. Issues include introspectionism (James), psychoanalytical models of the self (Freud, Horney), learning theory (Piaget), depth psychology (Jung), behaviorism (Skinner), feminist psychology (Chodorow, Gilligan), cognitive science, psychology and language (Lacan), and existential psychology (Merleau-Ponty).

**PHIL 340-3. Holocaust.** Detailed analysis of the holocaust and its educational importance. Main focus is the Jewish holocaust with attendant eugenic policies, with possible attention to other examples of holocaust. Examination of philosophies that support organized social violence and principles that achieve a humane philosophy of life.

**PHIL 344-3. Symbolic Logic.**

An exposition of the ideas and techniques of modern symbolic logic including several formal systems to distinguish between valid and invalid arguments and discussion of the foundations of arithmetic and set theory. Meets with PHIL 544.

**PHIL 348-3. History of Philosophy:**

**Philosophies of India.** Historical development and a critical analysis of the major philosophical texts and school of India, including the Vedas, Upanishads, and Bhagavad-Gita; the 6 orthodox schools; Jainism; Buddhism; and modern Indian thinkers including Gandhi and Radhakrishnan.

**PHIL 349-3. History of Philosophy:**

**China.** Historical development and critical analysis of the major philosophical schools and texts of China, including Confucianism, Taoism, Ch'an (Zen) Buddhism, Neo-Confucianism and modern Chinese thought.

**PHIL 350-3. Buddhist Philosophy.**

General survey of key Buddhist philosophical concepts of both the Theravada and Mahayana traditions, such as dukha, nirvana, anatman and voidness. The relationship between Pali Sutta's and the Theravada tradition will be discussed as well as the relationship between Mahayana and the Prajna Paramita

Suttas. Key schools of Mahayana, such as Cittamatra and Madhyamaka will also be introduced.

**PHIL 351-3. History of Philosophy:**

**Ancient.** Systematic examination of the development of western philosophy from its inception among the pre-Socratics through Socrates to Plato and Aristotle.

**PHIL 353-3. History of Philosophy:**

**Hellenistic.** History of Western Philosophy during the Hellenistic period (c. 310 B.C.E. To 450 C.E.). Covers Stoicism, Epicureanism, Skepticism, Atomism, neo-Platonism and the introduction of Jewish and Christian thought into philosophy via Philo of Alexandria and St. Augustine, respectively.

**PHIL 354-3. History of Philosophy:**

**Medieval and Renaissance.** History of Western Philosophy from the Medieval period to the beginning of modern times. Course covers Christian, Jewish and Islamic philosophers, including Augustine, Anselm, Avicenna, Averroes, Maimonides, Aquinas, Ockham, Machiavelli, and F. Bacon.

**PHIL 356-3. History of Philosophy:**

**Modern Classical.** Systematic examination of some fundamental philosophic problems treated by Rationalists and Empiricists in the 17th and 18th centuries (Hobbes, Descartes, Locke Spinoza, Leibniz, Berkeley, Hume), especially those concerning the foundations and limits of knowledge and attempts to overcome the limitations of these two traditions.

**PHIL 357-3. History of Philosophy:**

**Kant and the Enlightenment.** Study of the Enlightenment (Age of Reason) with special emphasis on Kant's work and some of his precursors and critics.

**PHIL 358-3. History of Philosophy: From**

**Hegel to Nietzsche.** In-depth survey of some of the major thinkers in the 19th century such as Hegel, Marx, Kierkegaard, and Nietzsche.

**PHIL 360-3. Philosophy of Religion.**

Detailed analysis of religious experience from Eastern and Western traditions, including mysticism, mythology, cosmology, knowledge of God and the divine attributes, salvation, immortality, and the influence of secularism.

**PHIL 361-3. Philosophical Approaches**

**to the Hebrew Bible.** The formation of the Old Testament; manuscript traditions and canonization; an investigation of the major genres within the Old Testament (history, poetry, prophecy); the historical developments of the ancient Near East as they reflect upon the Old Testament and the history of biblical interpretation.

**PHIL 362-3. Philosophical Approaches to the New Testament.** An investigation of the development of the New Testament, incorporating the history of the individual books and the Hellenistic and Jewish background to the New Testament itself. The course focuses on the historical problem of the emergence of various theological perspectives within the New Testament writings, especially the contrast between the teachings of Jesus and those of Paul.

**PHIL 363-3. Gender and Race in Biblical Literature.** Course examines the presence(s), result(s), and interpretation(s) of gender and race in biblical literature and the issues and problems those categories present to the reader. Meets with EST 363 and WMST 363.

**PHIL 370-3. Aesthetic Theory.** Investigation of concepts such as the aesthetic object, the artistic experience, and creative expression and a critique of certain theories designed to solve problems of aesthetic evaluation. Meets with PHIL 570.

**PHIL 373-3. Philosophy and Literature.** A study of the intersection of philosophy and literature, the benefits each derives from the other and of philosophical themes expressed in literary works and philosophical problems raised by literature. Meets with PHIL 573.

**PHIL 404-3. Twentieth Century Philosophy.** Critical analysis of such influential 20th century philosophical movements as logical positivism, analytical philosophy, pragmatism, Marxism, existentialism, phenomenology, hermeneutics, and deconstruction. Meets with PHIL 504.

**PHIL 407-3. Existentialism.** Main themes of existentialist thought from its origins in Kierkegaard and Nietzsche to such 20th century figures as Jaspers, Heidegger, Sartre and Camus. Meets with PHIL 507.

**PHIL 408-3. Contemporary Continental Philosophy.** An intensive examination of major figures, such as Husserl, Heidegger, Habermas, Foucault and Derrida; and of major movements, such as phenomenology, critical theory and deconstruction.

**PHIL 410-3. American Pragmatism.** Analysis and appreciation of America's most important contribution to intellectual life, pragmatism. Also discussed are two of pragmatism's predecessors, transcendentalism and naturalism. Meets with Phil 510.

**PHIL 414-3. Environmental Philosophy.** The philosophical significance of ecology for establishing an environmental ethic.

Application of environmental ethics to such issues as responsibilities to future generations, the problem of the moral standing of nonhuman species and wilderness, and the deficiencies of cost-benefit analysis as a basis for decision making. Meets with PHIL 514.

**PHIL 415-3. Ethical Theory.** The problem of rational justification of ethical standards, including a selected treatment of the history of ethics. Prer., PHIL 100 or PHIL 102 or PHIL 104. Meets with PHIL 515.

**PHIL 416-3. Business and Management Ethics.** Designed to teach students to appreciate the ethical dimensions of the decision-making process in which most business managers are engaged during their careers. Meets with PHIL 516.

**PHIL 417-3. Health Care Ethics.** Ethical dimensions of the patient-physician relationship and the impact of medical technology. Topics include informed consent and experimentation with human subjects, technological manipulation of birth and death processes, allocation of medical resources, genetic screening in the work-place, and genetic engineering. Meets with PHIL 517.

**PHIL 420-3. Consciousness.** Consciousness has re-emerged as a fundamental topic in psychology, neuroscience, cognitive science, and philosophy. This course introduces students to some of the recent neuroscientific studies of consciousness and surveys some of the philosophical problems posed by consciousness. Meets with PHIL 520.

**PHIL 425-3. Topics in Social Theory.** In-depth examination of a particular trend in contemporary social theory such as critical theory, the Frankfurt school, Marxism and post-Marxism, economic democracy, deep ecology, postmodernism and deconstruction. Prer., Three hours of philosophy. Meets with PHIL 524.

**PHIL 435-3. Analytic Philosophy.** "Analytic Philosophy" is a term used to describe both a particular method and a style of philosophizing. This course examines that method and that style and shows the promise the former once held for settling traditional philosophical issues and problems and the continuing influence of the latter. Meets with PHIL 535.

**PHIL 440-3. Philosophy of Science.** A close examination of issues in the history, philosophy and sociology of science. Attention will be given to contemporary debates on such topics as the methodology of science, the growth of scientific knowledge, the logic of scientific discovery and the value-neutrality of science. Meets with PHIL 540.

**PHIL 441-3. Philosophy of Biology.** A broad examination of pertinent issues in biology, from the theory of evolution to contemporary debates concerning DNA and the human genome project.

**PHIL 443-3. Logical Theory.** An intensive study of issues in philosophy of logic and advanced logic. Topics examined include: modal logic, many-valued logic, second-order logic, fuzzy logic, semantics and syntax, and incompleteness. Prer., PHIL 344. Meets with PHIL 543.

**PHIL 446-3. Theories of Human Nature.** An examination of the meaning of human nature from various perspectives, including Greek thinking, religious explanations, naturalist, existentialist and pragmatist theories.

**PHIL 449-3. Philosophy of Language.** A historical survey of developments in philosophy of language. Topics covered include sense and reference, signifier and signified, rule-following, ordinary language philosophy, deconstruction, and casual theories of reference. Authors covered include Frege Husserl, De Saussure, Wittgenstein, Austin, Derrida, and others. Meets with PHIL 549.

**PHIL 455-3. Feminism, Sexuality, and Culture.** An examination of selected philosophical issues in the context of recent developments in feminist thought. Course will consider the question of whether traditional patterns of philosophical thought express gender bias, and if so, why. Meets with PHIL 555 and WMST 455.

**PHIL 460-3. Theory of Film.** Relation between philosophical issues and film to show how philosophical concepts are embodied in film and filmmaking. Meets with PHIL 560.

**PHIL 491-3. Systematic Philosophy.** A thorough study of a single philosophical problem, system, or single philosopher. Meets with PHIL 591.

**PHIL 493-3. Advanced Topics in Philosophy.** Detailed examination of a special topic taken from the history of philosophy which is not covered by the regular departmental course offerings (variable content). Prer., Philosophy majors or consent of instructor. Two courses in Philosophy. Meets with PHIL 593 and WMST 490.

**PHIL 495-3. Senior Seminar and Thesis.** A research project directed under the supervision of a full time departmental faculty member. The topic of the research is chosen by the student in consultation with the project advisor. Required of all philosophy majors.

**PHIL 504-3. Twentieth Century**

**Philosophy.** Critical analysis of such influential 20th century philosophical movements as logical positivism, analytical philosophy, pragmatism, Marxism, existentialism, phenomenology, hermeneutics, and deconstruction. Meets with PHIL 404.

**PHIL 507-3. Existentialism.** Main themes of existentialist thought from its origins in Kierkegaard and Nietzsche to such 20th century figures as Jaspers, Heidegger, Sartre and Camus. Meets with PHIL 407.

**PHIL 508-3. Contemporary Continental**

**Philosophy.** An examination of major figures, such as Husserl, Heidegger, Habermas, Foucault, and Derrida; and of major movements, such as phenomenology, critical theory, and deconstruction.

**PHIL 510-3. American Pragmatism.**

Analysis and appreciation of America's most important contribution to intellectual life, pragmatism. Also discussed are two of pragmatism's predecessors, transcendentalism and naturalism. Meets with PHIL 410.

**PHIL 514-3. Environmental Ethics**

**and Deep Ecology.** The philosophical significance of ecology for establishing an environmental ethic. Application of environmental ethics to such issues as responsibilities to future generations, the problem of the moral standing of non-human species and wilderness, and the deficiencies of cost-benefit basis for decision making. Meets with PHIL 414.

**PHIL 515-3. Ethical Theory.** The problem of rational justification of ethical standards including a selected treatment of the history of ethics. Prer., PHIL 100, PHIL 102 or PHIL 104. Meets with PHIL 415.

**PHIL 516-3. Business and Management**

**Ethics.** Designed to teach students to appreciate the ethical discussions of the decision-making process in which most business managers are engaged during their careers. Meets with PHIL 416.

**PHIL 517-3. Health Care Ethics.** Ethical dimensions of the patient-physician relationship and the impact of medical technology. Topics include informed consent and experimentation with human subjects, technological manipulation of medical resources, genetic screening in the workplace, and genetic engineering. Meets with PHIL 417.

**PHIL 518-3. Theories of Knowledge.**

Consideration of major philosophers, both classical and contemporary, who have contributed to the analysis of the nature, limits and conditions of knowledge. Meets with PHIL 317.

**PHIL 520-3. Consciousness.**

Consciousness has re-emerged as a fundamental topic in psychology, neuroscience, cognitive science, and philosophy. This course introduces students to some of the recent neuroscientific studies of consciousness and surveys some of the philosophical problems posed by consciousness. Meets with PHIL 420.

**PHIL 524-3. Selected Topics in**

**Social Theory.** In-depth examination of a particular trend in contemporary social theory such as critical theory, the Frankfurt school, Marxism and post-Marxism, economic democracy, deep ecology, post-modernism and deconstruction. Variable content. Meets with PHIL 425.

**PHIL 526-3. Philosophy of Law.**

Consideration of various views of the nature of law, its role in society and its relation to other disciplines. Examination of the philosophic commitments that underlie and affect legal convention and procedures. Meets with PHIL 322.

**PHIL 530-3. Philosophy of the Mind.**

Consideration of the central problems in the philosophy of mind, including the mind-body problem; the knowledge of other minds; free will and determinism; as well as discussion of concepts such as action, intention, motive, desire, memory, etc. Meets with PHIL 330.

**PHIL 535-3. Analytic Philosophy.**

'Analytic Philosophy' is a term used to describe both a particular method and a style of philosophizing. This course examines that method and that style and shows the promise the former once held for settling traditional philosophical issues and problems and the continuing influence of the latter. Meets with PHIL 435.

**PHIL 540-3. Philosophy of Science.**

A close examination of issues in the history, philosophy, and sociology of science. Attention will be given to contemporary debates on such topics as the methodology of science, the growth of scientific knowledge, the logic of scientific discovery and the value-neutrality of science. Meets with PHIL 440.

**PHIL 543-3. Logical Theory.** A study of issues in philosophy of logic and advanced logic. Topics examined include: modal logic, many-valued logic, second order logic, fuzzy logic, semantics and syntax, and incompleteness. Prer., PHIL 344. Meets with PHIL 443.

**PHIL 544-3. Symbolic Logic.** An exposition of the ideas and techniques of modern symbolic logic including several formal systems to distinguish between valid and invalid arguments

and discussion of the foundations of arithmetic and set theory. Meets with PHIL 344.

**PHIL 546-3. Theories of Human Nature.**

An examination of the meaning of human nature from various perspectives including Greek thinking, religious explanations, naturalist, existentialist and pragmatist theories.

**PHIL 549-3. Philosophy of Language.**

A historical survey of developments in philosophy of language. Topics covered include sense and reference, signifier and signified, rule-following, ordinary language philosophy, deconstruction, and casual theories of reference. Authors covered include Frege Husserl, De Saussure, Wittgenstein, Austin, Derrida, and others. Meets with PHIL 449.

**PHIL 560-3. Theory of Film.**

Relation between philosophical issues and film to, show how philosophical concepts are embodied in film and filmmaking. Prer., A B.A. in any LAS field. Meets with PHIL 460.

**PHIL 591-3. Systematic Philosophy.**

A thorough study of a single philosophical problem, system or single philosopher. Variable content. Meets with PHIL 491

**PHIL 593-1 to 3. Advanced Topics in**

**Philosophy.** Detailed examination of a special topic taken from the history of philosophy which is not covered by the regular departmental course offerings. Variable content. Prer., Consent of instructor. Meets with PHIL 493 and WMST 490 001.

**PHIL 940-1 to 3. Independent Study in**

**Philosophy: Undergraduate.** Prer., Prior consent of faculty required.

**PHIL 950-1 to 3. Independent Study in**

**Philosophy: Graduate.** Intended to give an opportunity for advanced students with good scholastic records and with appropriate courses completed to pursue independently the study of some subject of special interest. Subjects are chosen and arrangements are made to suit the needs of each student. Prer., Consent of instructor.

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**PHYSICS**

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**PHYS 501-3. Astronomy Principles in**

**the Classroom.** Examines fundamental concepts of astronomy and how they are applied in the classroom. The course is designed for middle and high school teachers. Consult with your advisor to see if this course applies to your academic program. Meets with CURR 5543.

**PHYS 503-3. Mathematical Methods in Physics.** Survey of classical mathematical

physics. Includes complex variable theory, boundary value problems, Green's functions, matrices, and vector spaces, and the use of numerical methods for solving physical problems. Prer., PES 325 or equivalent.

**PHYS 515-3. Solid State Laboratory.** Advanced lab on the measurement of fundamental properties of solids. Includes introduction to vacuum and thin film technologies. One lecture and one lab session per week. Meets with PES 415.

**PHYS 516-1. Thin Films Laboratory.** Introduction to thin film deposition and characterization. Facilities include evaporation, sputtering, Auger electron spectroscopy, ellipsometry and scanning electron microscopy. Coreq., PHYS 549

**PHYS 520-3. Computational Physics.** An introduction to methods of solving physics problems via computers. Topics include molecular dynamics, calculation of electromagnetic fields, electronic states, Monte Carlo methods applied to statistical mechanics and quantum systems. Prer., C S 105 or equivalent.

**PHYS 541-3. Statistical Mechanics.** An introduction to equilibrium statistical mechanics. Topics include classical or Boltzmann statistics, Fermi-Dirac and Bose-Einstein statistics, partition functions and ensembles. Also included are applications to the liquid and solid states.

**PHYS 542-3. Physics of Materials.** An introduction to the physics of materials. Topics will include crystallography and defects, phase diagrams, phase transformations, diffusion, mechanical properties, and electrical properties.

**PHYS 546-3. Introduction to Solid State Physics.** Theory of solids including crystal structure, x-ray diffraction, phonons, thermal properties of insulators, theories of metals, band structure, semiconductors, impurities and doping in semiconductors, junctions, superconductivity, and magnetism. Meets with PES 446.

**PHYS 548-3. Surface and Interface Physics.** An introduction to the solid state physics of surfaces and interfaces including structural, thermodynamic and electrical properties. Gas-surface interactions and characterization techniques will also be examined.

**PHYS 549-3 to 4. Physics of Thin Films.** A combined lecture/lab course covering common techniques for the production and characterization of thin films and the physics which underlies these methods. Lab equipment includes evaporation, Auger spectroscopy, ellipsometry and scanning electron microscopy. Offered

as a 3 credit lecture or 4 credits with integrated lab. Meets with PES 449.

**PHYS 560-3. Special and General Relativity.** Investigates the theoretical and experimental basis for Einstein's Theory of Relativity. The concept of four dimensional space-time is introduced through Special Relativity. The concept of curved space-time is presented using the mathematics of tensors. Open to graduate students only. Prer., PES 213. Meets with PES 460.

**PHYS 572-3. Stellar Structure and Evolution.** Basic stellar astronomy and astrophysics. H-R diagrams. Principles of stellar structure including energy generation and energy transport. Stellar formation and evolution to compact objects.

**PHYS 590-1 to 4. Special Topics for Teachers.** Various topics in physics, astronomy and energy science of interest to K-12 teachers. Consult your advisor to see if this course applies to your academic program.

**PHYS 595-1 to 6. Special Topics.** Various topics in physics, energy science, astronomy and related fields.

**PHYS 596-1 to 6. Special Topics.** Various topics such as, but not limited to: spin flop transition in anti-ferromagnetic/ferromagnetic structures; effective of spin flop on domain structures and other current topics in physics.

**PHYS 621-3. Theoretical Mechanics.** Variational principles, Lagrange's equations, Hamilton's equations, motion of a rigid body, relativistic mechanics, transformation theory, continuum mechanics, small oscillations, Hamilton-Jacobi theory.

**PHYS 625-3. Introduction to Quantum Mechanics.** Quantum phenomena, relation to classical physics, Schrodinger and Heisenberg picture, application to problems, approximation techniques; angular momentum; scattering; theory; Pauli spin theory; radiation theory; relativistic wave equations with simple applications; introduction to field theory and second quantization. Prer., PES 426.

**PHYS 626-3. Quantum Mechanics II.** Quantum phenomena, relation to classical physics, Schrodinger and Heisenberg picture, application to problems, approximation techniques; angular momentum; scattering theory; Pauli spin theory; radiation theory; relativistic wave equations with simple applications; introduction to field theory and second quantization.

**PHYS 631-3. Electromagnetic Theory I.** Electromagnetic fields; applications of

Maxwell's equations to electromagnetic wave propagation, and fundamental properties of light; relativistic electrodynamics, radiation theory. Prer., PES 331, PES 332 or equivalent.

**PHYS 632-3. Electromagnetic Theory II.** Electromagnetic fields; applications of Maxwell's equations to electromagnetic wave propagation, and fundamental properties of light; relativistic electrodynamics, radiation theory. Prer., PHYS 331-332, or equivalent.

**PHYS 695-3. Special Topics in Physics.** Various topics such as group theory in quantum mechanics, collision, astrophysics, surface physics, magnetism.

**PHYS 700-1 to 6. Masters Thesis.** An approved problem in theoretical or experimental physics under the direction of faculty members. Intended to introduce the student to procedures in research and development work. Work of an original nature is expected.

**PHYS 950-1 to 6. Independent Study: Graduate.**

**PHYS 999-0. Candidate for Degree.**

## PSYCHOLOGY

**PSY 100-4. General Psychology.** An introduction to the scientific study of behavior. Covers psychoanalytic and Jungian theory, physiological bases of behavior, behaviorism and humanistic/existential theories. Includes psychology discipline areas of clinical, experimental, developmental, abnormal, and social.

**PSY 210-4. Introduction to Psychological Statistics.** Descriptive statistics including graphs, frequency distributions, measures of central tendency and variability. Inferential statistics such as correlation, T-tests, chi-square tests, and analysis of variance including two-factor designs and multiple comparison tests. Prer., PSY 100 and Math 104 or equivalent.

**PSY 211-4. Introduction to Psychological Research and Measurement.** An introduction to research methods used in psychology including experimental designs, quasi-experiments, correlation research and developmental methods. Methods of measuring psychological concepts, as well as the reliability and validity of those measurements are discussed. Students will write reports in APA format. Prer., PSY 210. Prer. or Coreq., ENGL 141.

**PSY 230-3. Psychology of Adjustment.** A survey of concepts bearing upon the processes of normal psychological adjustment, with emphasis upon using the concepts to understand common

human problems in personal growth and relationships with others.

**PSY 245-3. Social Psychology of Social Problems.** An examination of social psychological aspects of a variety of social issues and problems in contemporary society. Issues may include television violence, race and I.Q., ethics of human experimentation, privacy, and pornography. Psychological theory and research relevant to these areas will be considered as will the processes involved in defining social behavior as a problem. Prer., PSY 100. Meets with WMST 245.

**PSY 300-3. Honors Seminar I.** Exploration of contemporary issues in the science of psychology in conjunction with independent research project under the supervision of psychology faculty member. Open only to students formally accepted into the Department of Psychology honors program. Prer., PSY 210, PSY 211, junior status and consent of instructor.

**PSY 303-1 to 3. Undergraduate Practicum.** Students participate in supervised service or research activities. Prer., Consent of instructor.

**PSY 306-3. Psychology and Health.** Introductory course on the application of psychological principles to the enhancement of physical health. Class utilizes an experiential format with students actually conducting their own health behavior change program. Prer., PSY 100.

**PSY 310-3. Statistical Models in Psychology.** The role of statistical models in psychological research, including models of error and inference, and analysis of selected variance. Prer., PSY 210.

**PSY 313-3. Learning and Cognition.** Survey of animal and human theories of learning and an introduction to contemporary theories of human cognition including memory and information processing. Prer., PSY 100.

**PSY 314-4. Cognitive Psychology.** A survey of the core areas of human cognition: attention, reasoning, memory, problem-solving, and decision making. History, theory, methodology, and research from related disciplines are discussed. Prer., PSY 210 and PSY 211.

**PSY 315-3. Psychology of Motivation.** Psychological and physiological factors in the motivation of behavior. Prer., PSY 100.

**PSY 320-4. Psychology of Learning.** Course designed to provide an overview of learning. An emphasis will be placed on the theoretical formulation of the conditions that are necessary for learning and retention. Practical applications of

learning principles will be considered. Prer., PSY 210 and PSY 211.

**PSY 321-3. Human Sexuality.** Covers in substantive form the interdisciplinary field of human sexuality. The topic is approached from the perspectives of physiology, endocrinology, behavior, sociology, ethnology, and anthropology. Prer., PSY 100.

**PSY 324-3. Psychology of Personality.** A review of various theories of personality including psychodynamic, behavioristic, humanistic, and existential approaches. Prer., PSY 100.

**PSY 326-4. Comparative Psychology.** Behavior of animals from an evolutionary perspective. Principles of behavior in a variety of animal species, including humans. Prer., PSY 100, or consent of instructor.

**PSY 327-4. Introduction to Biopsychology.** A broad survey course in the biological basis of behavior. Anatomy, physiology and chemistry of the nervous system (with special emphasis on the brain), endocrinology, and genetics are discussed as they apply to the study of behavior. Prer., PSY 100 or consent of instructor.

**PSY 328-3. Abnormal Psychology.** The origin, symptoms, classification, and treatment of abnormal behavior. Prer., PSY 100.

**PSY 340-3. Social Psychology.** Survey of contemporary social psychological theory and research. Analysis of basic principles underlying human social behavior. Prer., PSY 100.

**PSY 345-3. Psychology of Diversity.** A basic survey of myths and realities of multiculturalism and diversity using the theories and data from several subfields within psychology. Racial and ethnic diversity are emphasized, but diversity due to gender, age, sexual preference, and SES will also be explored. Prer., PSY 100.

**PSY 348-1 to 4. Selected Topics in Psychology.** Subject matter will change depending upon individual instructors and time of offering. The topic for any given semester will be specified in the Schedule of Courses. May be repeated for credit.

**PSY 351-3. Psychology of Aging.** An overview of gero-psychology covering such topics as the aging central nervous system, cognitive aging, cultural contexts of aging, personal transitions in later life, mental disorders, and gero-psychology in the future. Prer., PSY 100. Meets with GRNT 463.

**PSY 355-3. Psychology of Women.** A survey of female psychology and the study of sex differences through an examination

of theories and determinants of female personality, traditional and alternative lifestyles, women in psychotherapy, and women at work. Prer., PSY 100.

**PSY 362-3. Developmental Psychology.** Survey of human development from conception to death emphasizing physical, cognitive, emotional, and psychosocial development. Prer., PSY 100.

**PSY 364-3. Psychology of the Exceptional Child.** This survey course studies children with learning and cognitive differences, behavioral and emotional disorders, and sensory and physical differences. Emphasis on etiology, diagnosis, treatment, and prevention of various disorders from different theoretical perspectives. Prer., PSY 100.

**PSY 365-3. Clinical Neuropsychology.** Organization, function, and dysfunction of the human brain across the life span. Neuropsychological assessment techniques. Reviews behavioral, cognitive, and personality changes as a result of disease, injury, and aging. Prer., PSY 100 or consent of instructor.

**PSY 366-3. Service-Learning Internship.** As a service-learning course, students will serve in the community and learn beginning helping skills. Assistance will be provided in locating volunteer positions. Prer., Consent of instructor.

**PSY 371-3. Survey of Clinical Psychology.** A view of the area of clinical psychology including such topics as clinical assessment, therapies, and community intervention. Prer., PSY 100.

**PSY 372-3. Community Psychology and Mental Health.** Focus on issues in the organization, financing, and delivery of mental health services within the community, innovative techniques for the provision of mental health-related services, the role of community factors in the production of emotional disorders, and technologies of community change. Prer., PSY 100 and PSY 328.

**PSY 384-3. SPSS and other Statistical Packages.** The use of computers for statistical analysis of social science data. Topics include how to organize data collections, the selection and use of appropriate statistical packages, and storing and retrieving files. Prer., PSY 210 or equivalent.

**PSY 385-3. Principles of Psychological Testing.** A psychological and statistical analysis of the principles underlying construction and use of tests of ability and personality. Prer., PSY 210.

**PSY 386-3. Theories of Psychotherapy.** An introduction for the upper-division



undergraduate into the theories and techniques of psychotherapy. Various approaches to psychotherapy will be examined (e.g., psychoanalysis, behavioristic, and humanistic/ existential). Prer., PSY 100 and PSY 328.

**PSY 393-3. Industrial/Organizational Psychology.** An introduction to the scientific study of people in work organizations. Emphasis on understanding people in organizations and applying this knowledge to resolve problems of human behavior at work. Prer., PSY 100.

**PSY 394-3. Psychology and the Law.** An introductory survey course covering selected topics relating to the interaction of psychology and the law. Prer., PSY 100.

**PSY 395-3. Applied Psychology.** Examines the application of psychological research and theory to "real world" issues; organizational behavior, health and health care, environmental, legal, educational issues, and public policy. Prer., PSY 100.

**PSY 400-1 to 3. Honors Seminar II.** Continuation of Honors Seminar I (PSY 300). Students complete independent research projects and meet together with honors program coordinator. Prer., PSY 210, PSY 211, PSY 300, PSY 310, and consent of instructor. Open only to students formally accepted into Dept. of Psychology honors program.

**PSY 405-3 to 4. Physiological Psychology.** The morphological, neurochemical, and physiological bases of behavior. Topics include the physical substrate for emotion, motivation, consciousness, sleep, learning, and memory. Prer., PSY 327 or consent of instructor. If course is taken for 4 hours credit, one 2 hour lab per week is required.

**PSY 406-3. Seminar in Health Psychology.** In-depth focus on selected topics in health psychology. Topics will vary. Prer., PSY 211 and PSY 306 or PSY 328.

**PSY 411-3. Seminar in Methodology.** In-depth focus on selected topics in methodology, statistics, and measurement. Topics will vary. Prer., PSY 210 and PSY 211.

**PSY 412-3. Human Memory.** Psychological research and theories about memory. Its focus will be on the memory abilities of normal-functioning adults. Memory functions and structures will be inferred from research studies, several of which will be demonstrated in class. Some implications for improving memory will be discussed. Prer., PSY 100.

**PSY 413-3. Seminar in Learning and**

**Cognition.** In-depth focus on selected topics in learning and cognition. Topics will vary. Prer., PSY 211 and PSY 313, or PSY 314.

**PSY 417-3 to 4. Sensation and Perception.** Introduction to psychophysical scaling, the physical senses (with special emphasis on audition and vision), and perceptual phenomena. One 2-hr. lab. per week required if course taken for four hours credit. Prer., PSY 210 and PSY 211 or consent of instructor.

**PSY 419-3. Conditioning: Principles and Application.** Principles of classical and operant conditioning in humans and other animals. Presentation of the theoretical basis of behavior modification. One 2-hour lab required if course taken for 4 hours credit. Prer., PSY 100.

**PSY 421-1 to 3. Practicum in Experimental Psychology.** Laboratory for advanced psychology majors. Emphasis will be on individual projects. Prer., Consent of instructor.

**PSY 422-3. Introduction to Language Behavior.** Introduction to general communication theory with special emphasis on human communication and relation of language to thought. Prer., 16 hours of PSY or consent of instructor.

**PSY 424-3. Seminar in Psychology of Personality.** In-depth focus on selected topics in personality. Topics will vary. Prer., PSY 211 and PSY 324.

**PSY 427-3. Seminar in Biopsychology.** In-depth focus on selected topics in biopsychology. Topics will vary. Prer., PSY 211 and PSY 327.

**PSY 428-3. Seminar in Abnormal Psychology.** In-depth focus on selected topics in abnormal psychology. Topics will vary. Prer., PSY 211 and PSY 328.

**PSY 440-3. Seminar in Social Psychology.** In-depth focus on selected topics in social psychology. Topics will vary. Prer., PSY 211 and PSY 340.

**PSY 443-3. Seminar in Social Issues.** In-depth focus on social issues. Topics will vary. Prer., PSY 211.

**PSY 444-3. Drugs and Behavior.** A behavioral analysis of the effects of psychoactive compounds including stimulants, depressants and antidepressants, antipsychotics, anxiolytics, opiates, and psychedelics. Presentation of neurobiological models of affective disorders (e.g. schizophrenia, endogenous depression, mania, and anxiety). Prer., 10 hours of PSY or consent of instructor, PSY 327 or introductory biology and/or chemistry recommended.

**PSY 451-3. Seminar in History of Psychology.** Outline of the development of psychological theories since the Greek philosophies. The story of experimental psychology and its problems. Schools of psychological thinking. Readings of original sources in English and English translations. Prer., PSY 210, PSY 211 and junior status.

**PSY 462-3. Seminar in Developmental Psychology.** In-depth focus on selected topics in developmental psychology. Topics will vary. Prer., PSY 211 and PSY 362.

**PSY 499-1 to 3. Teaching of Psychology.** A consideration of problems, techniques, and subject matter related to the teaching of psychology. Prer., Consent of instructor.

**PSY 521-3. Psychology of Aging I.** An advanced orientation to developmental research across the lifespan in biological, neurological, sensory/perceptual and cognitive domains with a focus on older adulthood and aging. Students explore theory research methodology, and empirical studies on the psychology of aging. Prer., Psychology graduate status or consent of instructor.

**PSY 522-3. Psychology of Aging II.** An advanced-level orientation to developmental research across the lifespan in personality, social, and health domains. Age-related pathologies will also be considered. Students explore theory, research methods, and empirical studies on the psychology of aging. Prer., PSY 521 and Psychology graduate status or consent of instructor.

**PSY 570-1. Ethical, Legal, and Professional Issues for Clinicians.** This course covers extent legal and ethical principals and standards for professional conduct in clinical psychology. It considers legal and ethical decisions that clinicians must make, such as scope of professional competence, confidentiality, duty to warn and protect, and dual relationships. Prer., Psych graduate status or consent of instructor.

**PSY 571-3. Clinical Skills Laboratory.** An introductory practicum course which emphasizes psychotherapy skills and concepts related to therapeutic interaction. A prerequisite for the clinical practicum, PSY 671. Prer., Psy graduate status or consent of instructor.

**PSY 580-3. Behavioral Science Statistical Packages.** The use of the computer for statistical analyses will be reviewed. Topics include how to organize data collections, selection and use of appropriate statistical packages and storing and retrieving files. Prer., PSY 585 or equivalent, grad status in psych or consent of instructor.

**PSY 581-4. Research Statistics and Methodology I.** Advanced statistical techniques and research methodology for psychological research. Focuses on methods for use with experimental research design, including factorial, repeated measures and mixed design ANOVA models. Computer lab focuses on use of statistical packages for analysis of data. Prer., Introductory statistics; graduate status in psychology; or consent of instructor.

**PSY 582-4. Research Statistics and Methodology II.** Advanced statistical techniques and research methodology for psychological research. Focuses on methods for use with nonexperimental research design, including correlation and multiple regression. Measurement issues are covered, including reliability and validity. Computer lab uses statistical packages for analysis of data. Prer., PSY 581.

**PSY 583-3. Applied Multivariate Techniques I.** Multivariate statistical methodology and design for psychological research. Topics include test construction, factor analysis, MANOVA, canonical correlation, and other selected techniques. Prer., Graduate Status, PSY 581, PSY 582 or equivalent, SPSS skills.

**PSY 583-3. Methods and Design for Analyzing Change.** Research design and statistical analysis for the study of change. Topics include developmental research design techniques, covariance structure analysis, multilevel modeling, and growth curve analysis. Computer programs will be used. Prer., PSY 581, PSY 582.

**PSY 585-3. Research Statistics.** Advanced statistical techniques for research psychologists, including specialized in-depth treatment of analysis of variance. Prer., Introductory statistics, psychology graduate status, or consent of instructor.

**PSY 587-3. Multivariate Statistics.** Multivariate procedures are described extensions of the general linear model. Procedures include: multiple regression, canonical correlation, MANOVA, factor analysis, discriminant function analysis, and other selected topics. Prer., Psychology graduate status or consent of instructor.

**PSY 590-3. Basic and Applied Research Methods.** Advanced survey of research design and methodology. Prer., PSY 585 and psychology graduate status or consent of instructor.

**PSY 595-3. Psychometric Theory.** Theory of psychological test construction. Emphasis on scaling models and the

assessment of reliability and validity by univariate and multivariate methods. Prer., PSY 585, Psychology graduate status, or consent of instructor.

**PSY 603-3. Research Practicum.** Students will be placed in a clinical or research program for the application phase of their psychology training. Prer., Psychology graduate status.

**PSY 610-3. Proseminar: Developmental.** Prer., Psychology graduate status or consent of instructor.

**PSY 611-3. Proseminar: Cognition.** Prer., Psychology graduate status or consent of instructor.

**PSY 612-3. Proseminar: Neuropsychology.** Prer., Psychology graduate status or consent of instructor.

**PSY 613-3. Proseminar: Social.** Prer., Psych grad status or consent of instructor.

**PSY 614-3. Proseminar: Personality.** Study of measurement methods and their psychological and mathematical bases, with special emphasis on the measurement of attitude. Prer., Psychology graduate status or consent of instructor.

**PSY 641-1-3. Aging Seminar (Special Topics).** Current research on aging and psychology. Topics to be specified for particular semester. See instructor for details. May be repeated for credit. Prer., PSY 521, PSY 522, or consent of instructor.

**PSY 642-3. Aging Proseminar.** In-depth examination of theory and research on aging on a focused topic within a core content area of psychology (e.g. cognitive, personality, social). May be repeated for credit. Prer., Graduate status, PSY 521, PSY 522, or consent of instructor.

**PSY 648-1 to 3. Selected Topics in Psychology.** Subject matter will change depending upon individual instructor and time of offering. The topics for any given semester will be specified in the semester schedule. May be repeated for credit. Prer., Psychology graduate status or consent of instructor.

**PSY 651-3. History of Psychology.** An advanced level overview of the development of psychological theories since the Greek philosophies. Prer., Psychology Graduate Status.

**PSY 661-3. Clinical Geropsychology I.** Prepares students to work in geriatric health settings. Content includes health psychology, interdisciplinary teamwork, long-term care, policy issues, and community resources. Prer., PSY 521, PSY 522, and PSY 571.

**PSY 662-3. Clinical Geropsychology II.** Course prepares students to work in geriatric health settings. Content includes health psychology, interdisciplinary teamwork, long-term care, policy issues, and community resources. Prer., PSY 521, PSY 522, PSY 571, Graduate Status.

**PSY 667-1 to 3. How to Teach More Effectively.** Designed to help college professors become more effective teachers. Readings, discussions, and videotaped consultation. Prer., Psychology graduate status or consent of instructor.

**PSY 672-3. Professional Development I.** Training in standards of professional practice, including theoretical and practical aspects of ethics (e.g. record keeping, confidentiality, supervision). Students engage in 12 hours/week of direct clinical experience in the community, and attend seminar. Prer., Psychology graduate status, PSY 571, PSY 692, and PSY 698.

**PSY 673-3. Professional Development II.** Training in professional practice standards related to cultural and family systems, competency and related ethics. Includes strategies for delivering services to various populations. Students engage in 12 hours/week of clinical practice, and attend seminar. Prer., PSY 571, PSY 672, PSY 678, PSY 692.

**PSY 674-1-3. Practicum in Clinical Psychology.** Direct clinical experience for graduate candidates in psychology only. Students provide clinical services under supervision in community setting. May be repeated for credit. Prer., PSY 571.

**PSY 678-3. Advanced Psychopathology.** An intensive survey of the major theories, research findings, and behavioral characteristics associated with deviant reaction patterns. Prer., Psych grad status or consent of instructor.

**PSY 679-3. Psychopharmacology.** Physiological and behavioral factors associated with medications used to treat psychological disorders. Topics include drug metabolism (including age effects), common medication, behaviors associated with use and abuse, selection of medications to minimize adverse effects. Prer., PSY 678 or consent of instructor.

**PSY 680-3. Clinical Geropsychology Special Topics.** Current research on clinical geropsychology. Topics to be specified for particular semester. See instructor for details. May be repeated for credit. Prer., Graduate Status.

**PSY 685-3. Clinical Interviewing.** Theory and practice in interviewing for the purpose of determining a diagnosis using the DSM. Practical skill instruction in mental status exams, interviewing strategies, integration of interview and

testing data, and report writing. Prer., PSY 571, PSY 678, psychology graduate status or consent of instructor.

**PSY 686-3. Objective Testing in Clinical Psychology.** Course will focus on administering and interpreting objective test results commonly used in clinical psychology practice. Case study format and test battery interpretation will also be considered. Probable tests: MMPI, CATI, and others. Prer., PSY 571; for Psychology master's candidates only.

**PSY 687-3. Clinical Neuropsychology.** Course will cover basic foundations of human neuropsychology and neuropsychological assessment of adults. Topics will include brain-behavior relationships, differential diagnosis and report writing. Prer., PSY 686.

**PSY 688-1 to 3. Clinical Neuropsychology Lab.** Training in practice of clinical neuropsychology through supervised experience administering, scoring, interpreting and reporting test results. May be repeated. Prer., PSY 686 and PSY 687(may be concurrent). Psychology graduate status.

**PSY 692-3. Seminar: Psychotherapy.** Readings and discussion of the psychotherapeutic process from various theoretical perspectives. Prer., Psychology graduate status or consent of instructor.

**PSY 700-1 to 6. Masters Thesis.** A research project under the supervision of the graduate faculty of the psychology department.

**PSY 703-3. Doctoral Research Practicum.** Students participate in a research laboratory for instruction in research methods in psychology. Prer., Doctoral Candidacy, PSY 581, PSY 582, PSY 587, Graduate Status.

**PSY 800-1 to 12. Dissertation.** Prer., Doctoral students only

**PSY 930-1 to 3. Independent Study in Psychology: Undergraduate.** Prer., 20 hours of psychology or equivalent and consent of instructor.

**PSY 950-1 to 3. Independent Study in Psychology: Graduate.** Prer., Consent of instructor.

**PSY 999-0. Candidate for Degree.**

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## RUSSIAN

**RUSS 101-5. Beginning Russian I.** Skills in listening to and speaking Russian. Emphasis on useful expressions with cultural orientation.

**RUSS 102-5. Beginning Russian II.** Continued skills in listening to and speaking Russian. Reading and writing

intensified with further study of Russian civilization. Prer., RUSS 101 or its equivalency.

**RUSS 211-3. Intermediate Russian I.** Russian at the intermediate level. Speaking, reading, and writing. Prer., RUSS 102 or its equivalency.

**RUSS 212-3. Intermediate Russian II.** An intermediate Russian course continuing conversational usage and cultural integration utilizing contemporary materials, newspapers, etc. Prer., RUSS 211 or its equivalency.

**RUSS 920-1 to 4. Independent Study: Undergraduate.** Independent work for undergraduates. By special arrangement with the faculty. Only for students presenting strong Russian preparation. May be repeated up to three times for credit. Prer., Consent of instructor.

**RUSS 930-1 to 4. Independent Study: Undergraduate.** Independent work for undergraduates. By special arrangement with the faculty. Only for students presenting strong Russian preparation. May be repeated up to three times for credit. Prer., Consent of instructor.

**RUSS 940-1 to 3. Independent Studies in Russian.** May be repeated up to three times for credit. Prer., Consent of instructor.

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## SPORTS AND LEISURE STUDIES

**S L 220-3. Introduction to Fitness Management.** Applied introduction to fitness management; leadership and teaching skills; fitness screening and appraisal; weight management and eating disorders.

**S L 270-1. Introduction to Sport/ Recreation Activity.** Basic instruction and participation in sport and recreational activities to include, but not limited to, volleyball, cross-country, tennis, golf, basketball, aerobics, dance and ranger challenge. Students may enroll in a maximum of three (3) different activities for a total of three(3) hours of credit. Each activity can only be taken once for credit. Furthermore, the student can take S L 270 and then S L 275 in that order, but cannot take S L 275 and then S L 270 in the same sport. Prer., Consent of instructor required.

**S L 271-1. Self-Defense and Empowerment.** A physical activity course focusing on self-defense and personal empowerment through the development of physical skills, awareness, and respect for self and others. Students will develop and employ skills in role-playing situations.

**S L 275-1. Intercollegiate Sports.**

Students certified as members of intercollegiate sport teams may earn up to one (1) hour of credit for a full season of participation. May be repeated for up to a total of three (3) hours of credit.

**S L 279-1. Introduction to Strength Conditioning.** Introduction to proper use of exercise machines and weights in developing strength and physical health and fitness. Supervised training sessions on weight room equipment in relation to sport performance. This course may not be repeated for credit. Prer., S L 251.

**S L 301-1 to 3. Special Topics in Sports and Leisure.** Special courses designed to meet the needs of students with specialized academic interests related to fitness, exercise, leisure and sport.

**S L 400-3. Perspectives on Sport and Leisure Studies.** An in-depth sociological analysis of leisure time behavior in industrialized countries. Emphasis will be given to the forms and types of leisure activities, current trends, and future needs and alternatives. Sports will be considered as a special form of leisure. Meets with S L 500 and SOC 330.

**S L 402-1. Effectiveness in Coaching.** The ACEP approved course for coaches, including an introduction to sport, exercise and management science and coaching pedagogy. Certifies student as Level I Coach. Students who complete S L 402, S L 403 and S L 451 cannot take S L 401 for credit. Meets with S L 502.

**S L 404-3. Principles of Sport Psychology.** Motivation, communication, stress management, the use of mental imagery and other topics for enhancing coach-athlete relationships and for stimulating improved sport performance will be covered. Meets with S L 504.

**S L 405-1. Principles of Sport Physiology.** Principles and methods of developing muscular and energy fitness. Provides coaches with the information and guidance to develop training programs appropriate for particular sport and athletes. Meets with S L 505.

**S L 432-1. Principles of Sport Law.** Explains a coach's legal responsibility in easy to understand terms and gives practical advice for improving standards of care and safety for athletes. Meets with S L 532.

**S L 440-3. Dimensions of Athletic Administration.** Analysis of administration at junior and senior high schools, colleges, and universities. Examine the independent coordinates involved in management for athletic/sports administration, such as internal and external affairs, compliance

and governance, student-athlete support service, human resource issues, and working with coaches. Prer., Junior or Senior status. Meets with S L 540.

**S L 452-1. Sports, Drugs, and Society.**

Surveys the effects of drug use on personal development and athletic performance. Evaluates proposals for drug testing and discusses programs to prevent drug use and drug abuse. Meets with S L 552.

**S L 461-1 to 4. Sport Specific: Basic Techniques and Tactics for Beginning Coaches.**

Provides a beginning coach with sport-relevant information on coaching, skills, drills, and strategy necessary to coach effectively. May also be used as a special topics course.

**S L 462-1 to 4. Sport Specific: Intermediate Techniques and Tactics in Coaching.**

Instruction in coaching specific sports at a competitive level. Includes review of basic planning and development of team players, but will concentrate more on strategy, game/match preparation and skill development. Also offered as a special topics course. Prer., S L 461 or equivalent.

**S L 463-1 to 3. Sport Specific: Advanced Techniques and Tactics.**

Principles and strategies for coaching at the most advanced and competitive levels. May integrate exercise physiology, biomechanics, psychology, etc. in sport specific manner. Prer., S L 461, S L 462 or instructor consent. MEETS WITH S L 563.

**S L 490-1. Internship in Sport and Leisure.** Placement in agency or organization related to the student's area of specialization; student keeps journal and attends regular seminars to discuss experiences. Prer., S L 400 or equivalent. Meets with S L 590.

**S L 499-1 to 3. Selected Topics in Sport and Leisure.** This course will be offered to meet student demand for instruction in specific areas of this field which are not routinely offered in the curriculum. Topics covered will generally be current issues and problems, emerging knowledge or highly specialized inquiry. Prer., Consent of instructor. Meets with S L 599 and SOC 401.

**S L 500-3. Perspectives on Sport and Leisure Studies.** An in-depth sociological analysis of leisure time behavior in industrialized countries. Emphasis will be given to the forms and types of leisure activities, current trends, and future needs and alternatives. Sports will be considered as a special form of leisure. Meets with S L 400 and SOC 330.

**S L 502-1. Effectiveness in Coaching.**

The ACEP approved course for coaches, including an introduction to sport, exercise and management science and coaching pedagogy. Certifies student as Level I Coach. Students that complete S L 402, S L 403 and S L 451 cannot take this course for credit. Meets with S L 402.

**S L 504-1. Principles of Sport**

**Psychology.** Motivation, communication, stress management, the use of mental imagery and other topics for enhancing coach-athlete relationships and for stimulating improved sport performance will be covered. Meets with S L 404.

**S L 505-1. Principles of Sport**

**Physiology.** Principles and methods of developing muscular and energy fitness. Provides coaches with the information and guidance to develop training programs appropriate for particular sport and athletes. Meets with S L 405.

**S L 530-3. Management of Sport and Leisure Programs.**

Analysis of administration and policies of park and recreation agencies. Topics will include financing, marketing, capital budgeting, user fees, alternative service delivery systems and cooperative arrangements with both the commercial and non-profit sectors. Meets with S L 430.

**S L 532-1. Principles of Sport Law.**

Explains a coach's legal responsibility in easy to understand terms and gives practical advice for improving standards of care and safety for athletes. Meets with S L 432.

**S L 540-3. Dimensions of Athletic**

**Administration.** Analysis of administration at junior and senior high schools, colleges, and universities. Examine the independent coordinates involved in management for athletic/sports administration, such as internal and external affairs, compliance and governance, student-athlete support service, human resource issues, and working with coaches. Meets with S L 440.

**S L 552-1. Sports, Drugs and Society.**

Surveys the effects of drug use on personal development and athletic performance. Evaluates proposals for drug testing and discusses programs to prevent drug use and drug abuse. Meets with S L 452.

**S L 561-1 to 4. Sport Specific: Basic Techniques and Tactics for Beginning Coaches.**

Provides a beginning coach with sport-relevant information on coaching, skills, drills, and strategy necessary to coach effectively. May also be used as a special topics course. Meets with S L 461.

**S L 562-1 to 4. Intermediate Techniques and Tactics in Coaching.**

Instruction in coaching specific sports at a competitive level. Includes review of basic planning and development of team players, but will concentrate more on strategy, game/match preparation and skill development. Also offered as a special topics course. Prer., S L 561 or equivalent. Meets with S L 462.

**S L 563-1 to 3. Sport Specific: Advanced Techniques and Tactics.**

Principles and strategies for coaching at the most advanced and competitive levels. May integrate exercise physiology, biomechanics, psychology, etc., in sport specific manner. Prer., S L 461, S L 462 or instructor consent. Meets with S L 463.

**S L 590-1 to 6. Internship in Sport**

**and Leisure.** Placement in agency or organization related to the student's area of specialization; student keeps journal and attends regular seminars to discuss experiences. Prer., S L 400 or equivalent. Meets with S L 490.

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## SOCIOLOGY

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**SOC 111-4. Introduction to Sociology.**

General survey of the field of sociology. Sociology as a science; society and culture; social groups; social institutions; social interaction; social change.

**SOC 211-3. Sex and Society.**

The course will critically examine theoretical perspectives on sexuality and sexual identity; varying historical and cultural constructions of sexuality; the relationship between sexual attitudes, behaviors and larger social forces and institutions; how sexuality is intertwined with other social constructs, especially gender and race; as well as contemporary political issues and debates.

**SOC 212-4. Introduction to Social**

**Research.** An elementary examination of the various methods used in social research with emphasis on the scientific method and the role of empirical inquiry in sociology.

**SOC 220-3. Introduction to Racial and Ethnic Groups.**

A survey of contemporary racial and ethnic group relations in the U.S. Includes discussion of the history and development of the current situation of the largest minority groups, emphasizing comparisons of social situations, values, discrimination, and cultural identities.

**SOC 222-3. Communities in a Global**

**Environment.** Examines the challenges in developing sustainable communities within a framework that is sensitive to both social and environmental justice. Special attention is devoted to the

impact of the process of globalization on community development and organization.

**SOC 224-3. Childhood Socialization.** An examination of the process through which children define themselves as members of their culture. The influence of such "cultural communicators" as the family, school, television, day care, children's literature, games, toys and peer relations will be examined.

**SOC 225-3. Images of Women in Society.** Study of the images of women in American society, relating these stereotypes to actual conditions and experiences of women. Recommended to the returning student. Meets with WMST 225.

**SOC 250-3. Social Problems.** An introduction to the sociological perspective on social issues and problems such as deviance, race and ethnic relations, aging, crime and delinquency, war, drug abuse, alienation, mental illness, etc.

**SOC 315-3. Modern Sociological Theory.** A review of major theorist in sociology from the late 19th century through recent and current works. Prer., 9 Hours of sociology or consent of instructor.

**SOC 317-4. Social Statistics.** Course stresses quantitative techniques used in analyzing social data via the SPSS computer program. Research methodology is also emphasized. Prer., SOC 212 or equivalent

**SOC 321-3. American Minority Communities.** Examines the forces involved in shaping the development of ethnic minority communities in the United States. The course helps students understand contemporary minority communities via analyses of important historical moments, the unique cultures of each of the four large ethnic minorities, and social problems. While each community is examined independently of the others, interethnic relations are seen as important factors in the development of each community.

**SOC 322-3. Urban and Community Sociology.** The city in terms of its social structure, residential and institutional patternings, processes of interaction, demographic processes and patterns of growth and change. Prer., SOC 111 or consent of instructor.

**SOC 323-3. The Chicano Community.** Study of the origin, development, and current order of the Chicano community. Includes studies of the "Barrio," ethnic identity, social values, consequences of prejudice and discrimination. Prer., SOC 111 or SOC 220. Meets with EST 323.

**SOC 324-3. African American Community.** Study of the origin, development, and contemporary nature of black community. Includes understanding of black culture and values, consequences of prejudice and discrimination. Prer., SOC 111 or 220. Meets with EST 324.

**SOC 325-3. Power, Privilege and Social Difference.** Examines the processes and conditions that produce the systems of differences and privilege shaping our lived experiences. Critically analyzes the prevailing cultural ideologies surrounding class, race, gender, sexuality, and ability. Emphasizes awareness, respect, justice and resolution. Prer., SOC 111 or equivalent. Meets with WMST 325.

**SOC 329-3. Perspectives on Race and Ethnic Relations.** A survey of racism, discrimination, prejudice, and relationships between dominant and minority groups in selected areas of the world. Prer., SOC 220 or consent of instructor.

**SOC 330-3. Sociology of Sport.** Analysis of sport and its place in the culture life of contemporary societies. Focus on how sport and sport experiences are related to social development, social relations and major spheres of social life such as the economy, political order, education and religion. Prer., SOC 111 or consent of instructor. Meets with S L 400 and S L 500.

**SOC 331-3. Sociology of the Family.** The family as a social institution. Historical development and contemporary cross-cultural analysis with emphasis on the contemporary American family. Prer., 6 Hours of sociology.

**SOC 335-3. Sociology of Health and Illness.** This course examines the sociological dimensions of health and illness - how health issues are culturally framed; the impact of social position including race, class, and gender; and the social organization and power dynamics of health and healthcare institutions.

**SOC 340-3. Criminology.** A basic survey course in criminology. The nature and development of law, theories of causation, empirical studies, crime, delinquency, courts, police, and corrections are studied. Approach is multidisciplinary.

**SOC 341-3. Sociology of Law.** Emphasis is on the sociology of law, and the "new criminology" the criminal justice system is analyzed principally from the sociological viewpoint.

**SOC 357-1 to 3. Field Experience in Sociology.** Opportunity to obtain academic credit for directed learning in an ongoing social organization. The experience may

be paid or volunteer. It is the principle responsibility of the student to obtain access to an appropriate placement. One hour of credit may be earned for each three hours a week of experience, up to a maximum of three credit hours.

**SOC 360-3. Introduction to Social Psychology.** A survey of the field of social psychology, with an emphasis on socialization, relationships, self-concept, and identity. Prer., SOC 111 or consent of instructor.

**SOC 361-3. Gender and Society.** Examines the social construction of gendered difference and the consequences of that difference for individuals, relationships, social institutions, and society in general. The course emphasizes critical analysis and encourages personal contribution. Prer., 6 hours of sociology or consent of instructor. Meets with WMST 361.

**SOC 364-3. Sociology of Popular Culture.** Survey of critical approaches to leisure popular culture. Specific topics may include advertising, television, music, sport, subcultures and the body in popular culture. Prer., SOC 111.

**SOC 401-3. Special Topics in Sociology.** Offered to allow intensive study in a specific area on a "demand" basis. Meets with SOC 526.

**SOC 404-3. Sociology of Gender and Sexuality.** Examines historical and contemporary theories of gender and sexuality; the course is structured around questions which consider the relationship between masculinities/femininities, ideologies of the family, and the politics of sexuality. Prer., SOC 225 or WMST 200. Meets with WMST 404.

**SOC 408-3. Sociology of Men's Lives.** This class undertakes a critical exploration of men and masculinities, exploring men as gendered beings. It explores manhood as a social construct, both historically and cross-culturally, and provides an overview of theories of male gender role development as well as a variety of topics including power and patriarchy; race, class and sexuality; men in families; work; violence; health; friendship and intimacy; men's movements; and the growing field of men's studies. Meets with WMST 408.

**SOC 409-3. Research Practicum.** Practical experience in application and principles of research design and data processing to a social research problem selected by instructor. Prer., SOC 507 or consent of instructor.

**SOC 415-3. Social Theory II.** Explicit focus on contemporary social theory and the sociology of knowledge, with special attention to the proposed nature of the

relationship between knowledge and reality. Prer., SOC 315.

**SOC 417-4. Advanced Statistics and Methods.** Designed to provide student competence in the appropriate use and interpretation of statistical techniques through multivariate analysis. Advanced research methodology is also introduced. Instruction in the use and application of the SPSS computer program package is stressed. Includes practice in assessing and analyzing large scale databases available on internet. Prer., SOC 317. Meets with SOC 517.

**SOC 418-3. Community Organization and Analysis.** Study of community variables; economic, cultural, political and social. Comparative analysis of race, class, gender, and ethnicity in community settings and review of a range of research methods. Prer., Upper division social science major.

**SOC 419-3. Deviant Behavior.** An examination of the definition, nature, perspectives and theories, consequences, and social control of deviant behavior. Various forms of problematic deviant behavior will be examined such as drug abuse, alcoholism, mental illness, suicide, and crime. Prer., SOC 111 or consent of instructor.

**SOC 420-3. Sociology of Poverty.** Consideration of structural origins of poverty; the underclass and the dual economy. Analysis and evaluation of consequences of poverty, especially in relation to family, children, and career. Review of antipoverty programs.

**SOC 422-3. Sustainable Urban Development.** Study of theories and practical applications of sustainable urban development at the local, regional, national, and international levels. Focuses on the sociological dimensions of urban sustainability including social, racial and regional inequalities, power structures, and ideology. Course emphasizes fieldwork and collaborative learning in local settings. Prer., Consent of instructor. Meets with SOC 522.

**SOC 431-3. Social Inequalities.** An examination of social inequalities and the process of social stratification in various social systems (small groups, formal organizations, communities, and societies) with emphasis on the American class system. Economic, status, and power differentials will be explored as well as life styles, life chances, class correlates, and social mobility. Prer., 6 hours of sociology or consent of instructor. Meets with SOC 531 and WMST 431.

**SOC 432-3. Religion in Society.** Examination of religion as a social and cultural institution; impacts for

communities and for society; shaping of religious identities, values, and practices; the role of religion in social control, social conflicts, and social change. Prer., 6 hours of sociology or consent of instructor.

**SOC 433-3. Sociology of Education.** Analysis of the school as a social organization. Among the topics considered are power and control in the school; classroom organization and procedures and their relation to learning and personality development in children; role of educators; and reciprocal relations of school and community. Prer., 9 Hours of sociology.

**SOC 434-3. Political Sociology.** Analysis of the political order by means of specific sociological theory and method to relate power to social contexts, structural forms, and behavioral patterns. Prer., SOC 111 or consent of instructor.

**SOC 435-3. Formal Organization.** An examination of the nature and types of formal organizations; their growth and development; the connections between them and the larger social context of which they are a part; and of various aspects of their internal structure, such as peer group and hierarchical relations, bureaucracy, processes of communication, management, and impersonal mechanisms of control. Prer., 6 Hours of sociology. Meets with SOC 535.

**SOC 437-3. Technology, Media, and Society.** A description and analysis of changing social structures and social relationships as a response to technological innovation and change. Emphasis also given to the role of technology in the development of selected countries outside the United States. Prer. 9 hrs. of sociology including SOC 317.

**SOC 438-3. Globalization and Development.** Analyzes societies and cultures in light of increasing global interdependency. Studies the interaction between local and global levels in the development process and impacts on areas such as economic organization, technology, environments, political systems, transnational organizations, and everyday life. Comparison of alternative responses to globalization and development.

**SOC 440-3. Contemporary Social Movements.** Examination of the impact of social movements on the political, social and cultural practices of contemporary society. The course includes a brief review of the 'movement politics' of the 1960's, contrasts these to the labor movement and other historical predecessors, with major attention devoted to the infusion of social movement practices and technology into the 'mainstream' structures of power and organization.

**SOC 443-3. Social Work Practice with Individuals and Families.** Public welfare services including problems involved in reconstructing personalities and improving relationships between them; the scope of social case work; and social worker as visiting teacher, family case worker, and investigator in other fields. Prer., Upper division social science major. Meets with SOC 543.

**SOC 446-1 to 6. Field Studies in Sociology.** Field based investigation of specific aspects of society, communities or social contexts. Topic and credit vary. Prer., Consent of instructor.

**SOC 450-4. Applied Sociology: Organizational Applications.** Includes 1 credit hour for class related field experience. Applying critical analysis, social theory, social research methods to individual, organizational, and community problems. Participants work on projects involving problem assessment, development and implementation of plans and programs, and evaluation of outcomes.

**SOC 451-3. Community Development Field Work.** Students will be involved in community settings and learn to identify issues in terms of causes and develop proposals of action that might enhance community organization and structure. Pass/Fail only.

**SOC 452-3. Sociology of Corrections and Rehabilitation.** Reviews programs demonstrated as effective in reducing criminal and delinquent behavior. Examines social, psychological and behavioral problems that influence intervention within custodial settings in comparison to community based alternatives. Meets with SOC 552.

**SOC 456-3. Internship in Applied Sociology.** Participate in supervised activities in a structured program to facilitate learning in conjunction with concurrent cognate course. One hour class time per week plus 3 hours internship for each one hour of credit. Prer., Must be an upper division social science major. Meets with SOC 556.

**SOC 461-3. Youth and Society.** Adolescence in primitive, traditional, and modern society, with special emphasis on the contemporary United States. The possible existence of a "youth culture" is investigated. The relationship between social climates and individual academic orientations, dating patterns, etc., is analyzed. Prer., 6 Hours of sociology or consent of instructor.

**SOC 462-3. Sociology of Aging.** Examination of the aging process in American society. Focus on development

from late adolescence through old age and death. Meets with GRNT 462.

**SOC 463-3. Social Self and Identity.**

Focus on processes through which we develop a concept of who we are and how we are socially connected with others; examine connections between social and cultural context and how we identify ourselves and other people and make identity claims in relationships.

**SOC 465-3. Sociology of Mental Illness.**

A study of the nature, history, perspective and theories, and social control of mental illness. Societal factors related to the prevalence and labeling of mental illness, prepatient and mental hospital patient experiences, contemporary mental health facilities and public policies will be examined. Prer., SOC 111 or consent of instructor.

**SOC 467-3. Sociology of Death and Dying.**

Study of mortality, who dies and how, the experience of dying, and ethical and political issues related to life and death. Also includes study of the hospice ideal, social and cultural norms regarding death, and the disruption of interpersonal relationships.

**SOC 480-3. Sociology of the Military.**

Sociological perspective on the organization and function of the military, considered as a social institution. Prer., 9 Hours of social science.

**SOC 496-3. Juvenile Delinquency.**

Factors involved in delinquent behavior. Problems of adjustments of delinquents and factors in treatment and post-treatment and adjustment.

**SOC 501-1 to 3. Seminar: Special Topics in Sociology.** Prer., Consent of instructor and graduate status. Meets with SOC 401.

**SOC 502-1. Proseminar: Social Statistics.** An intensive introduction to basic and intermediate statistics for graduate students.

**SOC 503-1. Proseminar: Social Theory.** An intensive study of social theory for selected students entering the graduate program.

**SOC 504-3. Sociology of Gender and Sexuality.** Examines historical and contemporary theories of gender and sexuality; the course is structured around questions which consider the relationship between masculinities/femininities, ideologies of the family, and the politics of sexuality. Meets with SOC 404.

**SOC 505-1. Proseminar in Sociology.** Introduction to professional sociology for graduate students. Course will explore careers in sociology and discuss research, teaching, and publishing as

the relationship between academics and applied work. Prer., Graduate student in Sociology.

**SOC 507-4. Seminar: Research Methods.** Problems and procedures of research design and data processing in social research. Topics covered include role of theory in research, concept formulation, design of proof and hypothesis, testing, schedule construction, sampling, interviewing, scaling techniques, analysis procedure and report preparation. Includes some limited participation in conducting research. Prer., SOC 317.

**SOC 509-3. Research Practicum.** Practical experience in application and principles of research design and data processing to a social research problem selected by the instructor. Prer., SOC 507 or consent of instructor.

**SOC 514-3. Seminar: Applied Sociology.** Exploration of the role of sociology and the sociologist in relation to the solution of social issues and problems. Addresses the questions of knowledge for what and for whom and assesses the possibility of a relevant social science. Meets with SOC 450.

**SOC 515-3. Seminar: Social Theory I.** A review of the major sociological theorists of the 20th century. Will consider the major works of such pre-World War II writers as Emile Durkheim and Max Weber and the post war work of Merton and others.

**SOC 516-3. Seminar: Social Theory II.** Explicit focus on continuing social theory and the sociology of knowledge, with special attention to the proposed nature of the relationship between knowledge and reality. Prer., SOC 315.

**SOC 517-4. Advanced Statistics and Methods.** Designed to provide student competence in the appropriate use and interpretation of statistical techniques through multivariate analysis. Advanced research methodology is also introduced. Instruction in the use and application of the SPSS computer program package is stressed. Includes practice in assessing and analyzing large scale databases available on the internet. Prer., SOC 317. Meets with SOC 417.

**SOC 518-3. Community Organizations and Analysis.** Study of community variables; economic, cultural, political and social. Comprehensive analysis of race, class, gender, and ethnicity in community settings and review of a range of research methods.

**SOC 519-3. Seminar: Deviant Behavior.** An examination of the various

perspectives, theories, and research on deviant behavior and its control.

**SOC 522-3. Sustainable Urban Development.** Study of theories and practical applications of sustainable urban development at the local, regional, national, and international levels. Focuses on the sociological dimensions of urban sustainability including social, racial and regional inequalities, power structures, and ideology. Course emphasizes fieldwork and collaborative learning in local settings. Prer., Consent of instructor. Meets with SOC 422.

**SOC 526-3. Seminar: Urban Sociology.** Intensive examination of the social and cultural organization of the urban complex. History, contemporary growth, and future of the city are major perspectives; cross-cultural aspects of urban development also are emphasized.

**SOC 531-3. Seminar: Social Inequalities.** A critical analysis of the perspectives, theories, and research in the field of social stratification with emphasis on the American class system. Meets with SOC 431 and WMST 431 and EMST 401 SEC 002.

**SOC 534-3. Seminar on Sociology of Politics.** Analysis of the political order by means of specific sociological theory and method to relate power to social contexts, structural forms, and behavioral patterns.

**SOC 540-3. Social Psychology.** Sociological approaches in the study of the self, role theory, persons in situations, identifications, socialization, and other characteristics of persons in society. Studies of group processes bearing upon personality processes.

**SOC 546-1 to 6. Field Studies in Sociology.** Field based investigation of specific aspects of society, communities or social contexts. Topic and credit vary. Prer., Consent of instructor.

**SOC 552-3. Sociology of Corrections and Rehabilitation.** Reviews programs demonstrated as effective in reducing criminal and delinquent behavior. Examines social, psychological and behavioral problems that influence intervention within custodial settings in comparison to community based alternatives. Meets with SOC 452.

**SOC 555-3. Seminar: The Family.** Recent trends in research and theory with emphasis on the American family in a comparative perspective. Family function and dysfunction will be considered.

**SOC 556-3. Internship in Applied Sociology.** Participate in supervised activities in a structured program to facilitate learning in conjunction with

concurrent cognate course. One hour class time per week plus 3 hours internship for each one hour of credit. Meets with SOC 456.

**SOC 564-3. Seminar: Power and Privilege.** Course focuses on privilege, power, and the intersections of race, class, gender and sexuality. Focusing on privilege provides us with a fuller understanding of oppression and the dynamics of inequality. This course explores the complicated ways in which race, gender, class and sexuality interact and impinge upon each other in our own lives, the lives of others, across the U.S. culture and social institutions.

**SOC 583-1 to 3. Seminar: Race and Ethnic Relations.** A rigorous examination of macro-level theory in race/ ethnic relations and its applicability both to race/ ethnic relations case studies drawn from a number of societies and to the general topics of ethnic communities, protest and change, assimilation, prejudice-discrimination, and contemporary social policies.

**SOC 590-3. Seminar: Analysis of Criminal Justice.** Analysis of the policies and practices of agencies involved in the criminal justice process. Comparison of due process and crime control models; of social and legal justice; and decision making and discretion. Prer., Graduate standing. Meets with C J 5100.

**SOC 594-3. Seminar: Sociology of Law.** Analysis of legal procedures encountered by juvenile and adult offenders, and the effect of these procedures on goals.

**SOC 595-3. Seminar: Criminology.** Theories of causation of crime as a social phenomenon theories of rehabilitation and disposition of cases. Meets with C J 5120.

**SOC 700-1 to 6. Masters Thesis.**

**SOC 940-1 to 4. Independent Study in Sociology: Undergraduate.** In order to obtain an independent study course, the student must submit a written description of learning objectives and procedures to a full-time faculty member. Each faculty member may supervise a maximum of three students per semester. This course is specifically to allow individual students to study intensively in areas which are within the fields of specialization of faculty members but not offered as a regular part of the course curriculum. Offered annually.

**SOC 950-1 to 3. Independent Study in Sociology: Graduate.** In order to obtain an independent study course, the student must submit a written description of learning objectives and procedures to a full-time faculty member. Each faculty member may supervise a maximum of

three students per semester. This course specifically allows individual students to study intensively in areas which are within the fields of specialization of faculty members but not offered as a regular part of the course curriculum.

**SOC 999-0. Candidate for Degree.**

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## SPANISH

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**SPAN 101-5. Beginning Spanish I.** Essentials of Spanish, oral-aural skills stressed with additional reading, writing, and grammar.

**SPAN 102-5. Beginning Spanish II.** Essentials of Spanish continued. Additional oral-aural skills practice with increased grammar, reading, and writing. Prer., SPAN 101 or its equivalency.

**SPAN 211-3. Intermediate Spanish I.** Spanish at the intermediate level with concentration on conversation, culture, and civilization or literature at that level. Prer., SPAN 102 or its equivalency.

**SPAN 212-3. Intermediate Spanish II.** An intermediate Spanish course continuing conversational usage and cultural integration utilizing contemporary materials, newspapers, etc. Prer., SPAN 211 or its equivalency.

**SPAN 213-3. Applied Conversation.** Conversation at the intermediate level on contemporary topics in Spanish culture. Prer., SPAN 102 or its equivalency.

**SPAN 216-3. Intermediate Grammar.** The structure and application of written and spoken language at the intermediate level. Prer., SPAN 102 or its equivalency.

**SPAN 292-3. Spanish for Health Profession.** The vocabulary and usage of the world of health care. Applied language and cultural values of Latino cultures. Prer., SPAN 212 or its equivalency.

**SPAN 293-3. Business Spanish.** The vocabulary and usage of the world of finance and commerce. Applied business correspondence, marketing and accounting terminologies. Prer., SPAN 212 or its equivalency.

**SPAN 300-3. Spanish Grammar.** A course designed to review intensively the functional application of modern Spanish. A skill-development approach featuring compositions based on material encountered in everyday conversational situations and the media. Prer., SPAN 212 or equivalency certificate.

**SPAN 301-3. Spanish Conversation and Composition I.** Practice in conversation with emphasis on pronunciation and diction together with exercises in oral and written composition. Prer., SPAN 300 or

consent of instructor.

**SPAN 302-3. Spanish Conversation and Composition II.** Practice in conversation with emphasis on formal oral and written composition, including academic essays. Prer., SPAN 300.

**SPAN 310-3. Literary Analysis.** Students read different genres - narrative, essay, short story, drama and poetry to facilitate the acquisition of critical skills in the identification of basic ideological and formalistic issues within texts being studied. Prer., SPAN 300.

**SPAN 319-3. Introduction to Hispanic Literature I.** Introduction to literary form and expression through selected masterpieces of Peninsular, Hispanic American and U.S. Latino literatures - essay, short story, and novel. Prer., SPAN 310 or its equivalency.

**SPAN 320-3. Introduction to Hispanic Literature II.** Introduction to literary form and expression through selected masterpieces of Peninsular, Hispanic, American and US Latino Literatures, poetry and drama. Prer., SPAN 310 or its equivalency.

**SPAN 323-3. Applied Conversation.** Conversation at the advanced level on contemporary topics in Spanish culture. Prer., SPAN 212 or its equivalency.

**SPAN 325-3. Hispanic Culture Studies.** Cultural history of Spain. Readings of selected masterworks with discussion about art, music, architecture, folklore, and customs. Taught in Spanish. Prer., SPAN 300.

**SPAN 336-3. Hispanic Short Story.** Readings and discussions of first-rate Hispanic short stories with which to build reading and verbal skill on an intermediate level. Provides a wide variety of language learning experiences. Prer., SPAN 310 or its equivalency.

**SPAN 337-3. The Latin American Essay.** Readings from essay. Writings from the conquest to contemporary society including Las Casas, Sarmiento, Hostos, Sierra, Gonzalez, Prada, Rodo, Paz. Prer., SPAN 310.

**SPAN 349-1 to 3. Internship in Applied Spanish.** The Language and Culture department will offer to advanced language students the opportunity to apply their knowledge in settings such as schools, social support agencies, etc. May be repeated up to three times for credit. Prer., Departmental permission.

**SPAN 369-3. Hispanic Culture Through Film.** The cinematic manifestations of the richness and the variety of Hispanic culture as expressed through an artistic and humanistic vision. May be repeated



once provided the topic is different. Prer., SPAN 300 for Spanish majors/minors only. Meets with F CS 369 and FILM 369.

**SPAN 391-1 to 3. Spanish Theatre Workshop.** A theatre practicum in Spanish stressing proper diction, articulation, and pronunciation as well as active involvement in public presentation of selected dramatic writers. Prer., SPAN 310.

**SPAN 392-3. Advanced Spanish for Health Care.** Advanced study of the vocabulary, language and cultural values of Latino cultures for the health care professional. Prer., SPAN 292.

**SPAN 393-3. Advanced Business Spanish.** Advanced study of the vocabulary and usage of the world of business and commerce. Prer., SPAN 293.

**SPAN 401-3. Advanced Spanish Communication I.** Designed to improve written expression Spanish. Detailed study of the nuances of grammar. Attention given to points most difficult for students, to composition skills, and to various styles of written Spanish. Prer., SPAN 302 or permission of instructor.

**SPAN 403-3. Advanced Conversation and Composition.** Active involvement in the oral and written discussion of relevant contemporary themes: urban life, prejudice, cultural conflict, machismo and marianismo, etc. Weekly short compositions and presentation. Interaction with native informants. Prer., SPAN 302. Meets with SPAN 503.

**SPAN 411-3. Women in Hispanic Literature.** An overview of Hispanic women as seen by Hispanic male and female writers; may be included as part of women's studies program. Prer., SPAN 310 or its equivalency. Meets with Span 511.

**SPAN 415-3. Masterpieces of Spanish Literature.** Masterworks of major Spanish authors: readings and discussions. Prer., SPAN 310 or its equivalency.

**SPAN 421-3. Hispanic Heritage of Colorado.** The study of the history and traditions of Hispanics in the state from the 16th century to the present. Meets with F CS 421.

**SPAN 425-3. The Cultural Heritage in Latin America.** The historical, cultural and political currents in Latin America beginning with Pre-Colombian indigenous cultures and continuing to the present. Prer., SPAN 300. Meets with SPAN 525.

**SPAN 428-3. Generation of 1898.** Reading and discussion of selected works by Unamuno, Baroja, Valle-Inclán, Azorín, and A. Machado. Study of

the significance of this celebrated generation's contribution to Hispanic literature and thought. Prer., SPAN 310 or its equivalency. Meets with SPAN 528.

**SPAN 440-3. Topics in Contemporary Literature.** Selected topics in Spanish or Latin American literature. Contents will vary according to the instructor and the research interests of the class. Possible themes include post World War II novelists, the boom, post-Franco Spanish drama and Cuban American writers. May be repeated once for credit if the topic is different. Prer., SPAN 310 or its equivalency. Meets with SPAN 540.

**SPAN 442-3. Hispanic/Latino US Literature.** Study of the works of the leading Chicano, Puerto Rican, and Cuban-American writers in the United States. Taught in Spanish. Prer., SPAN 310 or consent of instructor. Meets with SPAN 542 and EST 442.

**SPAN 443-3. Hispanic US Drama.** Theatrical work of Chicano, Puerto Rican and US Cuban writers including Valdes, Pinero, Munoz and Morton. Taught in Spanish. Prer., SPAN 310. Meets with SPAN 543 and EST 443.

**SPAN 444-3. Hispanic, Chicano, and Mexican-American Literature.** The literary manifestation individuals of Mexican origin in theater, prose, and poetry. Taught in Spanish. Prer., SPAN 310. Meets with SPAN 544 and EST 444.

**SPAN 445-3. US Cuban Literature.** Since 1960, and even in the 19th century, Cubans migrated to the US and began to write poems, essays, fiction, and theater; a study of these works. Taught in Spanish. Prer., SPAN 310. Meets with SPAN 545 and EST 445.

**SPAN 451-3. Contemporary Hispanic American Literature.** Reading and discussion of contemporary Hispanic American masterworks. Prer., SPAN 310 or its equivalency. Meets with SPAN 551.

**SPAN 461-3. Latin American Authors.** Bilingual. Reading and discussion of selected material. Prer., Good command of Spanish.

**SPAN 462-3. Don Quijote I.** Background and study of the first part of Cervantes' Don Quijote (1605); the 52 chapters. Prer., SPAN 310.

**SPAN 463-3. Don Quijote II.** Background and study of the second part of Cervantes' Don Quijote (1615). Prer., SPAN 462 or its equivalency.

**SPAN 465-1. Spanish or Latin American or Chicano Authors.** Offered as three five-week mini-courses (each course carrying 1 credit). This course sequence

will deal with three engaging writers of either Spanish or Latin American or Chicano masterpieces. Students are encouraged to take the entire three-course sequence, which will be offered during the regular semester in successive segments during the same day/time block. See the schedule of courses for specific topics. Prer., SPAN 310 or its equivalency. Meets with SPAN 565.

**SPAN 466-1. Spanish Authors-Poetry.** Offered as three five-week mini-courses (each course carrying one credit). This course sequence will deal with three engaging writers of either Spanish or Latin American or Chicano masterpieces. Students are encouraged to take the entire three-course sequence, which will be offered during the regular semester in successive segments during the same day/time block. See schedule of courses for specific topics. Prer., SPAN 310 or its equivalency. Meets with SPAN 566.

**SPAN 467-1. Spanish Authors-Drama.** Offered as three five-week mini-courses (each course carrying 1 credit). This course sequence will deal with three engaging writers of either Spanish or Latin American or Chicano masterpieces. Students are encouraged to take the entire three-course sequence, which will be offered during the regular semester in successive segments during the same day/time block. See the schedule of courses for specific topics. Prer., SPAN 310 or its equivalency. Meets with SPAN 567.

**SPAN 497-3. Senior Seminar: Spanish.** Required capstone course for graduate with a major in Spanish. Monographic study of a period, author, genre or topic. Prer., Five previous literature courses. Consent of instructor. Senior status only.

**SPAN 511-3. Women in Hispanic Literature.** Prer., Graduate status. Meets with Span 411.

**SPAN 516-3. Masterpieces of Hispanic American Literature.** Advanced work beyond the SPAN 416 course. Prer., Graduate status. Meets with SPAN 416.

**SPAN 525-3. Cultural Heritage in Latin America.** The historical, cultural and political currents in Latin America beginning with Pre-Columbian indigenous cultures and continuing to the present. Prer., Graduate status. Meets with SPAN 425.

**SPAN 528-3. Generation of 1898.** Reading and discussion of selected works by Unamuno, Baroja, Valle-Inclán, Azorín and A. Machado. Study of the significance of this celebrated generation's contribution to Hispanic literature and thought. Prer., Graduate status. Meets with SPAN 428.

**SPAN 541-3. Modernism.** Study of Spanish-American literary movement of late 19th century. Additional work required beyond the SPAN 441 level. Prer., Graduate status.

**SPAN 542-3. Hispanic/Latino US Literature.** Study of the works of the leading Chicano, Puerto Rican, and Cuban-American writers in the United States. Advanced work beyond SPAN 442. Taught in Spanish. Prer., Graduate status. Meets with SPAN 442 and EST 442.

**SPAN 543-3. Hispanic US Drama.** Theatrical work of Chicano, Puerto Rican, and US Cuban writers including Valdes, Pinero, Munoz, and Morton. Taught in Spanish. Prer., Graduate status. Meets with SPAN 443 and EST 443.

**SPAN 544-3. Hispano/Chicano/Mexican American Literature.** The literary manifestation of individuals of Mexican origin theater, prose and poetry. Taught in Spanish. Prer., Graduate status. Meets with SPAN 444 and EST 444.

**SPAN 545-3. US Cuban Literature.** Since 1960, and even in the 19th century, Cubans migrated to the US and began to write poems, essays, fiction and theater. Taught in Spanish. Prer., Graduate status.

**SPAN 551-3. Contemporary Hispanic American Literature.** Advanced work beyond the SPAN 451 course. Prer., Graduate status. Meets with SPAN 451.

**SPAN 561-3. Latin American Authors.** Three Latin American authors: Luisa Valenzuela, Isabel Aslant, and Marta Trapa. Reading and discussion of selected material. Advanced work beyond SPAN 461 course. Prer., Graduate status.

**SPAN 562-3. Don Quijote I.** Background and study of the first part of Cervantes' Don Quijote (1605) the 52 chapters. Prer., Graduate status.

**SPAN 563-3. Don Quijote II.** Background and study of the second part of Cervantes' Don Quijote (1615). Prer., Graduate status.

**SPAN 565-1. Spanish or Latin American or Chicano Authors.** Offered as three five-week minicourses (each course carrying 1 credit). Course sequence will deal with three writers of either Spanish, Latin American, or Chicano masterpieces. Students are encouraged to take the entire three-course sequence, which will be offered during the regular semester in successive segments during the same day/time block. See Schedule of Courses for specific topics. Advanced work beyond SPAN 465, 466, 467 level. Prer., Graduate status. Meets with SPAN 465.

**SPAN 566-1. Spanish Authors Poetry.** Offered as five three-week minicourses (each course carrying 1 credit). Course sequence will deal with three writers of either Spanish or Latin American or Chicano masterpieces. Students are encouraged to take the entire three-course sequence, which will be offered during the regular semester in successive segments during the same day/time block. See Schedule of Courses for specific topics. Prer., Graduate status. Meets with SPAN 466.

**SPAN 567-1. Spanish Authors - Drama.** Offered as three five week minicourses (each course carrying 1 credit). Course sequence will deal with three writers of either Spanish or Latin American or Chicano masterpieces. Students are encouraged to take the entire three-course sequence, which will be offered during the regular semester in successive segments during the same day/time block. See Schedule of Courses for specific topics. Advanced work beyond the SPAN 465, 466, 467 level. Prer., Graduate status. Meets with SPAN 467.

**SPAN 920-1 to 4. Independent Study in Spanish.** May be repeated up to three times for credit. Prer., Consent of instructor.

**SPAN 930-1 to 4. Independent Study in Spanish.** May be repeated up to three times for credit. Prer., Consent of instructor.

**SPAN 940-1 to 4. Independent Study in Spanish.** Independent work for undergraduates only. By special arrangement with the faculty. Only for students presenting strong Spanish preparation. May be repeated up to three times for credit. Prer., Consent of instructor.

**SPAN 950-1 to 4. Independent Study in Spanish: Graduate.** Independent work for graduate students only, by special arrangement with the faculty. May be repeated up to three times for credit. Prer., Graduate status.

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## THEATRE

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**THTR 100-3. Introduction to Theater.** An introduction to the art and practice of theatre, including acting, directing, playwrighting, scenic and lighting design. Course includes required attendance at theatre productions.

**THTR 200-3. Introduction to Technical Theatre.** An introduction to scene design, stage lighting, and all the fundamentals of technical theatre. Students will actively participate in university stage production. May be taken as an alternative to THTR 100.

**THTR 201-1. Stagecraft Laboratory.** A hands-on practicum in stagecraft. Students will be given specific responsibilities in production work. Required of all students taking THTR 233 or 234.

**THTR 202-3. Acting Workshop I.** An introduction to stage acting, with an emphasis on theatre games designed to develop imagination and concentration. Several physical and improvisational exercises and a basic approach to character development.

**THTR 203-3. Acting Workshop II.** Continuation to THTR 202, designed for those who have completed 202 or who have had previous acting experience. Increased emphasis on character development and scene work. Prer., THTR 202 or consent of instructor.

**THTR 204-3. Voice and Articulation I.** Special training of the voice. Topics include breathing techniques, voice quality, projection, articulation, and basic IPA (International Phonetic Alphabet). Prerequisite for THTR 304-Voice and Articulation II.

**THTR 250-3. Movement for the Actor.** Focuses on the physical training of the actor. Stage combat, period movement, mask work, and various character development work will be explored. Performance required in either Fall Student Showcase or Spring Festival.

**THTR 260-3. Theatre for Children.** A lecture and practicum in Children's Theatre and educational theatre techniques. Various sources examined for dramatizing: children's stories, fairy tales, poems, and existing scripts. Recommended for actors and soon-to-be educators. Fall only. Prer., THTR 100.

**THTR 280-2. Theatre Tour.** Class will travel to a major city (London, New York) to attend stage productions. Readings, discussion, and written assignments organized around productions chosen. Additional fees.

**THTR 290-3. Special Topics in Theatre.** Topics will vary from year to year, and may be taught by guest instructors.

**THTR 302-3. Advanced Acting Studio I.** Intensive studio work on scenes and monologues with increased attention to movement and voice. Focus is on period styles of performance. Prer., Open ONLY to those who have completed THTR 203, or by special audition and permission of instructor PRIOR to first day of class. Performance required in Fall Student Showcase.

**THTR 303-3. Advanced Acting Studio II.** A continuation of THTR 302, or by special permission of the instructor. Students will

study, research, and perform a variety of works by one or two playwrights. Class will culminate with a performance project to be showcased in the Spring Student Theatre Festival. Prer., THTR 202, THTR 203, and THTR 302.

**THTR 304-3. Voice and Articulation.** Continuation of the THTR 204. Intense study of Edith Skinner's vocal technique and the IPA. Introduction of dialects and voice-over commercial work. Prer., THTR 204 or permission of instructor.

**THTR 310-3. On-Camera Performance.** An introduction to skills necessary for communicating through a camera, to include basic acting techniques. This is a studio course which will involve on-camera experiences with commercial copy, commentary, news copy, dramatic scenes and industrial copy.

**THTR 320-3. History of Theater I: Greeks through Restoration.** The basic development of theatre from the Greeks through Restoration. The emphasis is on theatre as a performance art. Satisfies a General Humanities requirement.

**THTR 321-3. History of Theater II: Realism to the Present.** The development of theatre from Realism (Henrik Ibsen) to the present. Examination of 19th and 20th century drama in Europe and America, with emphasis on Contemporary theatre. Satisfies a General Humanities requirement.

**THTR 322-3. What's Funny? The Nature and Form of Dramatic Comedy.** An advanced survey of dramatic comedy from ancient times to the present with particular emphasis on continuity of routines, comic acting, and variety of comic forms.

**THTR 328-3. Women in Theatre.** An exploration and examination of women's history of, participation in, and contributions to the performing arts as actresses, playwrights, directors, theorists. Combining theory and practice, each semester the students will prepare a staged reading of a female-authored text.

**THTR 336-1 to 6. Theatre in Production: Technical Practicum.** Participation and technical assistance in the spring student production and the Student Theatre Festival. Enrollment by permission of instructor only. Prer., THTR 200 or permission of instructor. Meets with THTR 200.

**THTR 338-1 to 6. Shakespeare in Production.** Special production-related projects in conjunction with the Theatreworks Summer Shakespeare Festival. Enrollment by permission of instructor only. Prer., THTR 100.

**THTR 339-1. Theatre Practicum.** Students will receive practical experience as an actor or technician on a student production. Enrollment by audition and/or permission of instructor only. Meets with THTR 439.

**THTR 350-3. Theatre for Children.** A seminar and practicum in Children's Theatre. Students examine various sources for dramatizing children's stories, fairy tales, poems, and existing scripts. Course includes a full production to be toured to area schools. Recommended for actors and soon-to-be teachers. Prer., THTR 100 and 203/Special permission and/or by audition.

**THTR 360-3. The World of the Play.** Students in this course will be involved in interdisciplinary studies clustered around a TheatreWorks major production. Topics considered may include visual arts, music, history, literature, science, technology and philosophy relevant to the world of the designated play.

**THTR 390-3. Special Topics in World Theater.** Varying topics relating to theory, practice, and text of world theater. May be repeated for credit if topic is different. Meets with THTR 337.

**THTR 403-1 to 3. Internship in Theatre.** Designed theatrical experiences involving specific application of relevant concepts and skills in supervised professional situations. Pass/Fail only. Prer., Permission of Program Director.

**THTR 406-3. Directing I.** An introduction to directing for the stage. Exploration of various staging techniques and the essential technical areas (lights, sound and design) as well as intense script analysis. Prer., THTR 100 and/or THTR 203.

**THTR 407-3. Directing II.** A seminar and practicum in directing for the stage. Students will apply learned techniques from THTR 406 by directing one-act plays, which will be performed in the Spring Student Theatre Festival. Prer., THTR 406.

**THTR 420-3. Special Topics in Dramatic Literature.** Varying topics related to the history of dramatic literature. May focus on a particular playwright, genre, or period. May be repeated for credit if topic is different.

**THTR 439-1 to 3. Theatre Practicum.** Provides practical experience as a director for a student production. Enrollment by audition and/or permission of instructor only. Prer., THTR 406, THTR 407, or permission of instructor. Meets with THTR 339.

**THTR 940-1 to 6. Independent Study in Theatre.** Independent study in theatre

history, production or performance by permission of department chair.

## VISUAL ARTS

**V A 101-3. Beginning Studio 2D.** Explores the essential concepts used in the creation of two-dimensional art, including composition and color theories. Prerequisite to all 200, 300 and 400 level V A courses.

**V A 102-3. Beginning Studio 3D.** A basic course in fundamental three-dimensional concepts and processes of form, space, and 3D construction techniques. Prerequisite to all 200, 300 and 400 level V A courses.

**V A 104-3. Beginning Drawing.** Explores the principles of line, form, and space in a variety of drawing techniques and media. Concentration on still life subject matter with some drawing of the human model.

**V A 201-3. Intermediate Drawing.** Continuation of the study of line, form, and space in a variety of drawing media with emphasis on the nude model. Prer., V A 104 or consent of instructor.

**V A 202-3. Printmaking.** Introduction to selected printmaking techniques, including silkscreen, Xerox, intaglio, and etching. Specific content will be determined by instructor.

**V A 204-3. Beginning Oil Painting.** Introduction to oil painting concentrating on technique and composition development. Prer., V A 101 or A H 100.

**V A 206-1 to 3. Two-Dimensional Topics.** Various 2D approaches and processes across a broad spectrum of the arts. Specific content will be determined by the instructor. Meets with V A 306.

**V A 207-1 to 3. Three-Dimensional Topics.** Various mixed media approaches and processes concentrating on structural form. Specific content will be determined by instructor.

**V A 208-3. Beginning Wood Sculpture.** Introduction to wood sculpture.

**V A 209-3. Textiles.** Introduction to various non-loom fiber processes, including sewn forms, crochet, knotting, net-making, and hand-made felt. Meets with V A 309.

**V A 210-3. Digital Imaging.** Introduction to digital media and the process of editing through the examination of multiple software programs. An inquiry into the four fundamentals of media and time-based art: Text, graphics, audio, and video. Prer., V A 101 or consent of instructor.

**V A 211-3. Introduction to Photography.** An overview of the history of photography

with an introduction to the techniques and concepts as they relate to the fine arts. Students will learn basic black and white film development and darkroom skills. Prer., V A 101 or permission of instructor.

**V A 212-3. Introduction to Artists' Books.** Students will explore various methods of book construction, including use of several media for page/cover design, as well as book-binding fundamentals. Prer., V A 101 and V A 102.

**V A 219-3. Weaving.** Introduction to the four-harness loom, including pattern drafting, 3D forms, and basic weaving techniques.

**V A 244-3. Papermaking.** Students will be taught to work with paper and pulp in the creation of handmade papers and related two-dimensional and three-dimensional objects.

**V A 301-3. Advanced Drawing.** Drawing with emphasis on development skills and concepts including work with a human model.

**V A 302-3. Advanced Printmaking.** Continuation of V A 202, with emphasis on experimentation and development of skills and concepts.

**V A 304-3. Advanced Painting.** Continuation of V A 204, with emphasis on development of skills and concepts in contemporary painting.

**V A 306-1 to 3. Two-Dimensional Topics.** Advanced 2D approaches and processes across a broad spectrum of the arts. Meets with V A 206.

**V A 307-1 to 3. Three-Dimensional Topics.** Advanced work with structural form in mixed media.

**V A 308-3. Advanced Sculpture.** Continuation of V A 208, with emphasis on development of skills and concepts in a variety of sculpture media.

**V A 309-3. Advanced Textiles.** Fiber sculpture using basic fiber construction principles and processes. Meets with V A 209.

**V A 310-3. Advanced Digital Imaging.** An exploration of electronic and time-based media as the primary tools for refining an individual approach to artmaking structured to address the integration, expansion, and deepening of a conceptual reference point. Prer., V A 210 or consent of instructor. Meets with V A 410.

**V A 311-3. Intermediate Photography.** A continuation of the study of black and white photography as a controlled creative art media. Prer., V A 211 or permission of instructor.

**V A 312-3. Intermediate Artists' Books.** Emphasis will be placed on the sculptural aspects of the book as an art object, including experimentation with a variety of media and formats. May meet with V A 212 or V A 412. Prer., V A 101, V A 102, and V A 212.

**V A 319-3. Advanced Weaving.** Continuation of V A 219, with both four and eight-harness loom work and concentration on 3-D form.

**V A 344-3. Advanced Papermaking.** A continuation of V A 244 with advanced processes and dyeing techniques.

**V A 398-3. Seminar in Studio Problems.** Required visual arts course emphasizing the thematic development, articulation of content, and consideration of processes necessary to complete a body of work reflecting personal expressiveness.

**V A 403-1 to 3. Internship in Visual Arts.** Supervised opportunities for advanced studio students to apply relevant concepts and skills in professional situations. Pass/Fail only. Prer., Permission of advisor.

**V A 410-3. Advanced Projects in Electronic Imaging.** Emphasizes the articulation of a personal aesthetic, independent project development, and advanced expertise in multiple programs. Prer., V A 310. Meets with V A 310.

**V A 411-3. Advanced Photography.** Exploration of advanced techniques and concepts dealing with the development of personal expression through photographic media. Prer., V A 311 or permission of instructor.

**V A 412-3. Advanced Artists' Books.** Intended for students with previous experience in the book arts. Emphasis will be placed on sculptural mixed media aspects of book construction and on unique personal expression in the book format. Prer., V A 312.

**V A 444-3. Contemporary Handmade Papermaking Techniques.** Supplemented with lectures on historical methods. Includes in-depth exploration of pulp varieties and coloring processes, as well as numerous three-dimensional possibilities.

**V A 498-3. Professional Seminar.** A required course for visual art majors. Preparation for a professional art practice including slide and digital portfolios, resumes, marketing and gallery representation, contracts, artist statements, grants, exhibition organization, legal liabilities and obligations, and graduate school applications.

**V A 940-1 to 4. Independent Study in Visual Art.** Independent Study in Visual Arts undergraduate. May be taken in any media with any full-time professor for up to 4 credit hours, by arrangement.

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## VISUAL AND PERFORMING ARTS

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**VAPA 100-3. Ethnography of Performing Arts.** Through the study of ethnography, students learn to describe, compare, and write about performance and cultural practices. Investigate performances from around the world, including ritual, spirit possession and staged dramas. Examine how performance creates meaning and shapes social life.

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## WOMEN'S STUDIES

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**WMST 131-3. A Lab of Her Own-Science and Women.** Introduction to natural science and its methods for non-science majors. It focuses on women's participation in both the formation of scientific concepts and the development of methodology. Modern concepts of science and mathematics with an emphasis on women's contributions to these fields will be presented. This course will also offer a feminist critique of the traditional methods of science. Meets with PES 131 and PHIL 131.

**WMST 200-3. Introduction to Women's Studies.** An interdisciplinary course designed to introduce students to theories, concepts, and debates through which women's historical, material, and cultural conditions have come to be understood. Considers these theories as they have developed within and across disciplines. Analysis of the intersections of Race, Class, Gender and Sexuality, i.e., the diversity Women's experience, is central to course consideration.

**WMST 201-3. Introduction to Race and Gender.** Through critical analysis, this course will examine race and gender in society. It will focus on how systems of inequality are maintained and perpetuated. A strong emphasis will be placed on the concept of social change. Meets with EST 201.

**WMST 215-3. Male and Female Communication.** A lecture/discussion approach to the study of contemporary theories and research in male/female communication. The course will involve reading and discussion in such areas as gender differences in self-perception, social and media images of men and women, language usage and nonverbal behavior differences between genders. Prer., COMM 102. Meets with COMM 215.

**WMST 224-3. Childhood Socialization.**

An examination of the process through which children define themselves as members of their culture. The influence of such "cultural communicators" as the family, school, television, day care, children's literature, games, toys and peer relations will be examined. Meets with SOC 224.

**WMST 225-3. Images of Women in Society.**

Study of the images of women in American society, relating these stereotypes to actual conditions and experiences of women. Recommended to the returning student. Meets with SOC 225.

**WMST 245-3. Social Psychology of Social Problems.** An examination of social psychological aspects of a variety of social issues and problems in contemporary society. Meets with PSY 245.

**WMST 290-3. Special Topics in Women's Studies.** A detailed examination of a special topic taken from any field of women's studies which is not covered by the regular women's studies course offerings.

**WMST 300-3. Race and Gender at the Movies.** Through critical analysis, this class will focus on race and gender in movies to facilitate an understanding of student's own identities, roles, and behavior in society, and the potential for social change. Prer., WMST/EST 200 or WMST/EST 201. Meets with EST 300 and FILM 390.

**WMST 301-3. Women in Politics.** An examination of the role of women in American politics. Topics will include a historical perspective of women's political activity, the political interests and group activities of women, the legal status of women, political attitudes of and toward women, and women's political behavior. Meets with P SC 301.

**WMST 304-3. Women Around The World.** Provides a global, cross-cultural perspective on women, using an anthropological framework to examine women's status, issues and general cultural experience in the context of gender systems of different types of societies. Prer., WMST 200, ANTH 104 or ANTH 240, or permission of instructor. Meets with ANTH 304.

**WMST 310-3. Women of Color: Image and Voice.** An examination of the ways in which the intersections of race, ethnicity, and gender are constructed both within and against traditional American feminism and gender critiques. The course will address areas of divergence from mainstream feminism and the construction of alternative representations by women of color. Prer., WMST 200/201

or EST 200/201. Meets with EST 310 or EST 201/WMST 201.

**WMST 311-3. Women and Religion.**

Examines the way(s) in which women have been, and continue to be viewed in various religions through comparing sacred and other texts with actual religious practices and beliefs. This course engenders an appreciation of the tension between the ideal expectation for and the real possibilities available to women in religious traditions. Meets with PHIL 311.

**WMST 320-3. Women Writers and Women's Experience.** Study of some women writers deserving attention because of their artistry and depiction of women's lives. Meets with ENGL 320.

**WMST 323-3. Women's Equality, Women's Differences.** An introductory course that presents both the history of philosophical treatments of women and contemporary philosophical analyses of women's social, political, artistic, scientific, and philosophical roles. Prer., PHIL 100 or WMST 200. Meets with PHIL 323.

**WMST 324-3. Women, Visual Arts and Culture I.** A survey of the lives and contributions of women artists, from Ren. to c. 1900. The primary objectives are to introduce issues of gender in the production of visual culture and familiarize the student with the critical literature of art history. Prer., A H 100 or permission of instructor. Meets with A H 325.

**WMST 325-3. Power, Privilege, and Social Difference.** Examines the processes and conditions that produce the systems of differences and privilege shaping our lived experiences. Critically analyzes the prevailing cultural ideologies surrounding class, race, gender, sexuality, and ability. Emphasizes awareness, respect, justice and resolution. Prer., SOC 111 or equivalent. Meets with SOC 325.

**WMST 326-3. Women, Visual Arts, and Culture II.** Introduction to feminist theory and women's artistic production from 1970 to the present. Focuses on how women's art attempts to resist normative ideals of femininity, subvert aesthetic hierarchies, and illuminates the intersections of race, gender, and sexual orientation. Prer., A H 200 or permission of instructor. Meets with A H 326.

**WMST 328-3. Introduction to Feminist Film, Video and Digital Media.** A survey of major themes in feminist independent film, video and web-based projects produced since the mid-1970s. Meets with A H 328.

**WMST 331-3. Sociology of the Family.** The family as a social institution.

Historical development and contemporary cross-cultural analysis with emphasis on the contemporary American family. Prer., Six hours of sociology. Meets with SOC 331.

**WMST 355-3. Psychology and Women.** A survey of female psychology and the study of sex differences through an examination of theories of female personality development, biological determinants of female personality, traditional and alternative lifestyles, women in psychotherapy, and women at work. Prer., PSY 100. Meets with PSY 355.

**WMST 361-3. Gender and Society.** Examines the social construction of gendered difference and the consequences of that difference for individuals, relationships, social institutions, and society in general. The course emphasizes critical analysis and encourages personal contribution. Prer., 6 hours of sociology or consent of instructor. Meets with SOC 361.

**WMST 363-3. Gender and Race in Biblical Literature.** This course examines the presence(s), result(s), and interpretation(s) of gender and race in biblical literature and the issues and problems those categories present to the reader. Prer., WMST 200 recommended. Meets with PHIL 363 and EST 363.

**WMST 366-1 to 4. Women's Studies Service and Learning.** Provides students the opportunity to put into practice the theoretical knowledge gained in WMST courses within the context of placements with community-based organizations that serve women and/or address issues of gender in Colorado Springs. Prer., WMST 200 or WMST 201 or consent of instructor. Meets with EST 366.

**WMST 371-3. Good Wives and Nasty Wenches: American Women's History, 1607-1877.** Study the history of American women from the Colonial era through the Civil Wars concentrating on the nineteenth century. It will introduce students to the changing economic, gender, and familial roles of American women. Meets with HIST 371.

**WMST 390-1 to 3. Special Topics in Women's Studies.** A detailed examination of a special topic taken from any field of women's studies which is not covered by the regular women's studies course offerings. Repeatable for up to 9 credit hours only if a different topic.

**WMST 395-3. Women in Film.** Selected topics dealing with the various roles of women in international cinema history. Meets with FILM 395.

**WMST 404-3. Gender and Sexuality.** Focus on the various roles of women

in American society within historical, socioeconomic, and cultural contexts; changes of these roles and contexts. Prer., Three credits in WMST or SOC 225. Meets with SOC 404.

**WMST 408-3. Sociology of Men's Lives.** This class undertakes a critical exploration of men and masculinities, exploring men as gendered beings. It explores manhood as a social construct, both historically and cross-culturally, and provides an overview of theories of male gender role development as well as a variety of topics including power and patriarchy; race, class and sexuality; men in families; work; violence; health; friendship and intimacy; men's movements; and the growing field of men's studies. Meets with SOC 408.

**WMST 411-3. Women and Hispanic Literature.** An overview of hispanic women as seen by Hispanic male and female writers. Prer., SPAN 301, SPAN 302 or consent of instructor. Meets with SPAN 411.

**WMST 418-3. Gender in International Politics.** Looks at issues of gender and sexuality in an international context. Covers war and militarism and their effect on women, the international division of labor, the effects of religious fundamentalisms, international trafficking in women and sexual violence issues. Meets with P SC 418.

**WMST 420-3. Sociology of Poverty.** Consideration of structural origins of poverty; the underclass and the dual economy. Analysis and evaluation of consequences of poverty, especially in relation to family, children, and career. Review of antipoverty programs. Meets with SOC 420 and EST 401.

**WMST 431-3. Social Inequalities.** An examination of social inequalities and the process of social stratification in various social systems (small groups), formal organizations, communities and societies with emphasis on the American class system, economic, status, and power differentials will be explored as well as life styles, life chances, class correlates and social mobility. Prer., Six hours of sociology or consent of instructor. Meets with SOC 431 and SOC 531.

**WMST 455-3. Feminism, Sexuality, and Culture.** An examination of selected philosophical issues in the context of recent developments in feminist thought. Course will consider the question of whether traditional patterns of philosophical thought express gender bias, and if so why. Meets with PHIL 455.

**WMST 476-3. Women's Space, Women's Place: Women's Role in Changing the Face of the Earth.** A re-

examination of traditional aspects of cultural and regional geography from a feminist perspective. Meets with GES 476.

**WMST 490-1 to 4. Special Topics in Women's Studies.** A detailed examination of a special topic taken from any field of women's studies which is not covered by the regular women's studies course offerings.

**WMST 491-3. Selected Topics in History and Women.** These courses are usually taught on a one-time basis. The subject matter will change from year to year and will cover an important but rarely taught subject in history.

**WMST 498-3. Seminar on Major Authors: Virginia Woolf.** An intensive investigation into the life, the times, and especially the writing of Virginia Stephen Woolf (1882-1941). Readings will include several of Woolf's novels, including *To The Lighthouse* and *Mrs. Dalloway*, a large sampling of her short stories, plus various of her essays critical pieces and journals. Collateral readings will include the standard biography by Bell and de Salvo, *Virginia Woolf: The Impact of Childhood Sexual Abuse on Her Life and Work*. Prer., ENGL 150. Meets with ENGL 498 and ENGL 598.

**WMST 940-1 to 3. Independent Study in Women's Studies.** A student desiring independent study credit must present to the faculty a well-defined written project for research which is not included in the ordinary offerings of the departments whose courses are included in the W. S. Program. Students must secure approval from the faculty member with whom they wish to work, as well as from the Women's Studies program director. Prer., Consent of instructor and Women's Studies program director.

## **BETH-EL COLLEGE OF NURSING AND HEALTH SCIENCES**

### **HEALTH SCIENCE**

**HSCI 100-4. Basic Emergency Health Services.** Provides the beginning preparation for Basic Emergency Medical Technician practice. Introduces the basic concepts foundational to emergency care which includes baseline assessment, history, airway management, physical assessment skills, communication and documentation.

**HSCI 101-1. Pharmacological Math.** A prerequisite for medication administration. Prepares the student to work with

common drug calculations applicable to concepts of measurement, conversions, and calculation of oral, parenteral, and intravenous drug dosages. Prer., Nursing majors only.

**HSCI 102-3. Personal Fitness and Wellness.** Investigates the value of fitness and nutrition in daily life. Activities include the development of an individualized fitness program, assessment of personal fitness, and nutrition status. The value of a healthy lifestyle throughout the life span is emphasized.

**HSCI 104-3. Physiological Chemistry.** Introduces basic chemical principles through the investigation of human biochemical and physiological process. Basic chemistry, biochemistry, organic chemistry and pharmacological concepts are foundational to understanding human physiology and pathophysiology.

**HSCI 105-3. Introduction to Basic Emergency Services.** Introduces students to clinical experiences in emergency service settings. Prer., HSCI 100.

**HSCI 106-3. Personal Nutrition.** Factors influencing human nutritional requirements and food sources to meet them. Emphasis on application of biological principles in the students own diets and lives. Course will include how to evaluate one's own nutritional needs and the adequacy of personal diet. Meets with BIOL 105.

**HSCI 120-3. Future of Health Care.** A futuristic perspective of health care. Finance and delivery systems, professional roles, changing consumer involvement, ethical issues, impact of technology and world-views of tomorrow are explored. A dynamic learning environment will allow students to foster creativity and critical thinking.

**HSCI 200-3. Professional Practice Foundations.** Provides the foundation for the evolving professional practice in health care sciences. Introduces elements of professionalism, including therapeutic communication, critical thinking and problem solving. Includes an understanding of medical terminology, language usage, and writing format in keeping with professional standards.

**HSCI 205-3. Pharmacology.** Provides foundation for understanding pharmacodynamics and drug administration. Therapeutic interventions are emphasized, including patient teaching, safety considerations and legal and ethical issues. Prer., BIOL 201 and BIOL 202. Nursing majors only. Concurrent: HSCI 101.

**HSCI 206-3. Health Science Statistics.**

Introduction to statistical methods utilized for analysis of health sciences data. Includes descriptive statistics such as frequency distribution, measures of central tendency and variability. Inferential statistics such as correlation, T-test and analysis of variance are studied.

**HSCI 207-3. Nutrition for Health**

**Professionals.** An introductory course for health sciences students which focuses on biological and environmental influences on nutritional needs and status. The role of nutrients in energy metabolism and physiology, and the teaching role of the health professional will be emphasized, as well as personal dietary assessment. Meets with BIOL 205.

**HSCI 210-3. Patient Assessment.**

Focuses on the empirical knowledge necessary to provide initial, focused, detailed and ongoing assessments. Evaluation of the accident scene and mechanism of injury focus on the development of general impression and plan of treatment. Ethical implications of assessment findings are explored.

**HSCI 245-3. Health Care Environment.**

Introduces students to the complex health care environment and role of health personnel. Focuses on the historical and contemporary forces on the health care delivery system, roles of health professionals, social, political and economic influences will be explored.

**HSCI 247-3. Spanish for Health Care**

**Providers.** Introductory conversational Spanish and orientation to health care needs.

**HSCI 280-3. Biomedical Aging: Myths**

**and Realities.** Study of the processes related to biological, medical and physical aspects of aging. Meets with BIOL 204 and GRNT 204.

**HSCI 301-3. Pathophysiology.**

Pathophysiological concepts build on previous principals and basic science. Correlates underlying pathophysiological process at the cellular system level with manifestations in individuals as signs, symptoms, or laboratory findings. Explores various factors in relationship to the pathogenesis of disease process. Prer., BIOL 201, BIOL 202, BIOL 203, CHEM 101 and CHEM 102.

**HSCI 302-3. Intro to Emergency**

**Medical Service.** An overview of the roles and responsibilities of the professional prehospital care provider. Explores relation to socio-political, medical/legal and ethical considerations. Emphasizes meeting the emotional and physical need

of patients throughout the life span.

**HSCI 304-3. Yoga Theory and Practice.**

Explores yoga theory and practice focusing on strength, flexibility, balance and harmony as tools of daily life which enhances holism. Practicing relaxation and meditation will deepen understanding of self-care and the ability to care for others.

**HSCI 306-3. Pathophysiology (RN).**

Builds on basic sciences. Correlates underlying pathophysiological processes at the cellular/system level to manifestations in individuals as signs, symptoms, or laboratory findings. Various factors will be discussed in relationship to the pathogenesis of disease process.

**HSCI 311-3. Fundamental Emergency**

**Skills (EMS).** Introduces fundamental skills associated with emergency care, including patient assessment, airway management, medication administration, and cardiac monitor application and interpretation. Clinical lab required.

**HSCI 312-3. Cardiac Emergencies**

**(EMS).** Introduces the interpretation of the cardiac rhythm, variations, and presenting signs and symptoms of common cardiac conditions. Includes 12-lead monitoring, electrical and pharmacologic interventions for cardiac dysrhythmias. Includes psychological and sociological perspectives of care.

**HSCI 313-3. Pulmonary and Neurological Disorders (EMS).**

Introduces the pathophysiology evaluation and emergent treatment of patients with acute pulmonary and non-traumatic neurological disorders across the lifespan.

**HSCI 345-3. Trends and Issues.**

Provides the student with an historical perspective of the social political context of the health care delivery system and concepts include health care economics, medical ethics, health care politics and professional empowerment.

**HSCI 348-3. Sports for Special**

**Populations.** Provides the opportunity to adapt sport principles and activities to meet the needs of individuals with disabilities. Concepts include theories of motivation, psychology of adjustment, adapted physical education and coaching principles.

**HSCI 350-3. Prehospital Nursing.**

Expands critical thinking skills to the prehospital environment. Prepares the student to provide basic and advanced life support skills in emergency situations. Provides entry level knowledge and skills for advanced prehospital practice

in collaboration with EMTs, paramedics, nurses, and physicians.

**HSCI 392-2. Nutrition Science and the Community.**

Introduces food delivery systems, procurement, food safety and sanitation issues, community nutrition programs. Includes policy and environmental issues, laws and regulation of food and nutrition. Prer., HSCI 200, HSCI 207, and HSCI 245.

**HSCI 394-3. Nutrition Science**

**and Preparation.** Provides the tools to calculate and interpret nutrient composition, evaluation and preparation of menus and meal development. Provides modification of individual/group dietary needs associated with disease or lifespan variations. Prer., HSCI 207, BIOL 110, BIOL 201, BIOL 202, BIOL 203, CHEM 103, and CHEM 106.

**HSCI 401-3. Health Science Research.**

Develops a fundamental understanding of the research process. Enables students to critically analyze the merit of published health science research. Students begin to derive a theoretical and research knowledge base of therapeutic care interventions. Meets with NURS 401.

**HSCI 402-3. Food Systems**

**Management.** Equip students with understanding of managing a complete food service operation in any food system and the ability to write an applicable business plan. Learn how to identify and control all operational and financial elements of a food system operation. Prer., HSCI 394, HSCI 206 or PSY 210, ECON 101 or ECON 202 or MKTG 300.

**HSCI 410-4. Advanced Emergency**

**Skills (EMS).** Introduces participants to advanced skills associated with emergency care, including cardiac arrest management, needle thoracostomy, trauma management skills, and specialized pediatric techniques. Environmental disasters, major incident response and rescue modalities are addressed.

**HSCI 412-3. Medical Emergencies**

**(EMS).** Introduces medical complications likely to present in the pre-hospital setting. Includes pathophysiology, common presentations of complications and emergency stabilization of diabetic and endocrine disorders, toxicologic emergencies, environmental emergencies, allergies, anaphylaxis, infectious disease, OB/GYN emergencies and behavioral disorders.

**HSCI 413-3. Trauma Management**

**(EMS).** Introduces the epidemiology and common injury patterns seen in

varipid traumatic situations. Includes pathophysiology, common presentations, and emergency stabilization of head, chest, abdominopelvic, spine, and extremity trauma.

**HSCI 416-3. Community and Home Care (EMS).** Provides an overview of home health and community based health care service. Models of patient and family education for self management and rehabilitation are introduced. Community assessment, collaboration and networks, and mobilization are explored.

**HSCI 417-3. Paramedic Practicum I (EMS).** Provides an opportunity to apply specific clinical concepts, strategies, and skills in supervised clinical setting. Clinical skills included are patient interviews, physical assessment, airway management, cardiac rhythm interpretation and treatment, administration of medications and the assessment and management of neurologic emergencies.

**HSCI 418-3. Paramedic Practicum II (EMS).** This field internship is the culmination of the paramedic practicum program, and provides an opportunity to practice as a paramedic under the direct supervision of a clinical preceptor. Clinical skills included in this practicum encompass the entire scope of practice.

**HSCI 422-3. Dynamics of Unity.** Explores the scientific and cultural underpinnings of holistic thought. The evolution of Western Science, the essential unity of diverse spiritual traditions, and the development of society from industrialism and isolation to the age of information and global economy. Meets with NURS 462 and NURS 642.

**HSCI 423-3. Psychophysiology of Holistic Health.** Provides an advanced foundation in the physiological phenomena associated with holistic health. Explores mind/body concepts such as stress and disease, alternative medicine outcomes, spontaneous healing, psychoneuroimmunology and the placebo effect. Meets with NURS 463 and NURS 643.

**HSCI 425-3. The Art of Holistic Nursing.** Explores theories of esthetics and art for application in healing. Theories of the psychology of the spirit are considered within the caring context of nursing. The processes of imagination are investigated. Meets with NURS 465 and NURS 645.

**HSCI 426-3. Praxis: Therapies of the Imagination.** Applies imagery, memory and reflection, dreams and the creative process in holistic health practice. The

focus is on the professional's role and the practical application of theories and techniques of these therapies in various clinical situations. Intuitive and analytical thinking are emphasized. Meets with NURS 467 and NURS 647.

**HSCI 427-3. Praxis: Therapies of Human Energy Field.** Theories and practices of healing modalities which emphasize touch, energy systems, and movement that nourish and strengthen the body/mind/spirit are interpreted artistically and scientifically. Learners explore the use of these modalities in experiential situations. The theoretical, personal, aesthetic, empirical, ethical, and sociopolitical implications of energy modalities are explored. Meets with NURS 468 and NURS 648.

**HSCI 429-3. Legal Aspects of Forensic Science: Civil and Criminal.** Criminal, civil and family law will be discussed as they relate to forensic issues. Prer., HSCI 200, HSCI 245 or permission of instructor. Meets with HSCI 636 and NURS 636.

**HSCI 430-3. Sexual Assault: Implications for Health Care Delivery.** Focuses on the problem of sexual violence and medicolegal aspects of health care. Explores the interdisciplinary and holistic approach to enhance quality of care for victims, perpetrators and involved families are explored. Models for preventive strategies and public education are investigated. Meets with NURS 630 and HSCI 630.

**HSCI 431-3. Introduction to Forensics.** Provides an introduction to clinical forensics with an emphasis on emergency department and community health forensic issues through the study of forensic science. Explores the principles and philosophy of clinical forensics and role of forensic practitioners in community based settings. Meets with HSCI 631.

**HSCI 432-3. Investigation of Injury and Death.** An exploration of concepts and principles related to investigation of injury and death. Forensic pathology and forensic autopsy procedures are included. Specialized topics in clinical practice such as medicolegal evidence, violence injury and environmental pathology are included. Meets with HSCI 632 and NURS 632.

**HSCI 433-3. Crime Scene & Crime Lab.** Introduces the areas of crime scene preservation, investigation and the scientific tactics, procedures, and techniques employed by forensic experts. As an advanced course, attention will be given to homicide investigation and its central role in forensic examinations.

Meets with NURS 633 and HSCI 633.

**HSCI 434-3. Psychosocial and Legal Aspects of Forensic Science.** Introduces the psychological, neurocognitive, social-sociological and legal dimensions of forensics. Attention will be given to assessment and diagnosis of mental disorders, and the interface between the psychosocial effects of injury and illness and the judicial system. Criminal, civil and family law applications of forensics will be considered. Meets with HSCI 634 and NURS 634.

**HSCI 435-2. Internship in Clinical Forensics.** Arranged to expand clinical application of theory content in forensics. Arrangements can be made for experiences with coroners, emergency departments, crime investigation units, prisons or other clinical settings which are congruent with student goals. Prer., HSCI 431, HSCI 432, HSCI 433 and HSCI 434. Meets with HSCI 440, NURS 635, and HSCI 635.

**HSCI 436-3. Health Care Management.** Provides the framework for the managerial role in the health care context. Leadership in healthcare organizations is addressed with the focus on models, motivational theory, organizational communication, management and strategic planning. Prer., HSCI 245 and HSCI 345.

**HSCI 437-3. Violence and Human Right Issues.** Provides the opportunity to explore the impact of violence in relation to the responsibilities of the investigator, assessor, evaluator and therapist. Includes strategies of care for individual, family, and community survivors. Principles and philosophies of victimology, traumatology, domestic violence. Meets with HSCI 637 and NURS 637.

**HSCI 438-3. Substance Abuse.** Presents the most recent findings regarding the pathology of substance abuse. The misuse of drug and alcohol and the associated effects that influence key dynamic processes in family system functioning are discussed.

**HSCI 439-3. Forensic Photography.** Designed to assist professionals in forensic science and health care in the basic principles and techniques associated with forensic photography at the crime scene, in the hospital setting, or in the autopsy laboratory. Meets with NURS 650.

**HSCI 440-4. Forensic Practicum.** Allows the student the opportunity to implement skills and knowledge assigned with a preceptor in a health delivery setting. Student initiated contract with approval of



faculty and preceptor. Prer., HSCI 431 and HSCI 432. Meets with HSCI 435, HSCI 635, and NURS 635.

**HSCI 441-4. Forensic Chemistry and Toxicology.** Introduces the chemical science of forensic investigative techniques including the principles of biochemistry, toxicology, and serology. Prer., BIOL 101, BIOL 102, CHEM 101, and CHEM 102.

**HSCI 450-3. Legal/Ethical Issues.** A theoretical basis for ethical/legal decision-making is applied to contemporary situations encountered in nursing and medical practice.

**HSCI 451-3. Hearing and Vision Alterations.** Designed for students who desire greater depth of knowledge in special health care and communication needs of individuals with alterations in hearing and vision. Prer., All second year courses or consent of lead faculty.

**HSCI 452-3. Health Teaching.** The principles of learning/teaching are applied to problems in clinical settings. Teaching programs for individuals and groups are planned, implemented and evaluated as part of the course.

**HSCI 453-3. Therapeutic Touch.** Provides an opportunity to explore and experience energy based healing methods. Therapeutic touch is studied as a healing modality.

**HSCI 454-3. Death and Dying.** A comprehensive introduction to the study of death and dying with integration of a wide range of interdisciplinary approaches. Providing a theoretical basis and current research on the topic. The course also allows for the opportunity to apply theory to life situations and personal experiential discovery.

**HSCI 455-3. Complementary Healing Methods.** A survey course which presents an overview of the history, theoretical bases, applications, resources, and trends of complementary healing methods. The evolution of Western scientific thought and Eastern medical theories is examined as a basis for understanding current health perspectives and treatment modalities. The course is not intended as an endorsement of any of the methods studied.

**HSCI 456-3. Women's Health Care Issues.** Selected women's issues are explored from a historical, psychological and socio-political focus in order to increase understanding of the experience and impact on the woman, her significant others, health care professionals and the

health care system.

**HSCI 457-3. Creative Journey.** This interdisciplinary course explores the concepts which link the esthetic experience and holistic healing within a cultural framework. The idea of life as a journey provides the foundation for the student to encounter deep dimensions of their inner being through experiential learning techniques.

**HSCI 459-3. Concepts of Health & Disease.** Provides background and rationale for the dynamic biological, sociological and spiritual influences on health and illness and dimensions of illness that affect the individual and family. Implications of long-term catastrophic illness and life threatening illnesses are addressed. Prer., BIOL 201, BIOL 202 and HSCI 301.

**HSCI 460-3. Fitness and Wellness Concepts.** Introduces the concepts and frameworks for health promotion and fitness. Provides an overview of factors influencing wellness of individuals, families and society. Prer., BIOL 201, BIOL 202, HSCI 110, HSCI 200, and HSCI 301. Meets with BIOL 403.

**HSCI 461-3. Sports Injury and Prevention.** Focuses on empirical and esthetic knowledge of emergency treatment, rehabilitation mechanisms, and prevention of sports injury. Emphasis will be on prevention of injury by incorporating fitness principles related to cardiovascular endurance, flexibility, strength training, muscular endurance, and nutrition and body composition. Meets with BIOL 423 and BIOL 523.

HSCI 462-4. Internship in Sports Health. Provides a clinical opportunity within the community to develop and apply sports medicine concepts. Field work will be supervised in public and private agencies and institutions. Prer., Senior status or permission of instructor.

**HSCI 463-3. Culture and Health.** Explores health/illness concepts of various populations and introduces cross cultural assessment skills. Cultural health belief systems, biological variation and patterns of adaptation to the environment are included.

**HSCI 464-3. Program Planning and Implementation.** Provides introductory knowledge for planning and developing health promotion programs. Delineates criteria for development of health related programs and addresses ethical and legal issues in health promotion and education. Content includes issues related to resource development, community

assessment and mobilization, marketing and adapting to diverse audiences in a variety of settings.

**HSCI 465-3. Principles of Instructional Design.** Provides an opportunity to begin to develop the skill of planning instructional designs to facilitate the learning process for a variety of learners. The course introduces teaching/learning theory and principles, and teaching-learning methodologies and addresses the application to classroom and clinical settings. The course provides an overview of methods of evaluation including the use of tests and measurements.

**HSCI 466-3. Teaching Internship.** This clinical course provides the student the opportunity to teach in a classroom and/or clinical setting under the direction of an assigned preceptor. A variety of settings are available for internships. Students contract for teaching experience in identified settings. The internship provides the student the opportunity to work with expert teachers and function as a part of a teaching team.

**HSCI 467-3. Health Assessment.** Provides the knowledge and skills necessary for holistic health assessment of individuals. Includes parameters for physical, emotional, spiritual and social assessments. Ethical implications of assessment and findings are explored. Introduces the variety of tools to facilitate health assessment and documentation of findings.

**HSCI 468-3. Health Promotion and Wellness.** Introduces the concepts and a framework for health promotion in a pluralistic society. Provides an overview of factors influencing health promotion behaviors of individuals and families. Introduces the student to models and theories related to health behavior and provides a framework for assisting the person or family to adapt or to cope with change.

**HSCI 469-3. Clinical Practicum.** A clinical course that provides the health science student the opportunity to function as a member of a health care team under the direction of an assigned preceptor. Clinical placements are assigned based on the student's career plans and goals.

**HSCI 470-3. Critical Care Transport I.** Introduces issues related to providing transport for critical care patients of all ages. Introduction of clinical conditions which are common to ICU/CCU patients, and advanced assessment techniques for patients with cardiovascular, pulmonary, neurologic, and GI/GU/renal conditions.

Clinical relevance of various laboratory tests and purpose and operation of various critical care instruments. Prer., Registered nurse or certification as a paramedic.

**HSCI 471-3. Critical Care Transport II.** Introduces issues related to providing transport for critical care patients of all ages. Introduction of clinical conditions which are common to ICU/CCU patients, and advanced assessment techniques for patients with cardiovascular, pulmonary, neurologic, and GI/GU/renal conditions. Clinical relevance of various laboratory tests and purpose and operation of various critical care instruments. Prer., Registered nurse or certification as a paramedic.

**HSCI 472-3. Health Care Finance.** Introduces the health care financial system, accounting, budgeting and resource allocation. Includes mechanisms of financial management, credit and debits, and balances. Social and political influences are explored. Prer., FIN 305 and ACCT 201.

**HSCI 473-3. Community Network Development.** Focuses on the assessment, purpose and development of community networks. Methods and types of partnerships and collaborative relationships are explored. Students are involved in assessing community resources, coalitions and existing networks. Prer., HSCI 200, HSCI 245 or permission of instructor.

**HSCI 474-3. Aging, Physical Activity and Health.** Develops an increased sensitivity of and appreciation for the culturally diverse aging population. Promotes understanding of the role of physical activity in decreasing disability in later years and how to provide safe, effective physical activity programming.

**HSCI 475-3. Clinical Trials Management.** Course presents theory and operational information related to clinical trials for drug approval. Regulatory requirements, cost analysis, contract issues, staffing, protocol development and audit information is included.

**HSCI 477-4. Management Practicum.** Designed to integrate the theoretical concepts and knowledge of health care management into a variety of health care settings. Students will function with a management preceptor in the community agency. Prer., HSCI 472 and HSCI 473.

**HSCI 479-3. Management Synthesis Seminar.** Explores the dynamic role of the health care manager, focusing on personal skills, theory and outside influences.

Provides a framework for developing professional debate skills associated with health care management issues and synthesis of role. Prer., ACCT 201, MKTG 300 and FNCE 305.

**HSCI 489-3. Special Topics in Health Sciences.** This course provides the opportunity to investigate and obtain empirical knowledge in an area of health care associated with their career plans and goals. Students develop learning objectives and evaluation methodology in collaboration with the assigned faculty. Prer., Faculty consent must be secured prior to registration.

**HSCI 492-3. Nutritional Assessment Across the Lifespan.** Introduces students to the complex elements of nutritional assessment across the lifespan. Includes socioeconomic, cultural and psychological factors influencing nutrition. Prer., HSCI 207, HSCI 392, and HSCI 394.

**HSCI 493-3. Diet Therapy and Intervention Across the Lifespan.** Provides the pathophysiology, assessment, management and interventions of common acute and chronic diseases of the general population. Prer., HSCI 492.

**HSCI 494-4. Nutrition Science Practicum I.** Practical experiences working in the community settings applying nutritional assessment, analysis, and interventions in a variety of settings. Prer., HSCI 492. Pre-coreq., HSCI 493.

**HSCI 495-3. Exercise Testing and Prescription.** Emphasis on risk stratification, assessment procedures, physiology of prescription and general exercise prescription principles. Upon successful completion of the course, students will have knowledge/skills necessary to obtain professional certification through the American College of Sports Medicine or other highly reputable certifying organization. Prer., HSCI 210, BIOL 201, BIOL 202, and BIOL 330.

**HSCI 521-3. The Healing Power of Dreams.** Prepares student to work with patients' dreams by teaching basic dream analysis principles according to Carl Jung.

**HSCI 619-3. Health Care Administration.** Examines the social, political and economic influences on health care administrators in the health care system. Analyzes leadership, management and organizational theories, human resource management, strategic management and professional development issues. Prer., MSN or MBS admission.

**HSCI 629-3. Health Care Policy.** Focuses on the knowledge and skills needed to effect change in health care policy and delivery. Advanced nursing practice is explored in the health care system focusing on financing, delivery and reimbursement models, regulatory issues, and the legal/ethical parameters. Emphasis is placed on empowerment and the development of leadership skills within the social/ political context of health care. Building collaborative interactions within systems is stressed as the policy-making process is studied.

**HSCI 630-3. Sexual Assault: Implications for Health Care.** Focuses on sexual violence and expands personal knowledge of medicolegal aspects of health care. The alliance of health care, law enforcement, and forensic science is explored. Models for preventive strategies and public education are investigated. Meets with HSCI 430 and NURS 630.

**HSCI 631-3. Introduction to Forensic Science.** Introduces clinical forensic science with emphasis on emergency and community forensic issues. Explores principles and philosophy of clinical forensic science and practice roles of the forensic professional. Meets with HSCI 431.

**HSCI 632-3. Investigation of Death & Injury.** Explores principles related to investigation of injury and death. Forensic pathology and forensic autopsy procedures are included. Explores topics medicolegal evidence, violence injury and environmental pathology. Meets with HSCI 432 and NURS 632.

**HSCI 633-3. Advanced Crime Scene & Crime Lab.** Explores areas of advanced crime scene preservation, investigation and development and scientific tactics, procedures and techniques employed by forensic scientists. Meets with NURS 633 and HSCI 433.

**HSCI 634-3. Psychosocial Aspects of Forensic Science.** Introduces the psychological, neurocognitive, sociological and legal dimensions of forensic science, assessment and diagnosis of mental disorders, and the interface between the psychosocial effects of injury and illness and the judicial system. Explores criminal, civil and family law applications. Meets with HSCI 434 and NURS 634.

**HSCI 635-2. Internship in Forensic Science.** The internship is arranged to expand clinical application of theory content in forensic science. Arrangements can be made for experiences with coroners, emergency rooms, crime

investigation units, prison or other clinical settings which are congruent with student goals. Prer., HSCI 631, HSCI 633, and HSCI 634. Meets with HSCI 435, HSCI 440 and NURS 635.

**HSCI 636-3. Legal Aspects of Forensic Science.** Criminal, civil and family law will be discussed as they relate to forensic science issues. Meets with HSCI 429 and NURS 636.

**HSCI 637-3. Violence and Human Rights.** Provides the opportunity to explore the impact of violence in relation to the responsibilities of the investigator, assessor, evaluator, and therapist. Includes strategies of care for individual family and community survivors. Principles and philosophies of victimology, traumatology and domestic violence. Meets with HSCI 437 and NURS 637.

**HSCI 639-3. Health Care Ethics & Law.** A theoretical basis for ethical/legal decision-making as applied to contemporary situations encountered in health care settings.

**HSCI 649-3. Health Care Budget & Finance.** Introduces systems of resource management in health care delivery. Emphasis on strategies of finance and budget, personnel management, management research, and information systems as tools used by nurse administrators to impact the health care environment. Individual, societal, and political influences which may alter the process of management will be examined.

**HSCI 659-3. Clinical Research Application** Develops skills in scientific inquiry through an understanding and utilization of research in practice. It requires the student to apply the research process in a practice setting using different evaluation techniques. Prer., HSCI 619, HSCI 629, HSCI 639, and HSCI 649.

**HSCI 702-3. Clinical Research Application.** Develops skills in scientific inquiry through an understanding and utilization of research in practice. It requires the student to apply the research in process in a practice setting using different evaluation techniques. Prer., HSCI 631, HSCI 633, HSCI 634. Meets with NURS 702.

**HSCI 930-1 to 3. Independent Study - Undergraduate.** Arranged with a specific faculty member in an area of interest. Independent study can fulfill elective or core course requirements. Prer., Permission of instructor required.

**HSCI 940-1 to 3. Independent Study**

**- Undergraduate.** Arranged with a specific faculty member in an area of interest. Independent study can fulfill elective or core course requirements. Prer., Permission of instructor required.

## NURSING

**NURS 123-3. Foundations of Nursing Practice.** Introduction to the philosophical and theoretical underpinnings of nursing practice. Concepts foundational to the college's conceptual framework are explored. Legal aspects of nursing practice, issues and trends within nursing are presented. Prer., Nursing majors only.

**NURS 208-2 to 3. Health Promotion.** Health promotion behaviors throughout the life span. Students will develop personal insight integral to health risk behaviors and clients across the life span. Clinical settings vary.

**NURS 210-3. Basic Health Assessment.** Focuses on the empirics and esthetics of health assessment. Develops knowledge and skills integral to the acquisition of health assessment in clinical practice lab. Prer., BIOL 201, BIOL 202, and BIOL 205 or consent of lead of faculty.

**NURS 220-6. Fundamentals of Nursing Practice.** Presents the empirical fundamental knowledge of basic nursing care. Clinical practice labs and seminars provide the student the opportunity to develop psychomotor skills and recognize the impact of personal, esthetic and ethical knowing on caring in beginning nursing practice. (Theory and clinical laboratory) Prer., NURS 123, NURS 208, NURS 210, HSCI 101 and HSCI 205.

**NURS 299-1 to 3. Basic Clinical Practicum.** Offers a clinical laboratory experience in settings that increase proficiency in technical skills, communication, health assessment and the nursing process. Prer., NURS 210 and NURS 220. Meets with NURS 399.

**NURS 304-3. Patterns of Knowing (RN).** An overview of concepts of professional nursing practice for the registered nurse student. Includes history and trends of professional nursing, universal theories and various theorists, professional roles, Beth-El College philosophy and conceptual framework, nursing process and socialization into nursing. Prer., RN status.

**NURS 305-3. Health Assessment (RN).** Focuses on the empirics and esthetics of health assessment. Enhances further development of health assessment skills in laboratory. Prer., RN Status, BIOL 201 and BIOL 202, or consent of lead faculty.

**NURS 310-6. Mental Health Nursing.** focuses on the practice of mental health nursing. Students develop critical thinking skills to create the environment for exploring the human health experience. (Theory and clinical laboratory) Prer., All second year courses.

**NURS 320-5. Nursing Care of Adults I.** Emphasizes the art and science of nursing care for the adult. Explores medical-surgical nursing concepts using a scientific problem-solving approach. Clinical laboratory experiences are in the acute care setting. (Theory and clinical laboratory) Prer., All second year courses; prior or concurrent enrollment in HSCI 301.

**NURS 321-5. Nursing Care of Adults II.** Emphasizes the art and science of nursing care of the adult. Continues to explore medical-surgical concepts from Adult Health I. Clinical laboratory experiences are in the acute care settings. Prer., All second year courses, NURS 320.

**NURS 357-3. Therapeutic Touch and Health.** Provides an opportunity to explore and experience energy based healing methods. Other selected healing modalities will include stress reduction techniques, meditation, centering, creative visualization, use of color and other energy techniques.

**NURS 358-3. Palliative and End of Life Care.** Focus is on nursing care for the chronically and terminally ill. Principles of palliative and end of life care using an interdisciplinary and holistic approach is applied across all practice settings. Prer., HSCI 301 or current RN license.

**NURS 370-1 to 3. Partners in Practice I.** Provides nursing students the opportunity to refine nursing skills in actual practice situations. Provided through a collaborative agreement with acute care delivery settings and therefore credit to contact hours may vary dependent on the educational/work relationship established. Prer., NURS 210 and NURS 220, and permission of instructor.

**NURS 385-2 to 3. Nursing Externship.** Externs, under the preceptorship of a registered nurse, provide direct patient care in selected clinical areas. Enhances competency and critical decision making in the reality of the practice setting. Prer., All third year courses.

**NURS 399-1 to 3. Clinical Practicum.** Offers a clinical laboratory experience in settings that increase proficiency in technical skills, communication, health assessment and the nursing process. Prer., NURS 220 and NURS 320 or

consent of lead faculty. Meets with NURS 299.

**NURS 401-3. Nursing Research.**

Develops a fundamental understanding of the research process. Enables students to critically analyze the merit of published nursing research. Prer., All second year courses, PSY 210 or HSCI 206 may be taken concurrently.

**NURS 410-6. Nursing Care of Children.**

Explores the holistic care of children from infancy to adolescence, and their families in ambulatory, outpatient and acute care settings. (Theory and clinical laboratory) Prer., All third year courses.

**NURS 420-6. Nursing Care of the Childbearing Family.**

Provides an opportunity to explore family dynamics and the health care experience during the childbearing process. Expands critical thinking skills specific to the childbearing arena. (Theory and clinical laboratory) Prer., All third year courses.

**NURS 425-3 to 4. Professional Nursing Practice.**

Focuses on selected nursing practice topics that build upon the student's personal knowledge. Opportunities are provided to enhance principles of teaching, utilize critical thinking and further explore nursing roles. (Theory and clinical laboratory) Prer., R.N. status NURS 304, NURS 305 and HSCI 301 or HSCI 306; or consent of lead faculty.

**NURS 429-6. Advanced Nursing.**

Synthesizes nursing content necessary for therapeutic interventions for the care of complex adult patients in the acute and critical care settings. Emphasis on prioritization of care and management of groups of complex patients. (Theory and clinical laboratory) Prer., All third year courses.

**NURS 430-3. Leadership and Management.**

Introduces and develops leadership and management theories, discusses professional issues and trends, enhances organizational and personnel issues. Prer., All second year courses.

**NURS 435-3 to 4. Nursing Management (RN).**

Develops management theories and professional issues and trends. Emphasizes organizational and financial principles. Clinical preceptors provide the student with opportunities to explore application of management skills. (Theory and clinical laboratory) Prer., RN status.

**NURS 440-6. Community Health Nursing.**

Focuses on health promotion and prevention in the delivery of nursing care to aggregates. Studies high risk

individuals, families and groups. Develops community health nursing competencies. (Theory and clinical laboratory) Prer., All third year courses. Meets with NURS 445.

**NURS 445-6. Community Health Nursing (RN).**

Focuses on health promotion and prevention in the delivery of nursing care to aggregates. Studies high risk individuals, families and groups. Develops community health nursing competencies. (Theory and clinical laboratory) Prer., RN Status, NURS 305 or consent of lead faculty. Meets with NURS 440.

**NURS 448-1 to 2. Clinical Capstone - RN.**

Provides opportunity to integrate and synthesize theory and clinical from all prior courses in a student selected setting. Prer., Must be a registered nurse and have completed all required nursing courses.

**NURS 449-3. Clinical Capstone.** Provides an opportunity to integrate and synthesize theory and clinical from all prior courses in a student selected setting. Seminar allows student to explore professional issues encountered in clinical.

**NURS 453-3. Creativity and Critical Thinking.**

Creativity will be explored experientially and conceptually through innovative processes of art and literature, whole brain learning, imagery. Critical thinking will be theoretically analyzed as well as practiced.

**NURS 454-3. Images of British Nursing: Past and Present.**

A study of the life, work and times of Florence Nightingale and exploration of the current status of nursing in England. Both historical and contemporary perspectives on nursing will be explored. The setting for the course is in London, England. Prer., Consent of lead faculty.

**NURS 455-1 to 3. Partners in Nursing Practice II.**

Provides nursing students the opportunity to enhance nursing skills in actual practice situations. Assigned expert clinicians will facilitate learning in an identified clinical setting. Provided through a collaborative agreement with acute care delivery settings. Credit to contact hours may vary dependent on the educational/work relationship established. Prer., NURS 210, NURS 220 and NURS 320.

**NURS 456-3. Lactation Counselor.**

Prepares nurses to be Lactation counselors in a clinical setting. A Lactation Counselor Certificate is granted at the completion of the study.

**NURS 457-3. Emergency Nursing.**

Incorporates theoretical and didactic learning in the specialty area of

emergency care including assessment, diagnosis, triage, and treatment of both emergent and non-emergent conditions. Opportunities are provided for application of skills in the lab setting. Prer., NURS 210, HSCI 205 and NURS 220.

**NURS 458-1 to 3. Basic EKG Interpretation.**

Provides students with the skills necessary for basic electrocardiogram (EKG) interpretation. All basic dysrhythmias will be covered. The clinical portion of this course will allow students to observe EKG monitoring in local facilities. Prer., BIOL 201 and BIOL 202.

**NURS 459-3. Advanced Practicum: Clinical.**

Elective course in selected clinical placements. Promotes synthesis of nursing skills and advanced clinical concepts. Clinical experience develops increased depth of practice in specific clinical settings. Prer., All first and second year courses, NURS 429, or by permission of the instructor.

**NURS 462-3. Dynamics of Unity.**

Explores the scientific and cultural underpinnings of holistic thought. The evolution of Western Science, the essential unity of diverse spiritual traditions, and the development of society from industrialism and isolation to the age of information and global economy. Prer: RN status. Meets with NURS 642 and HSCI 422.

**NURS 463-3. Psychophysiology of Holistic Health.**

Provides an advanced foundation in the physiological phenomena associated with holistic health. Explores mind/body concepts such as stress and disease, alternative medicine outcomes, spontaneous healing, psychoneuroimmunology and the placebo effect. Prer., Junior/seniors only with RN status. All others only with permission of instructor. Meets with NURS 643 and HSCI 423.

**NURS 465-3. The Art of Holistic Nursing.**

Explores theories of esthetics and art for application in healing. Theories of the psychology of the spirit are considered within the caring context of nursing. The processes of imagination are investigated. Prer: RN Status. Meets with NURS 645 and HSCI 425.

**NURS 467-3. Holistic-Praxis: Therapies of the Imagination.**

Applies imagery, memory and reflection, dreams and the creative processes to holistic nursing practice. The focus is on the nurse's role and the practical application of theories and techniques of these therapies in various clinical situations. Meets with

NURS 647 and HSCI 426.

**NURS 468-3. Praxis: Therapies of Human Energy Fields.** Theories and practices of healing modalities which emphasize touch, energy systems, and movement that nourish and strengthen the body/mind/spirit are interpreted artistically and scientifically. Learners explore the use of these modalities in experiential situations. The theoretical, personal, aesthetic, empirical, ethical, and sociopolitical implications of energy modalities are explored. Meets with NURS 648 and HSCI 427.

**NURS 469-2. Holistic-World Views of Health & Healing.** Explores various cultural traditions in health and healing. Traditional Chinese Medicine, Ayurveda, Shamanism, Curanderismo, Native American healing, and selected complementary and alternative therapies are examined. Prer., RN status.

**NURS 489-1 to 3. Special Topics in Nursing.** Elective course which provides an in-depth study of a specific topic in nursing. Students may repeat this course as long as the topic changes each time it is repeated. Prer., Permission of instructor required.

**NURS 540-3. Nurse as Healer.** An integrated synthesis course applying holistic nursing principles to self-care and care of others. Course includes preparation for certification exam in holistic nursing.

**NURS 601-3. Models of Clinical Supervision.** Identifies major models of clinical supervision, examines models which have been empirically validated. Explores how these models can be applied in variety of settings. Issues and factors related to clinical supervision will be delineated.

**NURS 610-3. Philosophical Foundations of Advanced Nursing Practice.** Explores theoretical and philosophic foundations of human caring and nursing's epidemiology and ontology. Contents include methods for analysis and evaluation of nursing knowledge, ethical, and moral foundations, and frameworks for caring/healing practice. Prer., Graduate admission or permission of instructor.

**NURS 611-3. Advanced Nursing Practice and Health Care Policy.** Focuses on the knowledge and skills to effect change in health care policy and delivery. Advanced nursing practice is explored in the health care system in relation to financing, delivery and reimbursement models, regulatory issues, and the legal/ethical parameters.

**NURS 612-4. Nursing Research.** Explores methods of disciplined inquiry to investigate nursing phenomena and establishes a basis for research in advanced practice nursing. Applies data analysis techniques and synthesis of the research process and critique of published research. Prer., NURS 610.

**NURS 614-2. Dynamics of Holistic Practice.** Enhances personal and esthetic ways of knowing through the exploration of creativity and critical thinking. Examines conceptual and experiential creativity and encourages the expression of self as an esthetic being. Incorporates theories from decision making and logic. Prer., Admission to graduate program or instructor permission.

**NURS 615-3. Clinical Nurse Specialist Seminar.** Historical, theoretical, and conceptual basis of the clinical nurse specialist (CNS) role will be explored. Collaborative and problem solving skills within advanced nursing practice are presented as well as acquisition of knowledge through patterns of knowing. Prer., NURS 610.

**NURS 619-3. Educational Measurement and Evaluation in Nursing.** Theories of measurement and evaluation are analyzed as they relate to various aspects of instruction in nursing. Students study and use a variety of measurement and evaluation techniques. Opportunities are provided for students to analyze ethical, legal, and social issues involving measurement and evaluation, as well as uses and limitations of evaluation instruments in a variety of instructional situations. Methods of curriculum and program evaluation will also be addressed. Prer., BSN or graduate department permission.

**NURS 620-3. Curriculum Development in Nursing.** Introduces the process of curriculum development and the procedures of structuring and evaluating curriculum experiences and outcomes.

**NURS 621-3. Transformational Teaching Strategies.** Promotes understanding of the political, philosophical and personal tenets of a caring curriculum. Explores advanced concepts of teaching and learning and examines learning theory. Studies the art and science of effective teaching strategies. Includes techniques of media production.

**NURS 622-3. Collaborative Health Care Management with the Elderly.** Provides students with empirical knowledge needed to manage care of elderly individuals. Sets foundation for an advanced practice role

in providing primary care to older adults and their families within a framework of collaborative practice. Prer., NURS 612 (Recommended).

**NURS 623-3. Physiological Problems of Aging.** Explores the various aspects of aging from a physiological perspective. Health promotion of mature and aging families will be addressed. Management of minor acute health problems will be systematically covered. Cultural and ethnic differences are elucidated.

**NURS 624-3. Managed Care Environment.** Explores the managed care environment and its evaluation. Explores philosophy of managed care and case management methods, the shift from illness care to illness prevention and community based practice. Focuses on interdisciplinary collaboration, ethics and accountability.

**NURS 625-3. International and Cross-Cultural Health Care.** Study of selected international health care and nursing issues. Theoretical and conceptual aspects of cross-cultural health care are included. Travel to England with this class and complete graduate requirements with emphasis on social and health care policy in England.

**NURS 626-1 to 3. Topics in Nursing.** Designed to focus on the explorations of selected topics in advanced nursing practice.

**NURS 627-3. Family Theory and Intervention.** Explores family theories and their application to advanced nursing. Utilizes a variety of assessment tools to evaluate and plan care for selected families. Applies statistics, demographics of changing families structures, and examples of cultural diversity to the care of families.

**NURS 628-4. Clinical Pharmacotherapeutics.** Introduces the pharmaceutical management of a range of illnesses which are common in the primary care setting. Emphasizes both acute episodic and chronic illnesses across the age span. Applies pharmacotherapeutic approach in the management of patients in a primary care setting.

**NURS 629-3. Resource Management: Budget and Finance.** Introduces systems of resource management that may be applied in health care delivery. Emphasis given to strategies of finance and budget, personnel management, management research, and information systems as tools used by nurse managers to impact the health environment.

**NURS 630-3. Sexual Assault: Implications for Nursing Practice.**

Focuses on sexual violence and expands personal knowledge of medicolegal aspects of health care. The alliance of nursing, law enforcement and forensic sciences is explored. Models for preventive strategies and public education are investigated. Meets with HSCI 430 and HSCI 630.

**NURS 631-3. Forensic Nursing.**

Introduces clinical forensic nursing with an emphasis on emergency room and community health forensic issues. Explores principles and philosophy of clinical forensic nursing and the role of the forensic nurse in advanced nursing practice in clinical and/or community based settings. Meets with HSCI 431 and HSCI 631.

**NURS 632-3. Injury and Death**

**Investigation.** Explores principles related to investigation of injury and death. Forensic pathology and forensic autopsy procedures are included. Explores topics medicolegal evidence, violence injury and environmental pathology. Meets with HSCI 432 and HSCI 632.

**NURS 633-3. Crime Scene & Crime Lab.**

Introduces the student to the areas of crime scene preservation, investigation and development and to the scientific tactics, procedures, and techniques employed by forensic experts and sophisticated scientific techniques by forensic nurses. Meets with HSCI 433 and HSCI 633.

**NURS 634-3. Psychosocial/Legal**

**Aspects of Forensic Science.** Introduces the psychological, neurocognitive, sociological and legal dimensions of forensic nursing, assessment and diagnosis of mental disorders, and the interface between the psychosocial effects of injury and illness and the judicial system. Explores criminal, civil and family law applications. Meets with HSCI 434 and HSCI 634.

**NURS 635-2. Internship in Clinical**

**Forensics.** Arranged to expand clinical application theory content in forensic nursing. Arrangements can be made for experiences with coroners, emergency rooms, crime investigation units, prison or other clinical settings which are congruent with student goals. Prer., NURS 630, NURS 631, NURS 632, NURS 633, and NURS 634. Meets with HSCI 435, HSCI 440 and HSCI 635.

**NURS 636-3. Legal Aspects of**

**Forensics: Civil and Criminal.** Criminal, civil and family law will be discussed as

they relate to forensic issues. Meets with HSCI 429 and HSCI 636.

**NURS 637-3. Violence and Human**

**Rights Issues.** Provides the opportunity to explore the impact of violence in relation to the responsibilities of the investigator, assessor, evaluator, and therapist. Includes strategies of care for individual family and community survivors. Principles and philosophies of victimology, traumatology and domestic violence. Meets with HSCI 437 and HSCI 637.

**NURS 639-3. School Based Nurse**

**Care.** Management of the child as a client within the family and school community. Includes pediatric health assessment, health education, family centered care, legal guidelines and related laws. Links the child, the school and geographic community by leadership and management.

**NURS 641-3. Complementary Healing**

**Methods.** Presents an overview of the history, theoretical bases, applications, resources, and trends of complementary healing methods. The evolution of Western scientific thought and Eastern medical theories will be examined as a basis for understanding current health perspectives and treatment modalities.

**NURS 642-3. Dynamics of Unity.**

Explores the scientific and cultural underpinnings of holistic thought. The evolution of Western Science, the essential unity of diverse spiritual traditions, and the development of society from industrialism and isolation to the age of information and global economy. Meets with NURS 462 and HSCI 422.

**NURS 643-3. Psychophysiology of**

**Holistic Health.** Provides an advanced foundation in the physiological phenomena associated with holistic health. Explores mind/body concepts such as stress and disease, alternative medicine outcomes, spontaneous healing psychoneuroimmunology and the placebo effect. Meets with NURS 463 and HSCI 423.

**NURS 644-3. Advanced Assessment of**

**Holistic Health.** Facilitates the recognition and nurturance of the nurse's unique, individual expression of wholeness. Holistic nursing philosophy and the nurse-focused standards of care and practice are discussed. Emphasis is placed on self-reflection, empowerment, personal responsibility, growth, and mutual support.

**NURS 645-3. The Art of Holistic**

**Nursing.** Explores theories of esthetics and art for application in healing. Theories of the psychology of the spirit are

considered within the caring context of nursing. The processes of imagination are investigated. Meets with NURS 465 and HSCI 425.

**NURS 647-3. Holistic-Praxis: Therapies of the Imagination.**

Applies imagery, memory and reflection, dreams and the creative processes to holistic nursing practice. The focus is on the nurse's role and the practical application of theories and techniques of these therapies in various clinical situations. Meets with HSCI 426 and NURS 467.

**NURS 648-2. Holistic-Praxis: Therapies of the Human Energy Fields.**

Theories and practices of healing modalities which emphasize touch, energy systems, and movement that nourish and strengthen the body/mind/spirit are interpreted artistically and scientifically. Learners explore the use of these modalities in experiential situations. Meets with HSCI 427 and NURS 468.

**NURS 649-3. World Views of Health and Healing.**

Explores various cultural traditions in health and healing. Traditional Chinese Medicine, Auyurveda, Shamanism, Curanderismo, Native American Healing, and selected complementary and alternative therapies are examined.

**NURS 650-3. Forensic Photography.**

Designed to assist professionals in forensic science and health care in the basic principles and techniques associated with forensic photography at the crime scene, in the hospital setting, or in autopsy laboratory. Meets with HSCI 439.

**NURS 651-3. Perinatal/Newborn Health Assessment, Stabilization and Care.**

Provides the basis for advanced practice nursing care necessary to meet the assessment, stabilization and early care needs of healthy and at risk newborns and their families. Clinical practicum further develops assessment skills and provides opportunities to practice. Prer., Concurrent with NURS 652, NURS 653, NURS 654.

**NURS 652-4. Pathophysiology of the Newborn.**

Synthesis of concepts of embryology, neonatal physiology and pathophysiology and relates these concepts to the rationale for comprehensive management of and the outcomes for illnesses/problems in at risk newborns. Prer., Concurrent with NURS 651, NURS 653, NURS 654.

**NURS 653-3. Clinical Management of High Risk Newborn.**

Integrates research based knowledge of disease/ disorders of

the newborn within clinical practice. The multiple facets of the advanced practice neonatal nurse and nurse practitioner roles are analyzed. Prer., Concurrent with NURS 651, NURS 652, and NURS 654.

**NURS 654-4. Neonatal Clinical Pharmacotherapeutics.** Introduces pharmaceutical management of a range of fetal and neonatal conditions which are commonly seen in perinatal/newborn settings. Integrates patterns of knowing as applied to the pharmacotherapeutic approach in the management of patients in neonatal care settings. Prer., Completion of or concurrent registration in NURS 651, NURS 652 & NURS 653.

**NURS 656-3. Women's Health Care Issues.** Presents an overview of selected women's experiences and health issues. Exploration from a historical, psychological and socio-political focus in order to increase understanding regarding the impact on the woman, her significant others, health care professionals and the health care system.

**NURS 657-2 to 3. Role Transitions.** Designed for certificate nurse practitioners who have completed advanced practice core degree requirements. Facilitates the integration of graduate advanced practice theoretical and conceptual knowledge into clinical practice. Prer., NURS 610, NURS 611, NURS 612, and NURS 627.

**NURS 661-3. Primary Health Care of Childbearing Families.** Provides a basis for the practice of advanced practice nursing care through the exploration of the health needs in the childbearing family. Focuses on comprehensive assessment, intervention, and prevention, and preventive care for the childbearing family in primary health care settings.

**NURS 662-4. Primary Health Care of Families I.** Assessment and management of common childhood developmental issues, injury prevention, and common acute/chronic disease alterations in children. Application of theory, research, and accepted modalities of advanced practice nursing relevant to the family nurse practitioner role with child rearing families. Prer., NURS 673, NURS 674, and NURS 628.

**NURS 663-2. Community and Rural Health.** Provides the student with the opportunity to examine concepts and theoretical frameworks relevant to community and rural health. The major emphasis of this course is to provide a foundation for advanced nursing practice in community and rural settings.

**NURS 664-4. Primary Health Care of Families II.** The application of theory, research, and accepted modalities of advanced nursing practice relevant to the family nurse practitioner role with young through aging families, including pregnant women and their families. Prer., NURS 673, NURS 674, and NURS 628. Meets with NURS 678.

**NURS 666-3. Health Promotion & Disease Management for Clinical Nurse Specialist.** Provides a basis for advanced practice nursing through the exploration of the human health experience of clients across health care settings. Emphasizes health promotion, acute episodic and community care within a human caring framework. Prer., NURS 673, NURS 674, and NURS 628.

**NURS 667-3. Primary Health Care of Families III.** Focuses on comprehensive assessment, intervention, and preventive care for childbearing, adult, and geriatric families in primary health care settings. Explores acute and chronic health issues through the application of theory and research. Prer., NURS 673, NURS 674, and NURS 628. Meets with NURS 679.

**NURS 672-1. Assessment Validation.** Validation of health assessment skills. Recommended for students who have not been involved with health assessments in past four years.

**NURS 673-1 to 4. Advanced Health Assessment.** Incorporates the principles and techniques of advanced health assessment across the life span into a plan for advanced nursing care. Clinical practicum develops advanced health assessment skills and provides an opportunity to develop skills for an advanced practice. Prer. or Co-req., NURS 628 and NURS 674.

**NURS 674-3. Advanced Pathophysiology.** Synthesizes pathophysiologic concepts and theories relating these concepts to the rationale for therapeutic assessment and diagnosis. Provides fundamental knowledge of primary intervention, collaborative interactions, and case management of complex patients in a variety of settings across the age span.

**NURS 678-4. Primary Health Care of Adults I.** Explores preventive and acute health needs of young through aged adults. Focuses on comprehensive assessment, intervention, and preventive care for young through aged adults in primary health care settings. Prer., NURS 673, NURS 674, and NURS 628. Meets with NURS 664.

**NURS 679-3. Primary Health Care of Adults II.** Exploration of the acute and chronic health needs of young through aged adults with special emphasis on the health needs of aging adults. Focuses on comprehensive assessment, intervention, and preventive care. Prer., NURS 673, NURS 674, and NURS 628. Meets with NURS 667.

**NURS 689-1 to 3. Topics in Nursing.** Designed to focus on the explorations of selected topics in advanced nursing practice.

**NURS 700-1 to 5. Research Thesis.** Provides an opportunity for graduate students to participate in the research process under the direction of an advisory committee. Synthesis of knowledge and skill in selected areas of the research process necessary to organize and conduct a research study. Prer., NURS 612; and the satisfactory completion of a minimum of 20 credit hours in the MSN program.

**NURS 702-3. Clinical Research Application.** Offers the opportunity to develop and/or revise nursing clinical protocols derived from scientifically rigorous empirical and qualitative evidence. Includes a program evaluation and a brief review of research process and research critique. Prer., 9 credit hours of graduate coursework.

**NURS 704-3. Health Care Administration.** Defines the work of health care organizations. Relates critical aspects of productivity to result oriented management. Defines standards of performance including risk management, qualitative and quantitative measures. Elements of a comprehensive human resource management system and strategies for supportive services are addressed. Prer., NURS 610, NURS 611 and NURS 612.

**NURS 705-3. Health Care Ethics and Law.** Provides an analysis of the principles of ethics and law as they impact the health care delivery system and role of the health care administrator. Students will analyze federal and state statutes as adopted and interpreted through case law.

**NURS 706-3. Health Care Administration II.** An analysis of leadership, management and organizational theories. An exploration of multilevel communication used in health care organizations. Examines theoretical and pragmatic approaches to communication, leadership, management, and organizational issues from a nursing administrative perspective.

**NURS 771-3. Clinical Practicum in Nursing Education.** Designed to assist prospective nursing educators to operationalize the elements of instruction in nursing clinical education. Students will work with a faculty preceptor in a clinical area relevant to their expertise and interest. Philosophical and experiential issues specific to clinical instruction are discussed in seminar format. Prer., NURS 619, NURS 620, and NURS 621.

**NURS 772-3. Classroom Practicum in Nursing Education.** Assists prospective nursing educators to operationalize the elements of instruction in the classroom setting. Students will work with a faculty preceptor in an area relevant to their expertise and interests. Philosophical and experiential issues specific to classroom instruction are discussed in seminar format. Prer., NURS 619, NURS 620, and NURS 621.

**NURS 777-2. Role Synthesis in Family Nurse Practitioner Practice.** Synthesis course that brings together the diverse roles of the family nurse practitioner. Collaboration, negotiation, and other intra-organizational strategies. Emphasis is placed on the development of an employment plan including budget development, legal, and key practice issues. Prer., NURS 610, NURS 612, NURS 614 and NURS 673.

**NURS 779-7. Woman's Health Practicum.** Designed to offer students the opportunity to implement skills and knowledge of woman's health, assessment, intervention and preventative care under the direction of an assigned preceptor.

**NURS 780-5. Neonatal Nurse Practitioner Clinical Preceptorship I.** Provides concentrated clinical experiences that prepare the student for entry level functioning in the role of the neonatal nurse practitioner and assuming responsibility for the direct management and care of healthy and acutely ill newborns. Prer., NURS 651, NURS 652, and NURS 653.

**NURS 781-5. Neonatal Nurse Practitioner Clinical Preceptorship II.** Provides concentrated clinical experiences that prepare the student for entry level functioning in the role of the neonatal nurse practitioner and assuming responsibility for the direct management and care of healthy and acutely ill newborns. Prer., NURS 651, NURS 652, and NURS 653.

**NURS 782-1 to 5. Clinical Specialist Practicum.** Provides the opportunity to

enact advanced practice nursing roles in a variety of settings. Applying advanced nursing skills, the student will coordinate, collaborate, network, and develop interdisciplinary skills in the provision of care to clients as they transition through health experiences. Prer., NURS 610, NURS 611, NURS 612, and NURS 615. Meets with NURS 783.

**NURS 783-1. Community Assessment Practicum.** Application of a selected model of population based assessment to a specific community and/or rural aggregate population. Collaboration with health providers is expected to manage health related data and form the foundation for community based advanced practice. Prer., NURS 610, NURS 611, NURS 612, and NURS 615. Meets with NURS 782.

**NURS 784-1 to 3. Primary Care Practicum.** Offers the opportunity to practice the skills and knowledge related to the provision of Primary Care. Provision of primary and specialty care with a preceptor to selected adolescent, adult and geriatric patients in a variety of clinical settings. Prer., NURS 610, NURS 611, NURS 612, NURS 628, NURS 673, and NURS 674. Meets with NURS 789.

**NURS 789-1 to 9. Primary Care of Families Practicum.** This clinical practicum is a lab course designed to offer the Family Nurse Practitioner student an opportunity to implement skills and knowledge obtained in family focused theory courses. This practicum focuses on the application of comprehensive assessment, intervention, and preventive care for families in various primary and specialty health care settings. Prer., NURS 610, NURS 611, NURS 612, NURS 628, NURS 673, and NURS 674. Meets with NURS 784.

**NURS 790-1 to 3. Administrative Internship.** Provides administrative experience with an assigned preceptor. Provides foundation for practicum. Prer., NURS 610, NURS 611, and NURS 612. Meets with NURS 791.

**NURS 791-1 to 3. Administrative Practicum.** Provides an opportunity to apply principles and skills in advanced health care administration. Student will coordinate, collaborate, network and develop interdisciplinary skills in health care administration in collaboration with preceptor. Prer., NURS 610, NURS 611, NURS 612, NURS 704, and NURS 705. Meets with NURS 790.

**NURS 930-1 TO 3. Independent Study.** Undergraduate independent study is

arranged with a specific faculty member in an area of interest. Independent study can fulfill elective or core course requirements. Prer., Permission of instructor required.

**NURS 940-1 to 3. Independent Study.** Undergraduate independent study is arranged with a specific faculty member in an area of interest. Independent study can fulfill elective or core course requirements. Prer., Permission of instructor required.

**NURS 950-1 to 3. Independent Study.** Graduate students investigate an area of interest in the field of health care with the guidance of a faculty member in nursing. Prer., Permission of supervising faculty member.

**NURS 960-1 to 6. Independent Study.** Graduate students investigate an area of interest in the field of health care with the guidance of a faculty member in nursing. Prer., Permission of supervising faculty member.

**NURS 999-0. Candidate for Degree.**



## Administration and Faculty

### Administration

**BRIAN D. BURNETT**, Vice Chancellor for Administration and Finance. B.A., University of Colorado, Boulder; M.S., University of Colorado, Denver.

**JAMES P. HENDERSON**, Vice Chancellor for Student Success; Professor of Mathematics. B.A., M.A., University of Texas, Austin; Ph.D., University of Wisconsin, Madison.

**THOMAS P. HUBER**, Associate Vice Chancellor for Research; Dean, Graduate School; Professor of Geography and Environmental Studies. B.S., U.S. Air Force Academy; M.A., Syracuse University; Ph.D., University of Colorado, Boulder.

**C. DAVID MOON**, Associate Vice Chancellor for Academic Affairs; Associate Professor of Political Science. B.A., Austin College, M.A., Ph.D., University of Texas, Austin.

**ROGERS REDDING**, Vice Chancellor for Academic Affairs; Professor of Physics. B.S., Georgia Tech; Ph.D. Vanderbilt University.

**PAMELA S. SHOCKLEY-ZALABAK**, Chancellor; Professor of Communication. B.A., M.A., Oklahoma State University; Ph.D., University of Colorado, Boulder.

**MARTIN WOOD**, Chief Operating Officer for Advancement. B.S., M.A. Emporia State University.

### Deans

**KATHLEEN M. BEATTY**, Dean, Graduate School of Public Affairs; Professor of Political Science and Public Administration. B.A., University of Colorado, Boulder; M.A., Tufts University; M.P.A., Harvard University; Ph.D., Washington State University.

**THOMAS CHRISTENSEN**, Dean, College of Letters, Arts, and Sciences. Associate Professor of Physics. B.S., University of Minnesota; M.S., Ph.D., Cornell University.

**JEREMY A. HAEFNER**, Dean, College of Engineering and Applied Science; Director of the Colorado Institute for Technology Transfer and Implementation (CITTI); Professor of Mathematics; Director of CITTI. B.A., University of Iowa; M.A., Ph.D., University of Wisconsin.

**MARK R. MALONE**, Interim Dean, College of Education; Professor of Education. B.S., M.Ed., Clarion University of Pennsylvania; Ph.D., University of Colorado.

**LESLIE A. MANNING**, Dean, Kraemer Family Library; Professor of Library Science. B.A., University of Colorado; M.A.L.S., University of Denver.

**VENKATESHWAR K. REDDY**, College of Business and Administration; Associate Dean and Professor of Finance. M.Sc., Ph.D., Pennsylvania State University.

**CAROLE SCHOFFSTALL**, Dean, Beth-El College of Nursing and Health Sciences; Professor of Nursing. Diploma, St. Joseph School of Nursing, Lancaster, Pennsylvania; B.S., University of Colorado, Colorado Springs; M.S., University of Colorado Health Sciences Center; Ph.D., University of Maryland, College Park.

**ROBERT WONNETT**, Dean of Students; Director of Student Auxiliary Services. B.S., M.A., University of Colorado, Boulder; M.P.A., University of Colorado, Denver; J.D., University of Denver.

### Directors

**DIANE ALBERICO**, Director of Property Acquisitions, Space and Leases.

**JULIE ALBERTSON**, Colorado Affiliate, Director of Project Lead the Way. B.S., M.S., Ph.D., Washington State University.

**KATHY ANDRUS**, Director of Visual Arts Technology and Curriculum; Assistant Professor Attendant Rank. B.A., SUNY at Buffalo; M.A., Ph.D., University of North Carolina, Chapel Hill.

**WILLIAM E. AYEN**, Sr., Instructor of Information Systems; Director, Network Information and Space Security Center (NISSC). B.S., University of Wisconsin, Platteville; M.S., University of Missouri, Rolla; Ph.D., The Ohio State University.

**IDA BAUER**, Director of Family Development Center. B.A., Brooklyn College

**DANNY V. BRISTOL**, Director of Bookstore. B.A., University of Colorado, Colorado Springs.

**STEPHEN CHAMBERS**, Director of Institutional Research and Assessment; Associate Professor Attendant Rank.

B.S., M.A., Ph.D., Northern Arizona University.

**JUDITH N. CONROY**, Director of the Language Technology Center. B.A., University of Illinois; M.A., University of California, Los Angeles.

**PERRIN CUNNINGHAM**, Director of the Heller Center for Arts and Humanities. B.A., University of Minnesota; M.A., St. Johns College.

**AMY DE LOURENÇO**, Director of the MBA Program. B.A. University of Northern Colorado, M.Ed. Suffolk University.

**STEVEN A. ELLIS**, Director/Registrar, Admissions and Records. B.A., University of Kansas; M.A., University of Colorado, Colorado Springs.

**SEAN L. FLAHERTY**, Director of Residence Life and Housing. B.A., University of Southern California; M.A., University of Northern Colorado.

**BARBARA A. GADDIS**, Director of the Science Learning Center. B.S., University of Colorado, Colorado Springs; M.S., University at Colorado, Boulder; M.A.T., Colorado College; Ph.D., University of Colorado, Denver.

**GWEN LOGAN GENNARO**, Director of Sponsored Programs. B.A., University of Denver; M.A.A., University of Denver.

**BRIAN GLACH**, Director of LAS Extended Studies. B.A., University of Colorado at Boulder.

**KATHY GRIFFITH**, Chief of Staff and Director of Alumni and Community Relations.

**VICKIE HILTY**, Director of Personnel.

**TOM HUTTON**, Director of University Relations. B.S., University of Kansas.

**LEE INGALLS NOBLE**, Director of Financial Aid and Student Employment. B.A., M.A., University of Colorado, Colorado Springs.

**MICHAEL KENNY**, Director of CU Aging Center. B.A., Colorado State University; M.A. University of Northern Colorado; Ph.D. University of Denver.

**STEPHEN W. KIRKHAM**, Director of Athletics. B.A., University of Northern Colorado; M.S., Fort Hayes State University.

**AMY KIRLIN**, Director of Chancellor's Leadership Class. B.A., Michigan State University; M.A. University of Colorado at Colorado Springs.

**DAVID W. LOHMANN**, Director of UNIX Laboratory; Senior Instructor Attendant Rank. B.S., University of Houston; M.S., University of Colorado, Colorado Springs.

**DREW MARTORELLA**, Producing Director, Theatreworks. B.A., Drew University.

**HOLLY MAZAK**, Director of Undergraduate Programs, College of Business and Administration. B.A., Northern Arizona University; M.S., Regis University.

**RICK MEADOWS**, Director of Student Health Center. B.S., Florida State University at Tallahassee; M.S., University of Colorado Health Sciences Center.

**MICKEY E. MENDEZ**, Controller, B.S. University of Southern Colorado

**SUE MITCHELL**, Director of Student Success Center. B.A., University of Colorado, Boulder; M.A., M.S., University of Oregon.

**BETTINA MOORE**, Special Assistant to the Dean, College of Engineering and Applied Science. B.A., Lehigh University; M.E., University of Colorado, Colorado Springs.

**TAMARA MOORE**, Director of Student Recruitment and Admissions Counseling. B.S., University of Wisconsin, Stevens Point.

**AMANDA MOUNTAIN**, Director of Sales and Marketing, Theatreworks. B.A., University of Colorado, Colorado Springs.

**JAMES A. NULL**, Director, Center for the Government and the Individual; Chair, Political Science; Professor of Political Science and Public Administration. B.A., M.A., University of Nevada; Ph.D., University of Arizona.

**THOMAS F. OSTENBERG**, P.E., Director of Facilities Planning and Construction. B.S., U.S. Military Academy, West Point; M.A., Central Michigan University; M.S., Stanford University.

**ROBERT A. RAPPOLD**, Distance Learning Coordinator; Senior Instructor in Mechanical and Aerospace Engineering. B.S., Tulane University; M.S., University of Colorado; Ph.D., Texas A&M.

**WILLIAM GERALD RIGGS**, Director of the Gallery of Contemporary Art; Assistant

Professor Attendant Rank in Visual Arts. B.F.A., M.Lib. St./ME, University of Oklahoma.

**DANA ROCHA**, Director of Extended Studies campus wide. B.S., M.A., Colorado Christian University.

**MURRAY ROSS**, Artistic Director, TheatreWorks; Instructor Attendant Rank in Theatre. B.A., Williams College; M.A., University of California, Berkeley.

**DEBBIE SAGEN**, Director of Civic Engagement. B.A., University of Wisconsin, Madison; M.P.A., University of Texas at Austin.

**LUIS C. SALDARRIAGA**, Director of the Small Business Development Center. B.A., Universidad de Administracion y Finanzas, M.B.A., University of Georgia.

**KAREN SANGERMANO**, Director of the Distance MBA Program, B.S. University of Colorado, Colorado Springs.

**DAVID K. SCHMIDT**, Professor of Mechanical and Aerospace Engineering; Director of Flight Dynamics and Control Laboratory. B.S.A.E., Purdue University; M.S.A.E., University of Southern California; Ph.D., Purdue University.

**SHANNON SCHUMANN**, Director of Mathematics Learning Center. B.A., University of Guam; Ph.D., University of Wyoming.

**GAYANNE SCOTT**, Division of Resource Management. B.S., University of Colorado, Colorado Springs.

**NANCY STANNARD**, Creative Director of Marketing Communications. B.F.A., University of Michigan.

**SUSAN SZPYRKA**, Director of Public Safety. B.A., University of Colorado, Colorado Springs.

**DIXIE VANDEPUTTE**, Director of University Counseling Center. B.A., M.A., University of Colorado, Colorado Springs; Ph.D., University of Kansas.

**MARYANNE WANCA-THIBAUT**, Director of the Oral Communication Center. B.S., Regis University; M.A., University of Colorado, Denver; Ph.D., University of Colorado, Boulder.

**DOUG WERT**, Program Director, Professional Golf Management. B.A., Mississippi State University; PGA Member.

**R. JERRY WILSON**, Director of Computing/Information Technology. A.A.,

Pikes Peak Community College; B.S., University of Southern Colorado.

**MARY C. YATES**, Director of Campus Life. B.S., M.Ed., Virginia Commonwealth University; Ph.D., University of North Texas.

## Faculty

**GENE D. ABRAMS**, Professor of Mathematics. B.A., University of California, San Diego; M.S., Ph.D., University of Oregon.

**HEATHER ALBANESI**, Assistant Professor of Sociology. B.A., Wesleyan University; M.A., Ph.D., University of California, Berkeley.

**JULIE ALBERTSON**, Instructor of MAE; Colorado Affiliate, Director or Project Lead the Way, B.S., M.S., Ph.D., Washington State University

**DAVID R. ANDERSON**, Associate Professor of Chemistry. B.S., University of Minnesota; Ph.D., University of Colorado.

**JESSICA ANDERSON**, Instructor of English. B.A., M.A., Colorado State University.

**CYNTHIA APPEGATE**, Instructor of Chemistry. B.S., Oklahoma State University; M.S. University of Oklahoma.

**LORRAINE ARANGNO**, Senior Instructor of Philosophy. B.A., B.S., Mercer University; M.A., University of Georgia; Ph.D., University of Colorado, Boulder.

**CARLOS A. PAZ de ARAUJO**, Professor of Electrical and Computer Engineering. B.S., M.S., Ph.D., University of Notre Dame.

**WILLIAM ARBOGAST**, Research Instructor, Anthropology. B.A., Georgetown University; B.A., University of Colorado, Colorado Springs; M.A., University of Missouri-Columbia; M.A., Colorado State University.

**JULIE ARMENTROUT**, Assistant Professor of Special Education. B.A., University of Northern Iowa; M.A., University of South Dakota; Ph.D., Southern Illinois University.

**CASSIE ARMSTRONG**, Instructor of English. B.A., University of Arizona; M.A., California State University, Sacramento.

**IAN N. ASKILL**, Adjoint Professor of Chemistry. B.S., Ph.D., University of Liverpool.

**LARRY AUGENSTEIN**, Instructor of Chemistry. B.A., University of Northern Colorado; M.S., Iowa State University.

**MARIA F. AUGUSTEIJN**, Chair, Professor of Computer Science. B.S., Technical University, Delft, The Netherlands; M.S., University of Wisconsin, Madison; Ph.D., Ohio University.

**ELISSA AUTHER**, Assistant Professor of Art History. B.A., San Francisco State University; M.A., Ph.D., University of Maryland.

**WILLIAM E. AYEN, Sr.**, Instructor of Information Systems; Director, Network Information and Space Security Center (NISSC). B.S., University of Wisconsin, Platteville; M.S., University of Missouri, Rolla; Ph.D., The Ohio State University.

**MARGARET A. BACON**, Chair, Curriculum and Instruction; Professor of Education. B.A., Michigan State University; M.A., Ed.D., University of Massachusetts.

**DUSHAN Z. BADAL**, Professor Emeritus of Computer Science, B.S., Czech Technika University; M.S., University of Saskatchewan, Canada; Ph.D., University of California, Los Angeles.

**A. PAUL BALLANTYNE**, Professor of Economics. B.A., University of Southern California; M.A., University of Iowa; Ph.D., Stanford University.

**CHARLES E. BECK**, Associate Professor of Management and Communication. B.A., University of Pittsburgh; M.A., St. Mary's University (Texas); Ph.D., University of Denver.

**FREDERIC L. BENDER**, Professor of Philosophy. B.S., Polytechnic University of New York; M.A., Ph.D., Northwestern.

**NORMAN J. BENDER**, Professor Emeritus of History. B.A., B.S., Washington University; M.A., Ph.D., University of Colorado, Boulder.

**CHARLES C. BENIGHT**, Director, CU-Trauma Studies and Resource Center; Associate Professor of Psychology. B.S., M.A., Arizona State University; Ph.D., Stanford University.

**MARGARET BERANEK**, Associate Professor of Information Systems. B.A., M.B.A., University of Wisconsin, Ph.D., University of Arizona.

**JACKIE BERNING**, Associate Professor of Biology. B.S., University of Southern Colorado; M.S., University of Colorado, Boulder; Ph.D., Colorado State University.

**SANDRA L. BERRY-LOWE**, Associate Professor of Biology. B.S., Louisiana State University; M.S., Clemson University; Ph.D., University of Georgia, Athens.

**JACQUELYN L. BEYER**, Professor Emerita of Geography. B.A., M.A., University of Colorado, Boulder; Ph.D., University of Chicago.

**ELLEN BIEBESHEIMER**, Clinical Instructor of Nursing. Diploma, Whidden Memorial Hospital School of Nursing, Everett, Massachusetts; B.S.N., University of California, Sacramento; M.S., University of Colorado Health Sciences Center.

**ALEXANDER L. BLACKBURN**, Professor Emeritus of English. B.A., Yale University; M.A., University of North Carolina; Ph.D., Cambridge University.

**CONNIE BLACKMANN**, Instructor of Communication. B.S., Colorado Christian University; M.A., University of Colorado, Colorado Springs.

**RICHARD A. BLADE**, Professor Emeritus of Physics and Energy Science. B.S., Ph.D., University of Colorado, Boulder.

**GEORGE BOLLING**, Instructor of Geology. B.A., M.A., University of Northern Colorado.

**TERRANCE E. BOULT**, EL Pomar Chair of Communication and Computation; Professor of Computer Science. BS, MS, Ph.D. Columbia University.

**GERALD L. BROCE**, Associate Professor of Anthropology. B.A., M.A., Wichita State University; Ph.D., University of Colorado, Boulder.

**JOHN BROCK**, Director, Center for Economic Education; Senior Instructor of Economics. B.S., U.S. Air Force Academy; M.B.A., University of Southern California; Ph.D., Cornell University.

**VALERIE A. BRODAR**, Assistant Professor of Visual Arts. B.F.A., Carnegie Mellon University; M.F.A., The School of the Art Institute of Chicago.

**JEFFREY P. BROKER**, Assistant Professor of Biology. B.S., California Polytechnic State University; Ph.D., University of California, Los Angeles.

**MICHAEL BRUNN**, Assistant Professor of Education. B.A., University of Alaska, Fairbanks; M.F.A., Bradley University; Ph.D., University of Arizona.

**LYNNE BRYANT**, Assistant Professor of Nursing. B.S.N., M.S.N., Mississippi University for Women, Columbus; Ph.D.,

University of Colorado Health Sciences Center.

**JAMES F. BURKHART**, Chair, Physics; Professor of Physics. B.S., University of Wisconsin, LaCrosse; M.S., Ph.D., University of Wisconsin, Milwaukee.

**SCOTT BUTTERFIELD**, Assistant Professor of Accounting. B.A., Weber State University; M.S., San Diego State University; Ph.D., Georgia State University.

**SUZANNE BYERLEY**, Assistant Professor, Library. B.A., University of Colorado, Boulder; M.A., University of Denver.

**ROBERT E. CAMLEY**, Professor of Physics. B.A., M.A., Ph.D., University of California, Irvine.

**MARGUERITE A. CANTU**, Senior Instructor of Communication. B.A., M.A., University of Colorado, Colorado Springs.

**ROBERT C. CARLSON**, Professor of Mathematics. B.S., MIT; Ph.D., University of California at Los Angeles.

**GLENDA CARNE**, Instructor of Anthropology. A.A., Pikes Peak Community College. B.A., M.A., University of Colorado at Colorado Springs.

**DICK CARPENTER**, Assistant Professor of Leadership, Research and Foundations. B.M.E., University of Colorado, Boulder; M.A., University of Colorado, Colorado Springs; Ph.D., University of Colorado, Denver.

**RADU C. CASCAVAL**, Assistant Professor of Mathematics. B.S., Al. I. Cuza University, Iasi, Romania; M.S., Ph.D., University of Memphis.

**ZBIGNIEW J. CELINSKI**, Professor of Physics. M.Sc., Silesian University, Poland; M.A., Temple University; Ph.D., Simon Fraser University, Canada.

**SARBARISH CHAKRAVARTY**, Associate Professor of Mathematics. B.S., M.S., Calcutta University, India; Ph.D., University of Pittsburgh.

**JEWELL CHAMBERS**, Assistant Professor of Nursing (CT). B.S., Loretto Heights, Denver, Colorado; M.A., University of Northern Colorado; M.S., University of Colorado Health Sciences Center; Ph.D., University of Texas, Austin.

**MARY BETH CHAMBERS**, Assistant Professor, Library. B.S., Arizona State University; M.L.S., University of Arizona.

**TIM CHAMILLARD**, Assistant Professor of Computer Science. B.E.E., Georgia Institute of Technology; M.S., University of Southern California, Ph.D., University of Massachusetts.

**ELAINE A. CHEESMAN**, Assistant Professor of Special Education. B.S., Western Oregon University; M.A., State University of New York; Ph.D., University of Connecticut

**CHING-HUA EDWARD CHOW**, Professor of Computer Science. B.S., National Taiwan University; M.S., Ph.D., University of Texas, Austin.

**MINETTE CHURCH**, Assistant Professor of Anthropology. B.A., University of Colorado, Boulder; M.A., Ph.D., University of Pennsylvania.

**LOUIS M. CICOTELLO**, Professor of Visual Arts. B.F.A., Carnegie-Mellon University; Special Studies, Ecole des Beaux Arts L'Americaine, Fontainebleau, France; M.F.A., Yale University.

**MICHAEL D. CILETTI**, Professor of Electrical and Computer Engineering. B.S., M.S., Ph.D., University of Notre Dame.

**JAY J. COAKLEY**, Professor Emeritus of Sociology. B.A., Regis College; M.A., Ph.D., University of Notre Dame.

**LORRAINE COKE-CLARK**, Instructor of English. B.S., Drury University; M.A., University of Phoenix.

**MICHELE COMPANION**, Assistant Professor of Sociology. B.A., University of Massachusetts, Amherst; M.A., Ph.D., University of Arizona.

**FREDERICK L. COOLIDGE**, Professor of Psychology. B.A., M.A., Ph.D., University of Florida.

**LINDY CRAWFORD**, Assistant Professor of Special Education. B.A., M.Ed., Western Washington University; Ph.D., University of Oregon.

**FREDERICK D. CROWLEY**, Associate Research Professor of Business. B.B.A., M.B.A., Iona College; Ph.D., New York University.

**MARY ANN G. CUTTER**, Professor of Philosophy. B.S., M.A., Ph.D., Georgetown University.

**ANDREW J. CZAPLEWSKI**, Assistant Professor of Marketing and International Business. B.S.B.A., Northern Arizona University; M.B.A., Thunderbird, American Graduate School of International

Management; Ph.D. Arizona State University.

**JAMES E. DALY**, Professor of Mathematics. A.B., Humboldt State University; Ph.D., New Mexico State University.

**RAMASWAMI DANDAPANI**, Chair, Electrical and Computer Engineering; Professor of Electrical and Computer Engineering. B.E., Indian Institute of Science; M.S.E.E., Ph.D., University of Iowa.

**ROB DANIN**, Instructor of Education. B.S., B.A., M.A., University of Colorado, Colorado Springs; Ph.D., University of Denver.

**CAROL DASS**, Instructor of Visual Arts. B.A., Northeast Missouri State University.

**ALAN M. DAVIS**, Professor of Information Systems. B.S., State University of New York, Albany; M.S., Ph.D., University of Illinois.

**HASKER P. DAVIS**, Professor of Psychology. A.B., University of California, San Diego; M.A., Ph.D., University of California, Berkeley.

**RICHARD DAWSON**, Instructor of Physics. B.S., University of Colorado, Colorado Springs.

**DALE R. DEBOER**, Chair, Economics; Associate Professor of Economics. B.A., University of Washington; M.A., Ph.D., University of California, Davis.

**RANDALL L. DEPRY**, Associate Professor of Special Education. B.A., California State University, Fresno; M.S., National University; Ph.D., University of Oregon.

**DEBRA FRANK DEW**, Assistant Professor of English; Director of Campus Writing Program. B.S.E., University of Wisconsin; M.A., University of Hawaii; Ph.D., University of Oklahoma.

**LYNDA F. DICKSON**, Associate Professor of Sociology; Co-Director of Graduate Studies. B.A., M.A., Western Kentucky University; Ph.D., University of Colorado at Boulder.

**RICHARD DISCENZA**, Professor of Production Management and Information Systems. B.S.F., Northern Arizona University; M.B.A., Syracuse University; Ph.D., University of Oklahoma.

**INÉS DÖLZ-BLACKBURN**, Professor Emerita of Spanish. M.A., University of Chile; Ph.D., University of Colorado, Boulder.

**RICHARD L. DUKES**, Professor of Sociology; Co-Director of Graduate Studies. B.A., California State University, Northridge; M.A., Ph.D., University of Southern California.

**JOSHUA DUNN**, Assistant Professor of Political Science. B.A., Bob Jones University; M.A., Ph.D., University of Virginia.

**REBECCA DURAY**, Associate Professor of Production Management. B.S., M.B.A., Case Western Reserve University; Ph.D., Ohio State University.

**ROBERT L. DURHAM**, Chair, Psychology; Associate Professor of Psychology. B.A., University of Colorado, Boulder; M.A., Ph.D., Vanderbilt University.

**BRIAN DUVICK**, Instructor of Philosophy. B.A., M.A., University of Minnesota; Ph.D., University of Chicago.

**SEYHAN DWELIS**, Instructor of Anthropology. B.A., University of Colorado at Colorado Springs. M.A., Colorado State University.

**CHESTER DYMEK**, Instructor of Chemistry. B.S., M.A., Holy Cross College; Ph.D., Ohio State University.

**JAMES G. EBERHART**, Professor of Chemistry. B.S., Ph.D., Ohio State University.

**KATHY ELLIS**, Assistant Professor of Communication. B.A., M.A., University of Colorado, Colorado Springs; Ph.D., University of Denver.

**CATHY EMEIS**, Clinical Instructor of Nursing. R.N., Lutheran Hospital School of Nurses, Moline, IL, M.S.N., University of Colorado Health Science Center

**LARRY S. EUBANKS**, Associate Professor of Economics. B.S., University of California, Riverside; Ph.D., University of Wyoming.

**LAURA EURICH**, Instructor of Communication. B.A., M.A., University of Colorado, Colorado Springs.

**JOAN M. FAIRCHILD**, Associate Professor Emerita of Education. B.A., University of Denver; M.A., Syracuse University; Ed.D., Columbia University.

**FERNANDO FELIU-MOGGI**, Assistant Professor of Spanish. B.A., M.S., Southern Illinois University; Ph.D., University of Pittsburgh.

**DAVID L. FENELL**, Chair, Counseling and Human Services; Professor of Counseling and Human Services. B.S., Oklahoma

State University; M.S., University of Southern California; Ph.D., Purdue University.

**ABBY L. FERBER**, Associate Professor of Sociology; Director, Center for Women's Studies. B.A., The American University, Washington, D.C.; M.S., Ph.D., University of Oregon, Eugene.

**JEFFERY M. FERGUSON**, Professor of Service Management and Marketing. B.A., Denison University; M.B.A., University of Montana; Ph.D., Arizona State University.

**LIN FIFE**, Professor of Visual Arts. B.A., Southern Colorado State College; M.F.A., Southern Illinois University.

**SUE FINGER**, Instructor of English. B.A., Purdue University; M.A., Florida Atlantic University.

**CLINT FISHER**, Assistant Professor of Education. B.A., M.Ed., Ph.D., University of New Mexico.

**JERRY D. FLACK**, Professor Emeritus of Education. B.A., Michigan State University; M.A., Western Michigan University; Ph.D., Purdue University.

**CAROLE FLINT**, Senior Instructor of English. B.A., Cornell College, Iowa; M.A., University of Wisconsin, Eau Claire.

**BERNICE FORREST**, Associate Professor of History. B.A., Scripps College; A.M., Brown University; Ph.D., Tulane University.

**KIMBERLY N. FRAZIER**, Senior Instructor of Counselor Education. B.S., M.A., Xavier University of Louisiana; Ph.D., University of New Orleans.

**TRACI FREEMAN**, Instructor of English. B.A., University of Pennsylvania M.A., Ph.D., University of Texas at Austin.

**MONIQUE FRENCH**, Assistant Professor of Quantitative Methods. B.S., M.B.A., University of North Florida, Ph.D., Clemson University.

**DONALD G. GARDNER**, Professor of Management and Organization. B.S., Carroll College; Ph.D., Purdue University.

**LEA GAYDOS**, Assistant Professor of Nursing. B.S.N., M.S.N., University of Texas, Arlington; Ph.D., Union Institute, Cincinnati, Ohio.

**LIVIA GILSTRAP**, Assistant Professor of Psychology. B.A., Western Washington University; Ph.D., Cornell University.

**LESLEY GINSBERG**, Assistant Professor of English. B.A., University of California, Berkeley; Ph.D., Stanford University.

**ROBERT GIST**, Instructor of Physics. B.S., West Texas State University. M.S., University of Texas, Austin.

**BLANCA GLISSON-RODRIGUEZ**, Instructor of Spanish. B.A., University of Colorado, Colorado Springs.

**JOANN GLITTENBERG**, Research Professor. R.N., Beth-El College of Nursing and Health Sciences, B.S.N., M.S., M.A., Ph.D. University of Colorado.

**ADELINA M. GOMEZ**, Associate Professor of Communication. B.A., M.A., Western New Mexico University; Ph.D., University of Colorado, Boulder.

**MARIA GONI**, Instructor of Spanish. B.A., M.A., University of Philosophy & Education Science, Donostia, Spain.

**PETER GORDER**, Mechanical and Aerospace Engineering; Associate Professor of Mechanical and Aerospace Engineering, B.S., M.A., Ph.D., University of California, Davis.

**MAREK GRABOWSKI**, Associate Professor of Physics. M.S., Technical University of Wroclaw, Poland; Ph.D., University of Kentucky.

**EDITH L. GREENE**, Professor of Psychology. B.A., Stanford University; M.A., University of Colorado, Boulder; Ph.D., University of Washington.

**DAPHNE T. GREENWOOD**, Professor of Economics. B.A., Northern Illinois University; M.A., University of Houston; Ph.D., University of Oklahoma.

**PAUL K. GROGGER**, Associate Professor of Geology. B.S. (Geology), B.S. (Geography), Ph.D., University of Utah.

**THOMAS W. GRUEN**, Associate Assistant Professor of Marketing. B.A., Gordon College; M.B.A., M.S., Ph.D., Indiana University.

**EVE C. GRUNTFEST**, Professor of Geography and Environmental Studies. B.A., Clark University; M.A., Ph.D., University of Colorado, Boulder.

**NADYNE GUZMAN**, Chair, Leadership, Research and Foundations; Professor of Leadership, Research and Foundations. B.S., M.A., University of Colorado, Colorado Springs; Ph.D., University of Colorado, Boulder.

**MICHAEL Z. HACKMAN**, Chair, Communication; Professor of Communication. B.A., University of Colorado, Colorado Springs; M.A., Ph.D., University of Denver.

**JEREMY A. HAEFNER**, Dean, College of Engineering and Applied Science; Director of the Colorado Institute for Technology Transfer and Implementation (CITTI); Professor of Mathematics; Director of CITTI. B.A., University of Iowa; M.A., Ph.D., University of Wisconsin.

**MARY HAGEDORN**, Professor of Nursing. B.S.N., M.S., Ph.D., University of Colorado School of Nursing; Pediatric Nurse Practitioner, Certified.

**JOHN P. HARNER**, Associate Professor of Geography and Environmental Studies. B.S., Pennsylvania State; M.S., Ph.D., Arizona State University.

**CAREY HARRINGTON**, Instructor of English. B.S., Boston University; M.A., University of Colorado, Colorado Springs.

**PAUL HARVEY**, Professor of History. B.A., Oklahoma Baptist University; M.A., Ph.D., University of California, Berkeley.

**SAMANTHA HARVEY**, Instructor of English. B.A., Harvard University; Ph.D., Cambridge University.

**C. ANDREA HERRERA**, Director of Ethnic Studies; Professor of English. B.A., St. Joseph's University; M.A., West Chester University; Ph.D., University of Delaware.

**ANN M. HICKEY**, Assistant Professor of Information Systems. B.A., Dartmouth College; M.S., Ph.D., University of Arizona.

**LEXIS F. HIGGINS**, Professor of Marketing. B.S., M.B.A., Murray State University; Ph.D., University of Colorado.

**CHRISTOPHER V. HILL**, Professor of History. B.A., University of Utah; M.A., Ph.D., University of Virginia.

**DAVID HILL**, Instructor of Chemistry. B.A., Point Loma Nazarene University.

**JULIA L. HOERNER**, Professor Emerita of Visual Arts. B.F.A., Tulane University; M.F.A., Yale University School of Art and Architecture.

**CURTIS HOLDER**, Assistant Professor of Geography and Environmental Studies. B.A., Ph.D., Clark University; M.A., University of Georgia.

**CHRISTINE HUBBELL**, Instructor of English. B.A., Valparaiso University. M.T.S.C., Miami University, Oxford, OH.

**CAROLE HUBER**, Instructor of Geography and Environmental Studies. B.A., Colorado College; M.A., University of Colorado, Boulder.

**THOMAS P. HUBER**, Associate Vice Chancellor for Research; Dean, Graduate School; Professor of Geography and Environmental Studies. B.S., U.S. Air Force Academy; M.A., Syracuse University; Ph.D., University of Colorado, Boulder.

**WILLIAM HUDDY**, Instructor of Communication. B.A., California State University, Chico; M.A., University of Colorado, Colorado Springs.

**RITA M. HUG**, Head of Technical Services; Senior Instructor. B.A., University of Dallas; M.A., University of Denver.

**ROBERT H. HUGHES**, Professor Emeritus of Sociology. B.A., M.A., Ph.D., University of Colorado, Boulder.

**EARLENE HUNTER**, Instructor of English. B.A., M.A., University of Texas; Ph.D., University of New Mexico.

**LORI E. JAMES**, Assistant Professor of Psychology. B.A., University of California, Los Angeles; M.A., Ph.D., Claremont Graduate School.

**STEVEN A. JENNINGS**, Chair, Geography and Environmental Studies; Associate Professor of Geography and Environmental Studies. B.S., M.S., University of Utah; Ph.D., University of California, Davis.

**CHRISTINA JIMENEZ**, Assistant Professor of History. B.A., Georgetown University; M.A., Ph.D., University of California, San Diego.

**CRIS JOHNSON**, Instructor of Chemistry. B.S., University of Denver; Ph.D., Stanford University.

**KATHLEEN JOHNSON**, Senior Instructor of English. B.A., M.A., University of Colorado, Colorado Springs.

**BARBARA JOYCE-NAGATA**, Associate Professor of Nursing. B.S.N., Indiana University, Indianapolis; M.S.N., Texas Women's University, Dallas; Ph.D., University of Mississippi, Oxford.

**JUGAL K. KALITA**, Associate Professor of Computer Science. B. Tech, Indian Institute of Technology; M.S., University of Saskatchewan, Canada; Ph.D., University of Pennsylvania.

**T. SUBRAMANYA KALKUR**, Professor of Electrical and Computer Engineering.

B.S., M.S., University of Mysore (India); M.Tech, Indian Institute of Science; Ph.D., University of Western Australia.

**ROBERT H. KEELEY**, El Pomar Professor Emeritus of Finance. B.S., Ph.D., Stanford University; M.B.A., Harvard University.

**PATRICIA KEILBACH**, Assistant Professor of Political Science. B.A., Willamette University; M.A., Ph.D., University of Oregon.

**ELLEN J. KELLEY**, CPT, Assistant Professor of Military Science. B.A., Indiana University.

**JANET KENNING**, Instructor of English. B.A., Arizona State University; M.F.A., University of Iowa.

**CATHERINE KELLY**, Assistant Professor of Education. B.S., South Dakota State University; M.S., University of Utah; Ph.D., University of Denver.

**MICHAEL KISLEY**, Assistant Professor of Psychology. B.S., M.S., University of Colorado, Boulder; Ph.D., University of Pennsylvania.

**KELLI J. KLEBE**, Associate Professor of Psychology. A.A., Los Angeles Baptist College; B.A., San Francisco State University; Ph.D., University of Minnesota.

**GARY S. KLEIN** Couger Professor of Information Systems. B.S.I.M., M.S.I.A., Ph.D., Purdue University.

**DONALD E. KLINGNER**, Professor of Public Administration. B.A., University of California, Berkeley; M.A., The George Washington University; Ph.D., University of Southern California, Los Angeles.

**MARY ANN KLUGE**, Associate Professor of Health Sciences. B.S., University of Rhode Island; M.S., University of Oregon; Ph.D., The Union Institute, Cincinnati, OH.

**ROBERT W. KNAPP**, Professor of Business Administration. A.B., University of Detroit; M.B.A., Ph.D., University of Michigan.

**GORDON KRESHECK**, Adjunct Professor of Chemistry. B.S., M.S., Ph.D., Ohio State University.

**RICHARD Y.C. KWOR**, Associate Dean, College of Engineering and Applied Science; Professor of Electrical and Computer Engineering. B.S.E.E., University of New Hampshire; M.S.E.E., Ph.D., Cornell University.

**KATHERINE R. LANE**, Instructor of Sociology. B.A., M.A., University of Colorado at Colorado Springs.

**MICHAEL P. LARKIN**, Instructor of Geography and Environmental Studies; B.A., University of Colorado, Colorado Springs; M.S., University of Colorado, Boulder.

**ROBERT P. LARKIN**, Professor of Geography and Environmental Studies. B.A., State University of New York, Cortland; M.A., University of Colorado, Boulder; Ph.D., Pennsylvania State University.

**REBECCA LAROCHE**, Associate Professor of English. B.A., Bates College; Ph.D., Yale University.

**KATHLEEN LASALA**, Chair, Department of Graduate Nursing Associate Dean, Associate Professor of Nursing. B.S.N., Radford University; M.S.N., University of Virginia; Ph.D., George Mason University; Pediatric Nurse Practitioner, certified.

**PEGGY LEE**, Instructor of English B.A., Benedictine College. M.A., Truman State University, Ph.D., Saint Louis University

**JOSEPH J.F. LIU**, Associate Professor Adjunct in Master of Engineering; Mathematics. B.S., Cheng Kung University, Taiwan; M.S., Ph.D., Auburn University.

**SUSAN L. LLOYD**, Instructor of Education. B.S., Frostburg State University; M.A., University of South Florida.

**MARCIA L. LONDON**, Senior Clinical Instructor of Nursing. B.S.N., State College, Plattsburg; M.S.N., University of Pittsburgh, Pittsburgh; Neonatal Nurse Practitioner, Certified.

**REDEK LOPUSNIK**, Assistant Professor of Physics. M.S.C., Charles University (Prague); Ph.D., Charles University and University of Kaiserslautern (Germany).

**BARBARA R. LORCH**, Professor Emerita of Sociology. B.S., M.A., Washington State University; Ph.D., University of Washington.

**CHRIS LOWELL**, Instructor of Theatre. B.A., Dickinson College; M.A., Colgate University.

**SUE LOWELL**, Instructor of English. B.A., M.A., University of Florida; M.A.T., University of Colorado, Boulder.

**SUZANNE MACAULAY**, Chair of the Department of Visual and Performing Arts; Associate Professor of Visual

and Performing Arts. B.A., University of Minnesota; M.A., University of Colorado at Boulder; Ph.D., University of Pennsylvania.

**JAYAMALA MADATHIL**, Assistant Professor of Counseling and Human Services. B.A., Jyothi Nivas College; M.A., PSG College of Arts and Sciences; M.Phil., University of Madras; M.S., Western Carolina University; Ph.D., University of North Carolina.

**CECILE F. MALEK**, Senior Instructor of English. B.A., Colorado State University; M.A., University of Colorado, Boulder; M.F.A., Goucher College.

**KATHLEEN MALUEG**, Instructor of Biology. B.S., M.S., Ph.D., University of Tennessee.

**LAURA HUBER MARSHALL**, Instructor of Special Education. B.A., University of Iowa; M.A. University of Colorado, Colorado Springs.

**QUENTIN MARTIN**, Instructor of English. B.A., M.A., Western Michigan University; Ph.D., Ohio State University.

**CHRISTINA M. MARTINEZ**, Head of Library User Services; Senior Instructor. B.A., Arizona State University; M.A., University of Denver.

**DAVID J. MARTINSON**, Instructor of English. B.A., St. Olaf College; M.A., University of Minnesota; M.B.A., Auburn University, Ph.D., University of New Mexico.

**Wm. BENJAMIN MARTZ, Jr.**, Associate Professor of Information Systems. B.B.A., College of William and Mary; M.S., Ph.D., University of Arizona.

**JAMES R. MATTOON**, Professor Emeritus of Biology. B.S., University of Illinois, Urbana; M.A., Ph.D., University of Wisconsin.

**MARK L. McCONKIE**, Professor of Public Administration. B.A., M.P.A., Brigham Young University; D.P.A., University of Georgia.

**CELESTE P. MCDANIELS**, Instructor of Chemistry. B.A., Hampton University; M.A., Ph.D., John Hopkins University.

**FRED R. McFADDEN**, Professor Emeritus of Information Systems. B.S., Michigan State University; M.B.A., University of California, Los Angeles; Ph.D., Stanford University.

**DOUGLAS R. McKAY**, Professor Emeritus of Spanish. B.A., University of Utah; M.A., University of Oregon; Ph.D., Michigan State University.

**LENORE McKERLIE**, Instructor of Visual Arts. B.A., University of California, Davis; M.A., Adams State College.

**TERESA L. MEADOWS**, Associate Professor of French and Theatre, Head, French Program. B.A., M.A., Ph.D., University of Oregon.

**KENNETH R. MEISINGER**, Associate Professor Adjunct of Accounting. B.S., University of Nebraska; M.C.S., Ph.D., Texas A&M University.

**ROBERT J. MELAMEDE**, Chair, Biology; Associate Professor of Biology. B.A., M.A., Herbert H. Lehman College; Ph.D., City University of New York.

**SHANNON MICHAUX**, Instructor of Mathematics. B.S., University of Colorado, Boulder; M.S., University of Colorado, Colorado Springs.

**SAMUEL MILAZZO**, Senior Instructor of Physics; Coordinator for Alliance for Science. B.S., M.S., University of Northern Texas.

**JOHN C. MILLER**, Professor Emeritus of Spanish. B.A., Rutgers University; M.S.Ed., Southern Illinois University; M.A., University of Maryland; Ph.D., Middlebury College.

**PAUL B.W. MILLER**, Professor of Accounting. B.A., B.S., Rice University; Ph.D., University of Texas.

**JOHN F. MILLIMAN**, Professor of Management and Organization. B.A., University of California, Santa Barbara; M.S., University of California, Los Angeles, Ph.D., University of Southern California.

**MARGARET MISTRY**, Senior Instructor of Spanish. B.A., Hunter College; M.S., New York University; M.A., Columbia University.

**PATRICK T. MOORE**, MAJ, Assistant Professor of Military Science. B.A., Troy State; M.S., Webster University.

**TRELLIS G. MOORE**, Clinical Instructor of Nursing. B.S.N., Texas Woman's University, Denton; M.S., University of Maryland, Baltimore.

**SHAWN MORGAN**, Instructor of Communication. A.A., Yuba College; B.A., M.A., University of Colorado at Colorado Springs.

**DONALD D. MORLEY**, Professor of Communication. B.A., M.A., California State University; Ph.D., University of Iowa.

**GREGORY J. MORROW**, Associate Professor of Mathematics. B.S., M.A., M.S., Ph.D., University of Illinois, Urbana-Champaign.

**CATHERINE A. MUNDY**, Reference Librarian; Senior Instructor. B.A., Carroll College; M.L.S., University of Oklahoma.

**BILL MYERS**, Instructor of English. B.S., University of Southern Colorado; M.A., University of Colorado at Denver.

**JANET L. MYERS**, Instructor of History. B.A., M.A., University of Colorado, Colorado Springs.

**HARRIET NAPIERKOWSKI**, Director of Professional Writing and Technology. B.S., University of Wisconsin; M.A., University of Colorado, Boulder; Ph.D., University of Colorado, Denver.

**THOMAS J. NAPIERKOWSKI**, Professor of English. B.A., University of Wisconsin; M.A., Ph.D., University of Colorado, Boulder.

**MARY BETHÉ NEELY**, Instructor of Chemistry. B.S., Kansas State University; M.A., Arizona State University.

**DAVID NELSON**, Associate Professor of Communication. B.A., National College of Education, M.F.A., University of California, Los Angeles.

**JENENNE NELSON**, Associate Professor of Nursing. Diploma, Reading Hospital, West Reading; B.S., Pennsylvania State University, University Park; M.S., University of North Dakota, Grand Forks; Ph.D., University of Colorado Health Sciences Center.

**M. KAREN NEWELL**, Markert Endowed Chair and Associate Professor of Biology and Chief Executive Scientific Director, CU-Institute of Bioenergetics. B.S., University of Texas at Austin; Ph.D., University of Colorado Health Sciences Center.

**JOHN D. NORGARD**, Professor of Electrical and Computer Engineering. B.S.E.E./Co-Op, Georgia Institute of Technology; M.S., Ph.D., California Institute of Technology.

**JAMES A. NULL**, Director, Center for the Government and the Individual; Chair, Political Science; Professor of Political Science and Public Administration. B.A., M.A., University of Nevada; Ph.D., University of Arizona.

**GERALD M. OLESZEK**, Associate Professor of Electrical and Computer Engineering. B.S., Wayne State

University; M.S., Ph.D., Syracuse University.

**DOROTHEA OLKOWSKI**, Professor of Philosophy. B.A., State University of New York, Binghamton; M.S., Ph.D., Duquesne University.

**ERIC M. OLSON**, Associate Dean, College of Business; Professor of Marketing and Strategic Management. B.S., Lewis and Clark College; M.B.A., Portland State University; Ph.D., University of Minnesota.

**EDWARD B. OPPERMAN**, Professor Emeritus of Management Science and Information Systems. B.S., U.S. Naval Academy; M.B.A., Air Force Institute of Technology; Ph.D., Indiana University.

**CATHERINE A. PEDERSEN**, Clinical Instructor of Nursing. Diploma, Mt. Auburn Hospital School of Nursing, Cambridge; B.S.N., Boston College, Chestnut Hill; M.S.N., Catholic University of America, Washington D.C.

**C. KENNETH PELLOW**, Professor of English. B.A., Northern Michigan University; M.A., Ph.D., University of Nebraska.

**RICHARD PETERSEN**, Assistant Professor of Nursing. B.S., Morningside College, Sioux City, IA; M.S.N., University of Texas, Arlington; Ph.D., University of South Dakota.

**TRAVIS PETERSON**, Interim Chair; Assistant Professor of Health Sciences. B.S., Utah State University; M.S., Ph.D., Brigham Young University.

**KEITH PHILLIPS**, Professor of Mathematics. B.S., M.S., University of Colorado, Boulder; Ph.D., University of Washington.

**JON C. PIGAGE**, Senior Instructor of Biology. B.S., University of Wyoming; M.S., Ph.D., University of North Dakota.

**LEWIS J. PINSON**, Associate Professor of Computer Science. B.S., University of Alabama; M.S., Ph.D., University of Florida.

**SHARLEEN PISCIOTTA**, Instructor of English. B.A., Colorado College; M.A., University of Colorado, Boulder.

**GREGORY L. PLETT**, Assistant Professor of Electrical and Computer Engineering. B.Eng., Carleton University; M.S.E.E., Ph.D., Stanford University.

**DANIEL E. PONDER**, Associate Professor of Political Science. B.S., Southwest

Missouri State University; Ph.D., Vanderbilt University.

**JUDITH E. PRICE**, Instructor of History. B.A., Colorado Women's College; B.A., M.A., University of Colorado, Colorado Springs.

**DARYL R. PRIGMORE**, Senior Instructor of Physics. B.S.M.E., M.S.M.E., Colorado State University.

**RADHA PYATI**, Associate Professor of Chemistry. B.S. Ohio State University; Ph.D., University of North Carolina, Chapel Hill.

**THOMAS A. PYSZCZYNSKI**, Professor of Psychology. B.A., University of Wisconsin, Milwaukee; M.A., Ph.D., University of Kansas.

**SARA HONN QUALLS**, Director, Center on Aging; Professor of Psychology. B.S., Middle Tennessee State University; M.A., Ph.D., Pennsylvania State University.

**LAURA QUINN**, Assistant Professor of Communication. B.A., University of Colorado at Boulder; M.A., University of Colorado, Colorado Springs; Ph.D., University of Texas at Austin.

**KULUMANI M. RANGASWAMY**, Professor of Mathematics. B.S., M.S., Ph.D., Madras University (India).

**ROBERT A. RAPPOLD**, Distance Learning Coordinator; Senior Instructor in Mechanical and Aerospace Engineering. B.S., Tulane University; M.S., University of Colorado; Ph.D., Texas A&M.

**JOAN E. RAY**, Professor of English and President's Teaching Scholar. B.A., State University of New York, Stony Brook; A.M., Ph.D., Brown University.

**GLENDIA REIMER**, Assistant Professor of Nursing. B.S., Incarnate Word College, San Antonio, Texas; M.S.N., University of Colorado, Denver; M.B.A., Xavier University, Cincinnati, Ohio; D.N.Sc., Catholic University of America, Washington, D.C.

**JUDITH A. RICE-JONES**, Reference Librarian; Senior Instructor. B.A., University of Colorado; M.A., University of Illinois; M.L.S., University of California, Los Angeles; Certificate d'études supérieures, Université de Strasbourg.

**JOHN RICHARDSON**, Assistant Professor of Communication. B.A., Niagara University; J.D., State University of New York at Buffalo, M.A., University of Missouri-Columbia, Ph.D., Michigan State University.

**CYNTHIA ROACH**, Chair, Nursing; Associate Professor of Nursing. B.S.N., Indiana University, Indianapolis; M.S.N., University of Texas Health Science Center, San Antonio; D.S.N., University of Alabama, Birmingham.

**JASON A. RONEY**, Assistant Professor of Mechanical and Aerospace Engineering. B.S., University of Colorado, Boulder; M.S., Arizona State University; Ph.D., University of California, Davis.

**JAMES T. ROTHE**, Professor of Emeritus Marketing, Strategy, and International Business. B.B.A., M.B.A., Ph.D., University of Wisconsin.

**JEFFREY RUBIN-DORSKY**, Professor of English. B.A., Brooklyn College; M.A., Long Island University; Ph.D., University of Chicago.

**RONALD R. RUMINSKI**, Chair, Chemistry; Professor of Chemistry. B.A., B.S., M.S., Ph.D., University of New Mexico.

**ROBERT E. SACKETT**, Chair, History; Director of Humanities; Professor of History. B.A., Grinnell College; A.M., Ph.D., Washington University.

**ROGER SAMBROOK**, Assistant Research Professor of Geography and Environmental Studies. B.A., University of Leeds; Ph.D. Florida Atlantic University.

**DENA SAMUELS**, Instructor of Women's Studies. B.A., Brandeis University; M.A., University of Colorado, Colorado Springs.

**RAPHAEL SASSOWER**, Professor of Philosophy. B.A., Lake Forest College; M.A., Ph.D., Boston University.

**L. KEN LAUDERBAUGH SAUNDERS**, Chair, Associate Professor of Mechanical and Aerospace Engineering. B.S., M.S., Ph.D., University of Michigan, Ann Arbor.

**RINALDO B. SCHINAZI**, Chair, Professor of Mathematics. Ph.D., University of Sao Paulo, Brazil.

**DAVID K. SCHMIDT**, Professor of Mechanical and Aerospace Engineering; Director of Flight Dynamics and Control Laboratory. B.S.A.E., Purdue University; M.S.A.E., University of Southern California; Ph.D., Purdue University.

**MONIQUE SCHMIDT**, Instructor of English, B.A., Augustana College; M.F.A., Syracuse University.

**ALLEN M. SCHOFFSTALL**, Professor of Chemistry. B.S., Franklin and Marshall College; Ph.D., State University of New York, Buffalo.



**KATHRYN SCHRAMM**, LTC, Chair and Professor of Military Science. B.S. Fort Hays State University; M.A., University of Northern Colorado and University of Colorado at Colorado Springs.

**DONALD SCHWARTZ**, Professor Emeritus of Chemistry. B.S., University of Missouri; M.S., Montana State University; Ph.D., Pennsylvania State University.

**TERESA P. SCHWARTZ**, Associate Dean, Graduate School of Public Affairs. B.A., Oberlin College; M.Ed., University of North Carolina; M.P.A., Ph.D., University of Colorado, Denver.

**ROBERT W. SEBESTA**, Associate Professor of Computer Science. B.S., University of Colorado; M.S., Ph.D., Pennsylvania State University.

**RONALD M. SEGA**, Professor of Electrical and Computer Engineering. B.S., U.S. Air Force Academy; M.S., Ohio State University, Ph.D., University of Colorado.

**DANIEL SEGAL**, Associate Professor of Psychology. B.S., Tulane University; Ph.D., University of Miami.

**SUDHANSHU K. SEMWAL**, Professor of Computer Science. B.S., University of Roorkee, India; M.S., University of Alberta, Canada; Ph.D., University of Central Florida.

**PATRICIA G. SHAFFER**, Instructor of Economics. B.S., M.B.A., Regis University.

**HARLOW ELIZABETH SHEIDLEY**, Associate Professor of History. A.B., Stanford University; M.A., Ph.D., University of Connecticut.

**MORGAN M. SHEPHERD**, Associate Professor of Information Systems. B.S.M.E., University of Virginia; Ph.D., University of Arizona.

**JACK E. SHERMAN**, Professor Emeritus of Education. B.S., Wisconsin State University; M.S., Ph.D., University of Wisconsin.

**CHARLES M. SHUB**, Professor of Computer Science. B.S., M.S., University of Maryland; Ph.D., University of Kansas.

**DAVID SHULTS**, Instructor of English. B.S., M.A., Northern Arizona University.

**DAVID SHULTZ**, Instructor of English, B.S., M.A., Northern Arizona University. Ed.D., Nova Southeastern University, Florida.

**AMY SILVA-SMITH**, Assistant Professor of Nursing, B.S.N., M.S.N., University of Wisconsin- Madison, Ph.D., University of Wisconsin-Milwaukee.

**CURTIS F. SMITH**, Senior Instructor of Music. B.S., Southern Colorado State College; M.A. Eastman School of Music of the University of Rochester.

**BEVERLY A. SNYDER**, Chair, Counseling and Human Services; Associate Professor of Counselor Education. B.A., University of Florida; M.Ed., Ed.D., University of Central Florida.

**SOO YOUNG SO**, Assistant Professor, Library. B.A., M.A., University of California, Santa Barbara; M.L.I.S., University of California, Berkeley; M.Ed., Harvard University.

**DAVID SOLLY**, Instructor of Psychology, B.A., West Virginia University, M.A., Radford University, Ed.D, C.A.G.S. Virginia Tech.

**ALEXANDER SOIFER**, Professor of Mathematics and Interdepartmental Studies. M.S., Ph.D., Moscow State Pedagogical Institute, USSR.

**SEUNG H. SON**, Assistant Professor of Mathematics. B.S., Seoul National University; M.S., Korea Advanced Institute of Science and Technology; Ph.D., University of Illinois.

**PAUL C. SONDROL**, Associate Professor of Political Science. B.A., M.A., Mankato State University; Ph.D., University of Arizona.

**JEFFERSON M. SPICHER**, Senior Clinical Instructor. B.S.N., M.S.N., University of Virginia, Charlottesville.

**CONSTANCE M. STALEY**, Director, Freshman Seminar; Professor of Communication. B.S., Ball State University; M.A., Ph.D., University of Colorado, Boulder.

**ZUG G. STANDING BEAR**, Visiting Associate Professor. B.S., University of Nebraska, Omaha; M.S.E., University of California, Los Angeles; M.B.A., Jacksonville State University; Ph.D., Florida State University.

**JANAE STANSBERY**, Instructor of Communication, B.A., M.A., Ph.D., University of Colorado at Colorado Springs.

**MARIA STEEN**, Assistant Professor of Spanish. Licenciatura en Filosofia y Letras, Universidad de Sevilla, Spain; M.A., Ph.D., University of Colorado.

**RAYMOND STEINER**, Instructor of Philosophy. B.A., University of California at Santa Cruz; M.A., Ph.D., University of Hawaii.

**JAMES W. STEVENS**, Associate Professor of Mechanical and Aerospace Engineering. B.S., M.S., Ph.D., Brigham Young University.

**SHARON STEVENS**, Senior Instructor; Coordinator of Teaching Technology Center. B.A., Christopher Newport University; M.A., George Washington University.

**ISLE STRATTON**, Instructor of German and Latin. B.S., Ruhr University, Duisburg, Germany; M.A., University of Colorado, Boulder.

**DALLAS H. STRAWN**, Instructor of Leadership, Research, and Foundations. B.A., Olivet Nazarene University; M.A., Michigan State University; Ph.D., Michigan State University.

**GORDON M. STRINGER**, Instructor of Information Systems. B.A., University of Colorado, Boulder, M.B.A., University of Colorado, Colorado Springs.

**BARBARA R. SWABY**, Professor of Education. B.A., Tusculum College; M.A., Ph.D., University of Minnesota.

**SUSAN TAYLOR**, Chair, English; Associate Professor of English. B.A., Swarthmore College; A.M., Ph.D., Brown University.

**ELIZABETH TEICHLER**, Assistant Professor of Nursing. B.S.N., University of Pennsylvania, Philadelphia; M.S.N., University of Pennsylvania, Philadelphia; PhD., University of Colorado Health Sciences Center; Family Nurse Practitioner, certified.

**LAURA L. TESMAN**, Assistant Professor of Theatre. B.A., Colorado State University; M.A., University of Warwick, UK; Ph.D. University of Colorado, Boulder.

**FORREST D. TIERSON**, Associate Professor of Anthropology. B.A., M.A., Ph.D., State University of New York, Albany.

**STEVEN G. TRAGESSE**, Assistant Professor Mechanical and Aerospace Engineering. BS, University of Illinois; MS and PhD, Purdue University.

**TRACI TREECE**, Instructor, Kraemer Family Library, B.A., Colorado College. MLS. Indiana University.

**SARAH TRESCHL**, Instructor of English. B.A., Elon University, M.A., North Carolina State University.

**SHERI TRUMPFHELLER**, Instructor of Accounting. B.A., Colorado State University; M.B.A., University of Colorado, Colorado Springs.

**MARTHA VENN**, Chair, Special Education; Associate Professor of Special Education. B.S., Western Illinois University; M.S., University of Kentucky; Ph.D., University of Illinois at Champaign/Urbana.

**SALLY M. VON BRETON**, Senior Instructor of Organizational Management. B.A., Stanford University; M.A., Ph.D., University of Michigan.

**ROBERT VON DASSANOWSKY**, Chair, Languages and Cultures; Associate Professor of German; Head, German Program; Director of Film Studies. B.A., M.A., Ph.D., University of California, Los Angeles.

**KIM B. WALKER**, Professor of Communication. B.A., Millikin University; M.S., Ph.D., Southern Illinois University.

**PATRICIA A. WALKER**, Instructor of Sociology. B.A., M.A., University of Colorado, Colorado Springs.

**CHIA-JIU WANG**, Associate Professor of Electrical and Computer Engineering. B.S., National Central University (Taiwan); M.S.E.E., Tatung Institute of Technology (Taiwan); Ph.D., Auburn University.

**KEE R. WARNER**, Chair, Sociology; Associate Professor of Sociology. B.A., Haverford College; M.P.C.D., University of Colorado, Denver; M.A., Ph.D., University of California, Santa Barbara.

**DONALD D. WARRICK**, Professor of Management and Organization. B.A., M.B.A., University of Oklahoma; D.B.A., University of Southern California.

**LINDA K. WATTS**, Chair, Anthropology; Associate Professor of Anthropology. B.A., State University of New York College at Buffalo; M.A., State University of New York Center at Buffalo; Ph.D., Arizona State University.

**ROBERT A. WEIGAND**, Associate Professor of Finance. B.S., Ph.D., University of Arizona.

**BARRY K. WEINHOLD**, Professor Emeritus of Counselor Education. B.S., Millersville University; Ph.D., University of Minnesota.

**DAVID J. WEISS**, Assistant Professor of Chemistry. B.S., University of California, Riverside; Ph.D., University of Kansas.

**ROBERT C. WELSHON**, Associate Dean, College of Letters, Arts and Sciences; Chair, Philosophy Department; Associate Professor of Philosophy. B.A., M.A., Colorado State University; Ph.D., Brown University.

**SAM E. WHITE**, Senior Instructor of Business Administration, PGMP Internship Coordinator. B.S., California State University; M.B.A., Ph.D., University of Washington.

**GLEN WHITEHEAD**, Senior Instructor of Music. B.A., New England Conservatory of Music; M.A., D.M.A., University of California, San Diego.

**MARK A. WICKERT**, Professor of Electrical and Computer Engineering. B.S.E.E., M.S.E.E., Michigan Technological University; Ph.D., University of Missouri, Rolla.

**RICHARD S. WIENER**, Associate Professor of Computer Science. B.E.E., M.E.E., City College of New York; Ph.D., Polytechnic Institute of Brooklyn.

**KIRKLAND A. WILCOX**, Associate Professor of Accounting. B.S., B.A., M.B.A., University of Arkansas; Ph.D., University of Texas.

**RHONDA WILLIAMS**, Assistant Professor of Counselor Education. B.S., Kansas State University; M.A., University of Colorado, Colorado Springs; Ed.D., Kansas State University.

**STEVEN H. WILLIAMS**, Senior Instructor in Mechanical and Aerospace Engineering. B.A., Cornell University; M.S., Ph.D., Arizona State University.

**TAMRA WILSON**, Instructor of English. B.A., M.A., Texas Tech University.

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