



1989/1990

UNIVERSITY OF SOUTHERN  
C O L O R A D O

**BULLETIN**

1989-90

## BULLETIN

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catalog issue

Pueblo, Colorado

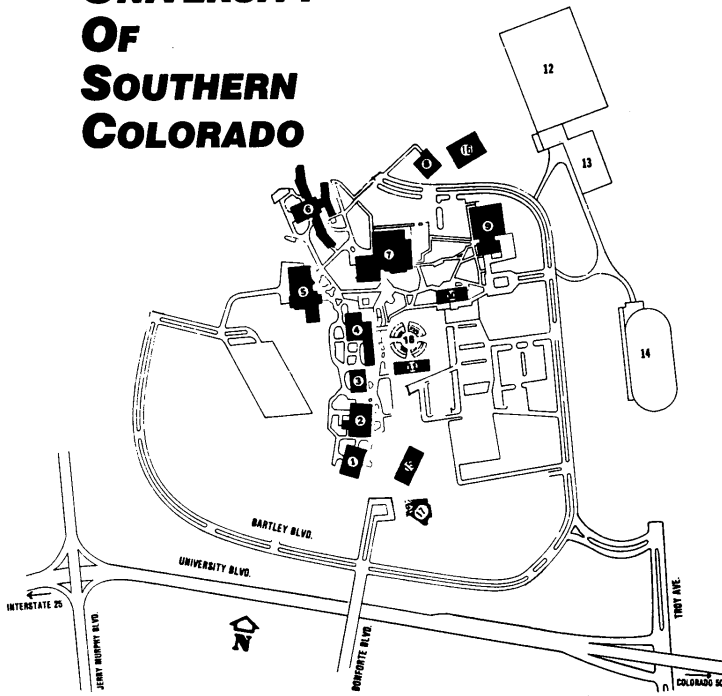
*Vol. XXVI 4/89 No. 5*

### *An Invitation*

*You are cordially invited to visit the University of Southern Colorado campus, meet members of the faculty and administration and inspect the facilities of the university. Escorted tours of the campus will be provided on request. The administrative offices are open from 8 to 5 o'clock Monday through Friday. Please call or write the Admissions office in advance of your visit.*



# UNIVERSITY OF SOUTHERN COLORADO



- |  |                                 |
|--|---------------------------------|
| 1. Physics/Mathematics building                                | 10. Administration building     |
| 2. Life Sciences building                                      | 11. Psychology building         |
| 3. Chemistry/Geology building                                  | 12. Field - baseball            |
| 4. Library building  | 13. Tennis courts               |
| 5. Art/Music building  | 14. Field - football and track  |
| 6. Belmont Residence Hall                                      | 15. Technology building         |
| 7. Joseph Occhiato University Center                           | 16. Physical Plant building     |
| 8. Heating Plant   | 17. Buell Communications Center |
| 9. Health, P.E. and Recreation building<br>(Massari Gymnasium) | 18. University Fountain Plaza   |

The University of Southern Colorado does not discriminate on the basis of race, color, national origin, sex, age, or handicap in admission or access to or treatment of employment in its educational programs or activities. Inquiries concerning Title VI, IX, and Section 504 may be referred to: Affirmative Action Director, University of Southern Colorado, 2200 Bonforte Boulevard, Pueblo, Colorado 81001-4901, phone 719-549-2936 or Office for Civil Rights, Department of Education, 1961 Stout Street, Denver, Colorado 80294.

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# THE UNIVERSITY

## HISTORY

The University of Southern Colorado has served the changing needs of the citizens of Colorado for more than 50 years.

In 1933, the institution was incorporated as The Southern Colorado Junior College. Classes took place on the top floor of the Pueblo County Courthouse. The "Class of '35" graduated 17 students. In 1936, the first building on the Orman Avenue campus site was donated by the Colorado Fuel and Iron Corporation. One year later, local citizens decided to support the institution with county taxes; they organized the Pueblo County Junior College District, and the institution was renamed Pueblo Junior College. In 1951, PJC became the first accredited junior college in Colorado.

A decade later, Colorado's General Assembly enacted legislation, effective in 1963, changing PJC to a four-year institution—Southern Colorado State College—to be governed by the Board of Trustees of State Colleges. SCSC received accreditation in 1966.

By then, four buildings had been erected on the new campus north of Pueblo's Belmont residential district. On July 1, 1975, the state legislature granted the institution university status. Three years later, the State Board of Agriculture assumed governance for the University of Southern Colorado.

In 1985, the university engaged in an intensive self-study and comprehensive program review which resulted in the development of a five-year plan for the future.

As a part of the Colorado State University System, USC strives to become an excellent regional university with a polytechnic emphasis, continuing its tradition of teaching effectiveness and increasing its efforts in basic and applied research while maintaining a high degree of service to the citizens of Pueblo, the region, and the state.

### MISSION

The University of Southern Colorado, in accordance with the mission defined by the Colorado Commission on Higher Education in 1978 and revised in 1985, provides a unique contribution to higher education in the state.

USC is an accredited institution with a specific mission: 1) To emphasize career-oriented, technological and applied programs, while maintaining strong programs in the liberal arts; 2) To engage in basic and applied research for the benefit of society; and 3) To function as the major educational resource for cultural, industrial, and economic growth throughout the southeastern Colorado region.

The university places special emphasis on polytechnic education: the preparation of men and women for useful and productive careers in a technological society. This special component of mission focuses strongly on career preparation because students must be provided with the technical knowledge and skills necessary for meaningful work. The polytechnic mission also demands a commitment to the liberal arts if students are to be broadly educated and knowledgeable about the diverse forces at work in our society, both historically and in modern times.

High-quality teaching is the number one priority at the University of Southern Colorado. Student development is of primary concern. At the same time, faculty engage in scholarly activity to add to the store of knowledge in various disciplines and fields, as well as apply that knowledge to solving community and regional problems. Also, faculty involvement in research and scholarly and creative activities substantially enhances the quality of teaching at the university.

In addition to the primary emphasis on teaching and the accompanying obligation to engage in scholarly endeavors, the university is committed to serving the surrounding community and region. The service obligation is fulfilled primarily through the processes of teaching and research, since the outcomes of those activities significantly address the needs of society. However, as a regional university which strives for excellence, we contribute to the overall quality of life and economic growth in our surrounding environment through sponsoring cultural events, clinical activities, student internships, research on community and business problems, and other special means of interaction.

To enhance its overall relationship with the city and region, the university is strongly committed to providing access for members of all minority groups, particularly the large Hispanic population within its service area, emphasizing and fostering cultural pluralism, enhancing the traditions of culture and language, encouraging the development of economic opportunities, providing appropriate academic support programs, and ensuring equal opportunity for all persons who are, or may become, members of the university community.

Thus the university's mission has three components: teaching (the primary emphasis), scholarly activity (necessary to the advancement of knowledge and to high-quality teaching), and service (contributing to the development of the city and region).

### GOALS AND PRIORITIES

In fulfilling its basic mission, the university regularly establishes long-range and short-term goals. In the next year, the University of Southern Colorado will continue to aspire to achieve the following goals and priorities, identified in the 1985 strategic plan:

- To strive, uncompromisingly, for excellence in all that we do.
- To reduce the range of programmatic activity to achieve excellence and serve the larger interests of society.
- To implement admissions standards appropriate to a regional university.
- To place special emphasis on development of selected master's programs.
- To implement a core curriculum to be required of all students pursuing a baccalaureate degree.
- To continue to improve the quality of teaching in all disciplines.
- To increase the emphasis on basic and applied research.
- To increase interaction with the local community and region.
- To develop and implement a major capital gifts campaign to support the achievement of excellence.

Students, faculty, staff, and administrators are actively engaged in working together to achieve these important goals and priorities. Copies of the three-year progress report, which summarizes accomplishments in the 1985-90 planning cycle, are available from the office of the President.

## GOVERNANCE

As part of the Colorado State University System, the University of Southern Colorado is governed by the State Board of Agriculture, which also governs Fort Lewis College and Colorado State University. The Colorado Commission on Higher Education, the central policy and coordinating board for all public institutions, establishes policy and procedure for the board and the university on legislative and fiscal matters.

## ACCREDITATION

The University of Southern Colorado is accredited at the bachelor's and master's levels by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools.

Individual programs approved by accreditation agencies include: chemistry, the American Chemical Society; engineering technology, the Accreditation Board for Engineering and Technology; education, the National Council for Accreditation in Teacher Education and the Colorado State Board of Education; music, the National Association of the School of Music; nursing, the National League for Nursing; and social work, the Council of Social Work Education.

## AFFIRMATIVE ACTION/EQUAL OPPORTUNITY COMMITMENT

The University of Southern Colorado does not engage in unlawful discrimination in employment against any person because of race, color, religion, sex, national origin, age, handicap, or veteran status. Also, the university takes affirmative action to ensure that protected class applicants are employed and that all employees are treated during employment without any regard to their race, color, religion, sex, national origin, age, handicap, or veteran status, in accordance with the laws of the United States and the State of Colorado. Such action includes, but is not limited to, affirmative efforts with respect to employment, promotion, transfer, recruitment, advertising; layoff, retirement, or termination; rate of pay or other forms of compensation; and selection for faculty development activities. The university posts in conspicuous places notices setting forth the provisions of non-discrimination policy, affirmative action plans and programs, and equal opportunity commitments.

## THE CAMPUS

USC's campus, spanning more than 275 acres, crowns the north end of Pueblo, an historically and culturally rich city of 100,000 located near the Greenhorn Mountains in the colorful Pikes Peak region of southern Colorado.

All 13 buildings on campus, as well as fountains and pathways, follow the grand and unusual architecture of the University Library complex, which received a national award for design in 1966 from the American Institute of Architects and the U.S. Office of Education.

Approximately 320 sunny days a year attract outdoor enthusiasts to a full slate of summer and winter recreational activities, encompassing water sports at Lake Pueblo, biking along Pueblo's unique river trails, hang gliding over the prairie to the east and skiing in the mountains to the west.

Enrollment approximates 4,000 students from throughout southeastern Colorado, the state, the nation and several foreign countries, representing a diversity of age groups and backgrounds, both rural and urban.

## TERMS OF THIS CATALOG ISSUE

Students graduate under the requirements of the catalog noted on page 38 of this issue. The 1989-90 issue becomes effective fall semester, 1989. Information contained within the catalog is current as of April 1989 but is subject to change without notice and therefore is not to be regarded as an irrevocable contractual commitment. It may be modified at any time during the student's term of residence in the interest of lawful missions, processes and functions of the institution.



## *ADMISSION*

The University of Southern Colorado welcomes applications from all persons interested in post-secondary education. The Office of Admissions, located in the Administration building, is the visitors' center for the university. Prospective students may obtain information about all USC programs, as well as university admission procedures, from the admissions office. Campus tours are available from 9 a.m. to 4 p.m. Monday through Friday. Advance notice is helpful but not mandatory.

All correspondence about admission and campus visits should be addressed to the Office of Admissions, USC, Pueblo, CO 81001-4901.

### *UNDERGRADUATE POLICIES*

#### **ENTERING FRESHMEN**

**Admission standards.** The University of Southern Colorado's admission process is designed to promote diversity within the student population and to assure equal access to qualified applicants. The final admission decision is based on the applicant's potential for attaining a degree at the university.

First-time applicants are eligible for consideration for admission to the University of Southern Colorado if they achieve a CCHE admissions index score of 79. This score can be achieved by various combinations of high school grade-point average and ACT composite or SAT combined scores.

Such combinations include:

High School GPA	Minimum ACT	or	SAT Composite
2.0-2.09	21		890-981
2.2-2.29	19		820-850
2.5-2.59	15		700-720
2.7-2.79	13		650-660
3.4-4.00	10		570-600

If applicants do not achieve an index score of 79, their credentials will be reviewed by an admissions committee, which will base a recommendation for admission on:

- the applicant's academic and personal potential to benefit from or contribute to university programs; and,
- the applicant's previous academic record.

Students with non-traditional backgrounds are encouraged to apply.

**Admission requirements.** Students may apply any time after the completion of their junior year in high school. One official transcript of high school work should be sent with each application, and a final transcript must be submitted after the applicant graduates from high school. Students who apply on the basis of the General Education Development (GED) tests in place of high school graduation must have the agency issuing the GED tests forward the test scores (not the certificate) to the Office of Admissions.

Applicants must submit:

- a completed USC application;
- a \$15 application fee (non-refundable);
- an official transcript of high school records or GED scores; and
- scores from either the ACT or the SAT.

NOTE: Acceptance by the university does not necessarily mean acceptance into a particular degree program, some of which have admission requirements beyond those of the university.

**Advanced placement.** The university recognizes superior high school achievements by granting advanced placement to students who have taken especially enriched or accelerated courses before entering college. The university participates in the Advanced Placement program of the College Entrance Examination Board. For advanced placement scores of 3, 4, or 5, the student will be awarded 6.5 semester credits. Questions about advanced placement credits should be addressed to the Office of Admissions.

## TRANSFER STUDENTS

Students who have attended other colleges or universities and are seeking admission to USC for the first time must file with the Office of Admissions an application for admission, the \$15 application fee, and official transcripts from each institution attended. ACT or SAT scores and final high school transcripts also must be submitted if total transfer credits earned are less than 12 semester hours.

Transfer students must be in good standing at the institution they last attended and have at least a 2.0 cumulative grade point average. If not, their records will be reviewed and a recommendation on their admission will be made by an admissions committee.

Students who are enrolled at another institution at the time they apply for admission to USC should arrange to have one transcript from that institution sent with the application. A final transcript should be sent when they complete the current term.

Transferred credit will be evaluated as soon as possible after official transcripts of all work have been received and the student's admission file is complete.

Each student must indicate all previous college experience on his or her application. Applicants may not ignore previous college attendance. Students who fail to inform the Office of Admissions of all previous college work will be subject to cancellation of enrollment.

**Transfer of credit.** Credit is accepted by USC from accredited institutions recognized by the American Association of Collegiate Registrars and Admission Officers. USC accepts a maximum of 64 semester hours from community or junior colleges and/or a maximum of 96 semester hours from senior colleges for credit toward degree requirements. Grades of D and F are not accepted.

USC accepts the Colorado Community/Junior College Common Core Curriculum of 33(A.S.) or 34(A.A.) credit hours for all baccalaureate degree candidates with the understanding that to graduate from USC students must satisfy the university's academic requirements as stated in the Programs of Study section in this catalog.

Credit from a nonaccredited institution may be accepted by petition for transfer after the student has completed at least 24 semester hours at USC with a C (2.0) average or better.



The university accepts up to eight semester hours of cooperative education courses in transfer. Cooperative education coursework, to be acceptable, must include a clearly defined academic element, such as a study plan or reading assignments.

A maximum of 30 hours of correspondence and/or extended studies work is counted toward a bachelor's degree.

Military service credit evaluation is processed when official copies of certificates are received at USC. Courses are evaluated according to the American Council on Education Guide. A maximum of 20 semester hours of credit is counted toward a baccalaureate degree. Credit is not given for military service work experience.

Acceptance of credit does not necessarily mean that a specific department will accept the same credit toward its major requirements. Each department evaluates transfer credits to determine applicability to major requirements.

Transfer students should be aware of the 10-year time limit on credit earned toward a bachelor's degree, which applies to both transfer and resident credit. (Additional information appears in the Academic Policies section of this catalog.)

All application materials for applicants who decide not to enroll for the term for which they applied will be kept on file in the Office of Admissions for one year.

**College Level Examination Program.** All credit earned by the student on one of the CLEP general examinations and recorded on the student's transcript from another institution is accepted in transfer, if the credit is not duplicated from other sources. If CLEP credit is transferred directly, only credit in the areas of humanities and social science is accepted unless otherwise approved in writing by the appropriate department chair and dean. If a student has taken humanities or social science classes before taking CLEP tests, those credits are deducted from the CLEP credits.

#### INTERNATIONAL STUDENTS

Students who are residents of another country must submit the following to be admitted to USC:

- 1) The official application for university admission, accompanied by a \$15 fee;

- 2) Two official transcripts of all work completed either in high school or in college (or the equivalent). One transcript must be in the native language, one in English. Both must show courses taken, grades earned, length of classes and length of school terms. All transcripts must bear the official seal of the issuing institution and must be sent by that institution directly to the Office of Admissions. An explanation of all transcript terminology must be included;
- 3) Results of an English language proficiency test. First-time freshman students: A score of 500 on the Test of English as a Foreign Language (TOEFL) or a minimum score of 80 on the Michigan Test of English Proficiency, or completion of the advanced level at an English language training center is required. Transfer students: A score of 500 on the Test of English as a Foreign Language (TOEFL) or a minimum score of 80 on the Michigan Test of English Proficiency is required. In addition, transfer students must have an overall cumulative grade-point average of 2.00 or above. English language proficiency tests are not required of students from countries where English is the native language;
- 4) A financial statement regarding the resources available to the student during his or her stay in the United States. An international student cannot be accepted without this statement, since no institutional funds are available to support international students; and

The Office of Admissions reserves the right to change policy. Exceptions are at the discretion of the director of Admissions and Records.

**No international student applications for admission can be considered until all required materials are complete. All materials must be received by the Office of Admissions by the application deadlines.**

#### READMITTED STUDENTS

Students who have been enrolled in residence, but whose attendance was interrupted for one or more regular semesters, are required to file an application for readmission by the admissions deadline of the semester in which they wish to enroll. Students who withdraw, or are withdrawn, from the university for any reason and are subsequently readmitted after an absence of two or more semesters are governed upon readmission by the catalog current at the time of readmission. Any exceptions to the policy must have prior approval from the Office of the Provost and Vice President for Academic and Student Affairs. Degree-seeking students who have attended another post-secondary institution or have taken college-level correspondence or extended studies courses must provide complete official transcripts of such studies.

The application fee is not required of undergraduates who are readmitted to the university as degree-seeking students.

## UNCLASSIFIED STUDENTS

Students may enroll at the University of Southern Colorado as unclassified (non-degree-seeking) students if they fall into one of the following categories.

**Special Student:** Special student status is reserved for applicants who are 20 years of age or older and who wish to enroll in courses without degree-seeking status. Applicants who wish to register as special students are required to file an application with the Office of Admissions each term that they wish to enroll.

A special student may carry up to 15 hours per semester and may earn a maximum of 30 semester hours while maintaining special student status. The student must maintain a 2.0 cumulative grade-point average as a special student.

Special students who wish to exceed the 30 semester hour maximum may file a petition with the Office of Admissions. However, no more than 30 semester hours may be applied to the baccalaureate degree should the student decide to become a degree candidate.

**Degree-Plus Student:** Non-degree-seeking students who have completed a baccalaureate degree may enroll as unclassified degree-plus students, having filed appropriate application with the Office of Admissions.

**Guest Student:** Students who are enrolled as degree candidates at other institutions of higher education may enroll for the summer term at the University of Southern Colorado as guest students. Guest students must complete the appropriate application with the Office of Admissions.

**High School University Program:** High school seniors may register for classes at the university. Students must submit an admission application approved by their high school counselor, principal and parents for each term they wish to enroll. In some cases, the high school district may pay students' tuition; information on such programs is available in the Office of Admissions.

Unclassified students are ineligible to receive financial assistance from the university. This includes all federal and state financial assistance programs. Only degree-seeking (classified) students are eligible to receive financial assistance from these programs.

## VETERANS

Veterans who served on active duty for more than 180 continuous days, any part of which occurred after January 31, 1955 and before January 1, 1977, and who a) were released under conditions other than dishonorable, b) were discharged for a service-connected disability or c) continue on active duty, are eligible for educational benefits under the Veterans Readjustment Benefits Act of 1966, as amended.

Veterans must follow the admission requirements and procedures outlined in this catalog. For certification of eligibility for education benefits under one of the public laws, students can apply for Veterans Administration benefits through the Office of Veterans Affairs in the Administration building.

## PROCEDURES

### APPLICATION DEADLINES

Application for admission as a degree-seeking student and all other required documents must be received before the deadline of the semester in which the student plans to enter. Deadlines for 1989-90 are:

Fall Semester 1989 .....	July 20, 1989
Spring Semester 1990 .....	November 30, 1989
Summer Session 1990 .....	April 28, 1990
Fall Semester 1990 .....	July 21, 1990

### REGISTRATION

**Advisement.** All students are required to consult an academic adviser before registering for classes. Academic advisers are assigned by the major area. Degree-seeking students who have not selected a major and unclassified students should contact the Office of Counseling and Career Services, Room 236 of the Psychology building.

**Registration procedures.** Details on registration procedures are published in the class schedule bulletin distributed to students well in advance of each registration period.

**Payment of tuition and fees.** Tuition and fees are assessed in accordance with approved policies. Instructions for payment and payment deadlines are stated in the class schedule bulletins. Specific information about tuition and fees is given in the Student Expenses section of this catalog.

**Changes of address.** Students should keep university authorities informed of their current addresses. Change in address should be reported immediately to the records office.

**Completion of student courses.** The university holds students responsible for completing all courses for which they have enrolled unless they obtain approval for a change in registration or file an official withdrawal. Students not following proper course or university withdrawal procedures receive failing grades.



## STUDENT EXPENSES

Tuition rates are established by the State Board of Agriculture following budget action of the Colorado General Assembly. Tuition rates for any succeeding fiscal year are not known until the period of March to June of each year, when appropriations are made. The State Board of Agriculture therefore reserves the right to change the tuition and fees schedule at any time.

## RESIDENCE CLASSIFICATION

A person moving to Colorado must be domiciled in the state for 12 continuous months before becoming eligible for a change in residence classification. To qualify for in-state classification for tuition purposes as a resident of Colorado, a person must do more than just reside in Colorado for the preceding 12 continuous months. "Residency" in this context means legal "domicile," which requires intent to remain in Colorado indefinitely in the sense of making one's permanent home in the state. The distinction is that one may have any number of residences at one time, but never more than one domicile.

A particularly relevant point is that one retains a former domicile until a Colorado domicile is established by the 12-month residency.

Intent is determined by:

- 1) the student's written declaration of intent to remain in Colorado indefinitely, i.e., the student has no present intent to leave the state now or in the future, and
- 2) documented evidence of overt actions that link the student to Colorado.

Examples which establish intent are: payment of Colorado State Income Tax; a Colorado driver's license; payment of personal property or real estate taxes (especially on a personal residence) in the state; the compliance with any law imposing a mandatory duty upon a domiciliary of the state and voter registration. Obviously, the specific actions that establish intent vary according to the individual and the circumstances, but each individual must, with his/her circumstances, act consistently with the stated intent. An informational brochure pertaining to the establishment of residency for tuition purposes may be obtained by writing to the Office of Admissions.

A student's classification as a Colorado resident for tuition purposes is made by the university at the time of admission, according to Colorado statutes. Any student classified as a nonresident who believes that he/she can qualify as a resident may obtain a petition and a copy of the statutes governing tuition classification from the Office of Admissions. The petition is processed only if the student has an application for admission on file or is currently enrolled. The petition is due no later than the established deadline of the drop/add period for the semester in which the change is requested. Deadlines are published in each semester class bulletin.

Students 21 years of age or under who are independent from their parents must prove emancipation and demonstrate residency on their own qualifications. Students must notify the Office of Admissions if their status changes from resident to nonresident. Any student who willfully gives wrong information to avoid paying nonresident tuition is subject to legal and disciplinary action.

**TUITION AND FEES**

The following schedule of tuition, fees and other charges is for information only. All fees and charges listed are subject to change because of action by the governing board prior to the beginning of the semester. Tuition and fees per semester for 1988-89 were as follows:

**Resident**

Sem hours	Tuition	Fees	Total
1	\$ 60.00	\$ 11.00	\$ 71.00
2	120.00	22.00	142.00
3	180.00	33.00	213.00
4	240.00	44.00	284.00
5	300.00	55.00	355.00
6	360.00	66.00	426.00
7	420.00	77.00	497.00
8	480.00	88.00	568.00
9	540.00	99.00	639.00
10-18	596.00	110.00	706.00

**Tuition surcharge for each hour over 18: \$40.00**

**Nonresident**

Sem hours	Tuition	Fees	Total
1	\$ 200.00	\$ 11.00	\$ 211.00
2	400.00	22.00	422.00
3	600.00	33.00	633.00
4	800.00	44.00	844.00
5	1000.00	55.00	1055.00
6	1200.00	66.00	1266.00
7	1400.00	77.00	1477.00
8	1600.00	88.00	1688.00
9	1800.00	99.00	1899.00
10-18	2364.00	110.00	2474.00

**Tuition surcharge for each hour over 18: \$160.00**

**OTHER SPECIAL FEES**

Original student/faculty/staff identification card.....	\$ 3.00
Identification card replacement.....	5.00
Faculty/staff identification card validation.....	8.50
Fee to activate placement file-per packet.....	2.00
General Education Development tests-battery.....	30.00
Guaranteed student loan processing fee.....	10.00
Parking permit (per year).....	12.00
Parking permit replacement.....	2.00
Returned check charge.....	15.00
Physical education fee-designated classes per semester	
Bowling.....	20.00
Scuba Diving.....	55.00
Training Room.....	25.00
Wind Surfing.....	35.00
Ice Skating.....	20.00
Skiing.....	95.00

**ROOM AND BOARD RATES**

(Subject to change by governing board action)  
 Occupancy and damage deposit.....\$100  
 This deposit is required with each application for space in the residence hall. The deposit is held for the duration of occupancy.

<b>Room</b> (per semester 1988/89)	
Single (continuing res. hall student).....	\$ 965.
Single (incoming student).....	\$1,014.
Double (continuing res. hall student).....	\$ 645.
Double (incoming student).....	\$ 678.
Board (per semester)..... 19-meal plan.....	\$ 893.
..... 14-meal plan.....	\$ 863.
..... 10-meal plan.....	\$ 830.
<b>Room and Board</b> (10-week summer semester, estimate)	
Single room.....	\$ 550
Double room.....	\$ 367
Board..... 15-meal plan.....	\$ 400
..... 10-meal plan.....	\$ 375

**PAYMENT OF STUDENT ACCOUNTS**

Tuition and fees are calculated according to the number of credit hours for which a student is officially registered at the end of the drop/add period of each semester. Students are billed by mail at their local addresses. **It is imperative that the address on file with the Office of Records be correct,** since the billing is mailed to that address. Students may make payment by mail or in person. Payment should be made by the date specified on the bill. If payment is not received by the date due, a late payment fee is charged, as follows:

Amount owed.....	Late payment fee
\$ .25-\$ 99.99.....	\$10
\$100-\$299.99.....	\$15
\$300-\$499.99.....	\$20
\$500-\$699.99.....	\$30
\$700-\$899.99.....	\$40
\$900 and over.....	\$50

NOTE: Students will not be permitted to register for subsequent terms until all debts have been paid.

**ADDITIONAL PROCEDURES**

Additional admissions procedures are publicized before the beginning of each semester in the class schedule bulletin. The procedures described include the distribution of financial aid, payment due date, drop/add and withdrawal, administrative withdrawal for nonpayment, and refund policies. Students will be held responsible for adhering to the policies and procedures contained in that publication.

**DELINQUENT STUDENT ACCOUNTS**

Students who do not pay tuition and fee charges for the current semester **will not** receive grades and will not be permitted to register for subsequent semesters.

**ADJUSTMENTS**

The Tuition Adjustment Appeals Committee will consider requests for adjustment to billed tuition and fee charges when a student must withdraw due to extenuating circumstances. Please see the semester class bulletin for procedures on how to file an appeal.

**FINANCIAL ASSISTANCE**

Financial aid is a resource for students and their parents to seek monetary assistance to help defray the costs of higher education. Eligible students who demonstrate financial need may receive assistance from either a grant, loan, work-study or scholarship funds. Students may obtain applications and other necessary forms from the Office of Financial Aid, Room 309 of the Administration building.

The primary responsibility of paying for education rests with students and their families; assistance offered through the university is intended to supplement the family contribution. Requests for assistance always exceed the funds available, and federal monies are related to documented financial need. Therefore, the Office of Financial Aid requires students to follow the instructions for applying for aid outlined in the Student Financial Aid Handbook available in their office.

**FINANCIAL AID POLICIES**

Students must complete all necessary forms and submit the required documents to be considered for financial aid. Full-time students receive funding priority.

Funds are awarded with consideration for high need first, then moderate to low need.

**When to apply (priority filing date).** To be considered for financial assistance, students must complete **either** the Financial Aid Form (FAF) Need Analysis Report processed by College Scholarship Service **OR** the Family Financial Statement (FFS) processed by the American College Testing Program. Processing of either of these applications requires approximately thirty (30) days. Therefore, to meet the file completion deadline below, students must mail the FAF or FFS on or before March 15, 1989.

The USC Office of Financial Aid requires a separate institutional application for aid recipients. This application, the FAF or FFS Need Analysis, signed copies of students' (and parents') 1988 Federal tax return (1040's) if the student is selected for verification, and other required documentation must be in the financial aid office on or before the following file completion dates:

Summer:	April 14, 1989
Fall '89 - Spring '90:	May 15, 1989
Spring '90 (only):	November 1, 1989

Students applying for financial aid through either FAF or FFS have the option of releasing their application data to the United States Department of Education for Pell Grant consideration. The processor will forward all data to USDE and a Student Aid Report (SAR) will be processed and forwarded to the student. The student must then submit the SAR to the financial aid office immediately; the Pell Grant **cannot be awarded** by the financial aid office until the SAR is received.

**Requirements for processing an application.** To have an application processed and be considered for financial assistance, students must:

- 1) be accepted for admission to USC as a degree-seeking (classified) student; and
- 2) have a complete financial aid file.

Continuing students must be in good standing, comply with the financial aid Satisfactory Progress Policy, and must apply each year.

Students may **not** receive financial aid if they are:

- 1) on financial aid or academic suspension;
- 2) in default on student loans or owe repayments on grants previously received to attend USC or other institutions, or if parents are in default on a PLUS loan; or
- 3) not citizens or permanent residents of the United States.

**Definition of good standing.** Students are considered to be in good standing for financial aid purposes if they are eligible to be enrolled in accordance with the guidelines established by the university and the Office of Financial Aid.

## FINANCIAL AID PROGRAMS

### GRANTS

**Pell Grant (formerly BEOG).** A Pell Grant is an award to help undergraduates pay for their education after high school. For the Pell Grant Program, an undergraduate is one who has not earned a bachelor's or first professional degree. (A professional degree would include a degree in such areas as pharmacy or dentistry, for example.)

For many students, Pell Grants provide a "foundation" of financial aid, to which aid from other Federal and non-Federal sources may be added. Unlike loans, grants don't have to be paid back.

**Students must apply each year.** Normally the period of eligibility is extended to the period required for completion of the first baccalaureate course of study with a five-year limit.

**Colorado Student Grant (CSG).** The CSG is awarded to undergraduate residents on the basis of financial need. The amount of this grant cannot be greater than \$2000 an academic year and generally will not exceed one-half the documented financial need.

**Supplemental Education Opportunity Grant (SEOG).** The SEOG is a form of non-repayable financial aid and is designed to assist undergraduate students with exceptional need. Awards may not exceed \$4000 per year.

**State Student Incentive Grant (SSIG).** The SSIG is awarded to undergraduate resident students on the basis of financial need. The awards are usually not greater than \$2500 per academic year and generally will not exceed one-half of the documented financial need.

### WORK-STUDY

**College Work-Study Program (CWSP).** The CWSP is designed to provide jobs to students who, without the earnings from the employment, could not attend the university. The program is funded by both the federal government and the state of Colorado. The university annually employs approximately 700 students in the work-study program. When possible, employment is arranged in the student's major area of interest. The average work-study award for freshmen and sophomores is \$1500 per academic year, for juniors and seniors, \$1800. The average wage rate for work-study students is approximately \$3.85 per hour. Earnings are paid by check every two weeks.

**Full-time work-study.** Full-time work-study is a program designed to provide students with employment during the summer. Some of the earnings from the employment must be used to offset the next academic year's educational costs.

To be eligible, students must:

- 1) enroll at the university for the next academic year as degree-seeking (classified) students;
- 2) document financial need for the next academic year;
- 3) complete separate applications for the summer full-time work-study and for the next academic year by the specified date;
- 4) save a major portion of their earnings to assist with next year's educational expenses; and
- 5) forego enrollment in summer classes.

**No-need work-study.** The no-need work-study program is funded by the state of Colorado. To be eligible, students must be undergraduate Colorado residents. The no-need program is limited to students who have specified work opportunities on campus which will provide valuable and/or professional experience. Students must possess a skill or talent which is of use in a specific university position.

Students are selected for this program on the basis of their qualifications and the amount of funds available. The average no-need work-study award for the academic year is \$1500. Students must apply for need-based financial aid and must be found not eligible in order to qualify for the no-need program. They must complete either the College Scholarship Service Financial Aid Form (FAF) or the American College Testing Program Family Financial Statement (FFS). Students should not assume that they will be found ineligible for need-based financial aid. Those who are declared ineligible, however, may qualify for the no-need work study.

## LOANS

**Perkins Student Loan (formally titled National Direct Student Loan - NDSL).** A Perkins Loan is a low interest (5 percent) loan to help students pay for their post-secondary education.

Students may be eligible to borrow up to a total of:

- \$4500 if they are enrolled in the first two years of a degree program, or have completed less than two years of a program leading to a bachelor's degree.

- \$9000 if they are undergraduates who already have completed two years of study toward a bachelor's degree and have achieved third-year status (total includes any amount borrowed under Perkins Loan or NDSL for the first two years of study);
- \$18,000 for graduate or professional study (total includes any amount borrowed under Perkins Loan or NDSL for undergraduate study).

Repayment of the loan begins nine months after students graduate or leave school. Students may be allowed up to 10 years to repay the loan. The amount of payment depends upon the size of the debt but usually is in payments of at least \$50 per month. The University may agree to a lesser amount because of extraordinary circumstances such as prolonged unemployment.

**In case of default on a Perkins Loan which the university is unable to collect, the federal government may take action to recover the loan.** Questions about the term of loan repayment obligations, deferment or cancellation should be directed to the financial aid office or to the accounting office.

**Stafford Loan (formerly GSL).** A Stafford Loan is a low-interest loan made by a lender such as a bank, credit union or savings and loan association to help pay for post-secondary educational expenses. The loans are insured by either the federal government or state guarantee agency. For new borrowers who receive loans for periods of enrollment beginning on or after July 1, 1988, the interest rate is 8 percent for the first 4 years of repayment and 10 percent after that. For new borrowers who took out a loan between July 1, 1987, and June 30, 1988, the interest rate is 8 percent.

For students who are not new borrowers and who currently have a 7, 8, or 9 percent Guaranteed Student Loan, the interest rate(s) for any Stafford Loans borrowed in the future will remain 7, 8, or 9 percent. To be sure what your interest rate is, check your promissory note.

A freshman and sophomore can borrow up to \$2,625 each year. A junior or senior can borrow up to \$4,000 each year. A graduate student can borrow up to \$7,500 a year (In some states these amounts may be less). At no time can the amount of a Stafford Loan exceed the student's financial need; therefore, the amount borrowed may be less than the amounts indicated above.

A Stafford Loan application may be obtained from a private lender, the Office of Financial Aid or from a guarantee agency.

Borrowers placed on financial aid suspension, are not eligible for a Stafford Loan and the lender will be notified.

**NOTE:** Applicants for Stafford Loans must complete the Financial Aid Form (FAF) (Needs Analysis), or CFAR and submit it to the College Scholarship Service.

**PLUS loans.** PLUS loans are meant to provide additional funds for secondary educational expenses. The interest rate for PLUS loans is 10.45 percent. PLUS applications may be obtained through participating banks or credit unions.

Parents of dependent undergraduate students may borrow up to \$4,000 per year, to a total of \$20,000, for each child who is enrolled at least half-time & is a dependent student. The borrower (parent) must begin the monthly repayments of a PLUS loan 60 days after the check is received.

The parent may request deferments of repayment under certain conditions established by the Colorado Student Loan Program

**Supplement Loan for Student (SLS).** This loan is available for **independent** students to help pay for the cost of higher education. The interest rate is 10.45 percent. Independent students can borrow \$4000 per year, up to an aggregate amount of \$20,000. SLS borrowers begin repayment within 60 days of disbursement. Principle (loan amounts) repayment may be deferred. Interest payments, if deferred, will be capitalized (added to the principle balance).

**NOTE:** PLUS and SLS applications must be submitted to the financial aid office for completion of the "school" section before mailing to the lender. SLS requires completion of the Financial Aid form prior to submission of the SLS application.

For additional information on PLUS or SLS contact: Colorado Student Loan Program, (303) 450-9911; or the USC financial aid office.

**Short-term loan.** Short-term loans are intended only for those financial emergencies that present extreme hardship which could not reasonably be foreseen and which seriously threaten the continuation of students' enrollment at the university.

Students must be currently enrolled for at least 12 semester credits, must be in good academic standing and must not have an unpaid university account. Short-term loans will not be made at any time when the university is not in session.

Short-term loans will not be made to students who are in their first semester at USC (freshmen and transfer students). Maximum loan amount is \$100 per semester.

Loans are to be repaid within a short period of time (normally within 60 days). If the loan has not been repaid or arrangements made for its repayment by the due date, the delinquent loan will be treated as an overdue student account and handled in accordance with university policy. Applications for short-term loans are available in the Office of Financial Aid. A \$3 fee assessed for processing the loan, will be deducted from the loan amount.

### SCHOLARSHIPS

**USC President's Scholarship.** The President's Scholarship is designed to provide recognition for outstanding academic performance and talent (art, music, drama, speech, special skills) and is awarded to undergraduate Colorado residents who are graduates of Colorado high schools, community or junior college transfer students or continuing students at USC. The amount of the award varies per academic year.

Freshmen recipients are selected on the basis of high school grade-point average, class rank, and Scholastic Aptitude Test or American College Test scores. All others are selected on the basis of the cumulative GPA. These parameters may vary from year to year and are dependent on the availability of funds. Recipients of the scholarships are selected by a special committee. Currently enrolled USC students must complete 24 semester credits per year (Courses graded S/U are not included). Renewal of the scholarship is based on the student's cumulative grade-point average at the end of each semester. Grade-point averages of transfer students are not considered in determining cumulative grade-point averages. The award cannot be used for more than eight academic terms or beyond the time that the bachelor's degree is awarded.

**Awards to out-of-state students.** A portion of the undergraduate scholarship funds may be awarded to non-resident (out-of-state) students provided they meet all established criteria. Applications are available in the financial aid office.

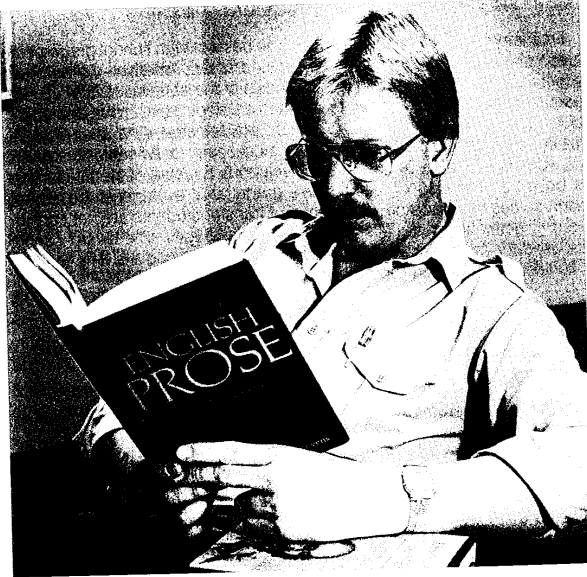
**Private scholarship program.** The University of Southern Colorado Foundation administers many scholarships awarded by corporations, businesses, foundations, individuals and other private sources. Various scholarships also are given by local groups, service clubs, cultural societies and similar organizations. Additional awards are made by university departments out of funds deposited with USC Foundation. Still other awards for designated scholarships are made by the USC scholarship committee.



The following procedure has been established for scholarship disbursements out of the USC Foundation each semester:

- 1) foundation checks payable to each recipient AND the university are placed with the USC cashiers;
- 2) after the drop/add period ends, bills for tuition, fees and other charges are prepared and mailed to all students;
- 3) when scholarship recipients receive their bills, they should report to the cashiers to endorse checks and have their accounts credited;
- 4) when all charges are cleared, any surplus remaining from the check will be paid to the recipient if so allowed by the donor;

Questions about private scholarships may be directed to the USC Foundation. Information about most scholarships is available at the USC Foundation office, 317C Administration building, phone 549-2380, and high school counselors.



## ADDITIONAL ASSISTANCE PROGRAMS

**Student employment services.** The Office of Financial Aid provides a job locator and development (JLD) program designed to encourage the development and expansion of off-campus part-time employment opportunities for all students, regardless of financial need. Additional information on the JLD program can be obtained in the financial aid office.

**Veteran's benefits.** All students who expect to receive veterans or dependents educational assistance from the Veterans Administration are required to register with the veterans' adviser on campus at the start of the each academic year and, if enrolled, before summer session. The university participates in the advance pay system. Education loans of up to \$2500 per year are available through the Veterans Administration. Certain Colorado resident veterans with active duty between August 5, 1964 and August 5, 1973, are eligible for a partial tuition waiver. Veterans must supply the original copy of the DD214 form to the Office of Veterans Affairs, Room 319 of the Administration building, for determination of eligibility.

**Bureau of Indian Affairs.** Students who are at least one-fourth American Indian, Eskimo or Aleut, as recognized by a tribal group served by the Bureau of Indian Affairs, may apply for a BIA grant. The amount awarded is based on financial need and availability of funds from the area agency. For additional information, write to Joseph Gregory, Scholarship Office, U.S. Department of Interior, Bureau of Indian Affairs, P.O. Box 370, New Town, North Dakota 58763.

**Disabled/handicapped students.** The Office of Counseling and Career Services, Room 236 of the Psychology building, provides information and limited services for disabled and handicapped students.

## REFUNDS AND REPAYMENTS

Students may have to refund or repay financial aid if they withdraw. If financial aid recipients become eligible for a refund of tuition, fees or housing payment as a result of withdrawal, reclassification of tuition status or other reason, refund monies are used to reduce financial aid awards. This policy applies whenever refunds are payable. Students who withdraw prior to halfway through the semester may be required to repay a portion of the loans and grants.

**Example - Refund and Repayment**

Jennifer received the following aid per semester:

Pell	\$1000
CSG	\$ 250
Stafford Loan	\$1250
Scholarship	\$ 500
Student Contribution	<u>\$ 500</u>
Total	\$3500

Jennifer withdrew the 6th week of the semester; therefore, she is entitled to a 40% adjustment (possible refund) on tuition and fees.

Total tuition/fees	\$706.00
due for 6 weeks	<u>\$423.60</u> (60% due)
Total refund adjustment	\$283

The \$283 is refunded to the federal and state financial aid programs. In this example, Jennifer earned the rest of her financial aid for room/board and other expenses; she does not have to repay the funds received. There is **no** refund or repayment adjustment after the ninth week of classes. Depending on the week of withdrawal, budget, and total financial aid awarded, a repayment may also be expected from a student who withdrew before the end of the ninth week.

Upon withdrawal, students must report their last day of attendance to the financial aid office. **This date will be verified with the instructor.**

## STUDENT LIFE

### STUDENT SERVICES

The university includes a number of offices, facilities, programs and organizations which exist primarily to enhance and support the students academic life at the university. Correspondence to any of the units should be directed to the particular office or facility.

### HOUSING

Belmont Residence Hall (BRH) houses on-campus students. It is a modern, multi-story building consisting of three wings which are joined by a large commons area. A main lounge serves as a gathering area, a movie theatre, and a large-screen satellite television viewing area. The housing office is located adjacent to the lounge, as is the mailroom. The lower level of the commons area consists of a recreation area (including a court for basketball, racquetball and volleyball and a weight room), a study lounge, and a full service laundry room. Belmont Residence Hall also has computer terminals for use by residents only.

BRH can accommodate 500 students, with approximately 48 students residing on each floor. All rooms are designed for two people, although single occupancy is available. Rooms contain beds, desks, bookshelves, study lamps, closets, dressers, and chairs. Linen service is available for a nominal charge.

Because consideration for others' rights to study and relax are high priorities in any academic community, quiet hours exist on each floor from 8 a.m. to 8 p.m. each day. Recognizing that studying takes a good study environment and more concentration for some, 24-hour quiet floors also are available to students. All residents enjoy equal access to services and programs within the residence hall regardless of their choice of lifestyle floor.

The director of Residence Life is a full-time, professionally-trained staff member responsible for the overall well-being of residents. The director is trained in counseling, administration, leadership training, human growth and development, and other similar areas of concern to college students. Upperclass live-in students assist the director and help students directly with programs, questions, problems and referrals to appropriate university services. Student personnel include assistants to the director and resident assistants.

**Programming.** The Belmont Residence Hall Association staff members and residents work together to provide educational, social, cross-cultural and recreational programming to enhance the living/learning environment of the residence hall. Activities can be planned either as floor, wing or hall events.

The Belmont Residence Hall Association is an avenue for students who desire to be positively involved and to gain leadership skills.

All full-time (enrolled for 12 or more hours), single, non-veteran freshman students under 21 years of age, enrolled in any university program must live in the Residence Hall and participate in one of three meal plans. Students who make application to USC with permanent home addresses and high school transcripts from communities that are within a 50-mile radius of the campus are exempt from the live-in requirement. Applications for appeals from the live-in requirement are due by the first day of class each semester.

A \$100 security/damage deposit must accompany each application for space in BRH. This deposit is not applied to room and board payment and is held in escrow for the duration of the student's occupancy. Occupancy and damage deposit payments may not be deferred.

**Housing for married students.** Presently, no housing is available on campus for married students. Married students should contact the Joseph Occhiato University Center office (Room 113) for referral to housing in the community.

**Contract board policies.** Belmont Residence Hall students are required to contract for meals at the university. Meal plans are purchased each semester and allow the student full dining privileges for that term. Meal passes are not transferable. Special diets prescribed by a physician are given consideration.

**Off-campus housing.** The Joseph Occhiato University Center office maintains a file of off-campus, privately owned rooming houses and apartments. Since listings change rapidly, prepared housing lists are not furnished.

### FOOD SERVICE

All campus food services are located in the Joseph Occhiato University Center. The main cafeteria is on the ground floor. Serving hours are:

#### Monday through Friday

Breakfast	7:00 a.m.—8:15 a.m.
Continental breakfast	8:15 a.m.—9:15 a.m.
Lunch	11:15 a.m.—1:15 p.m.
Dinner (except Friday)	5:00 p.m.—6:30 p.m.
Friday dinner	5:00 p.m.—5:45 p.m.

#### Saturday and Sunday

Brunch	10:30 a.m.—12:30 p.m.
Dinner	5:00 p.m.—5:45 p.m.

The snack bar and pub, La Cantina, is on the first floor of the Joseph Occhiato University Center and is open weekdays.

A small restaurant, the Aspen Leaf, is on the top floor of the center. Serving hours are from 11:30 a.m. to 1:30 p.m. weekdays when classes are in session.

Student meal plan I.D.'s are usable only in the dining hall and may be purchased by commuters as well as resident students. Discounted cash cards are available in small denominations of \$25 at Auxiliary Services, Joseph Occhiato University Center, Room 114.

### COUNSELING AND CAREER SERVICES

**Counseling.** The Office of Counseling and Career Services, located in Room 236 of the Psychology building, houses many services available to students. USC provides professional services for students and the community including personal-social counseling, student discussion groups, seminars and workshops and an intake-referral system for other student/community activities.

**Career Services.** USC provides information to assist students in making career choices and provides professional vocational counseling. Standardized instruments to evaluate an individual's potential are administered at no cost to the student.

The placement office in the same location supplies tools and techniques (including placement packets, job vacancy bulletins, resume and interview skills and general job-hunting strategies) to help potential graduates and alumni find career-related employment. This office is the on-campus clearing house for local and national job opportunities.

**Student Academic Advisement.** Academic advisement for undecided and unclassified students is available throughout the academic year. Once committed to an academic major, students are referred to faculty members in their major field for advising.

**Testing Services.** USC is a state and/or national test center for standardized tests including GED, ACT, ACT-PEP, SAT, GRE, MAT, ETS Insurance and Real Estate and various individual student interest tests such as vocational interest, personality, ability and I.Q.

**Handicapped Services.** The USC campus is barrier-free and Belmont Residence Hall provides adequate living facilities for handicapped students.

## OTHER STUDENT SERVICES

**Orientation.** At the beginning of each semester, a program of orientation for transfer and new students is offered. During orientation, students are introduced to key academic and administrative personnel, learn about university policy, receive academic advising and register for classes. The **university calendar** in this catalog and the semester bulletin list orientation dates and times. All transfer and new students are urged to attend.

The Office of Admissions provides information and dates for other opportunities for campus visits and orientation.

**Student Health Service.** The student health service offers medical care to all students. The clinic is operated by a registered nurse and a secretary; a physician is on duty a part of each week.

Students are encouraged to visit the health clinic, located in Room 004 in the Joseph Occhiato University Center, whenever necessary.

Referrals to other physicians may be made when appropriate or if requested by the student. All medical records are confidential.

**International Student Services.** The Office of International Student Services helps students from other countries during their stay at the university. The office includes among its concerns, immigration matters, academic problems, student organizations and housing and subsistence emergencies. It is located in the Joseph Occhiato University Center, Room 160.

**American Language Academy.** The American Language Academy is leasing facilities on the USC campus to provide an intensive English language program for the foreign student.

Although USC credit is not provided for ALA courses, USC students may enroll in the academy's classes to improve English proficiency.

The international student enrolled with the American Language Academy who is in the highest levels (4 or 5) may be permitted to enroll in USC classes for up to a maximum of nine semester hours of USC credit per semester. Approval by the university and the director of ALA is required. Students seeking admission to USC as potential degree-seeking students must meet the university's international admissions requirements. (See page 14.)

American Language Academy offices are located in the Joseph Occhiato University Center, Room 121. Contact American Language Academy, by telephone at (719) 549-2222, Monday-Friday, 8 a.m. to 5 p.m. or write to the American Language Academy in care of the university.

## STUDENT ACTIVITIES

**Clubs and organizations.** USC students have opportunities to take part in the activities of a number of clubs, fraternities, sororities and honor societies. Membership often is based on special qualifications. Students interested in starting a new official campus group must first find a faculty member willing to sponsor the group. Then seven copies of the proposed constitution should be submitted to the chairperson of the Associated Students' Government Charter Committee.

**Student activities.** The Office of Student Activities in Room 036 of the Joseph Occhiato University Center houses the Student Activities Board, funded by student fees. The board is responsible for planning, coordinating and implementing student-oriented activities on and off the USC campus. The board is composed of several committees: Special Events, Cultural Events, Town and Gown, Ethnic and Minority Programs, On-Stage, Outdoor Programs, and Production.

**Student government.** All registered USC students who have paid fees are members of the Associated Students' Government (ASG). ASG's main purpose is promoting student life and maintaining the general welfare of the student body.

ASG functions through three branches of government: legislative, executive and judicial. The legislative branch, the ASG senate, is composed of 14 senators elected from the student body and is presided over by the ASG executive vice president. The executive branch consists of the president, the vice president and the vice president of the Office of Management and Budget. The judicial branch is composed of five justices, one of whom is designated the chief justice. The senate meets weekly.

## ATHLETICS

USC views participation in intercollegiate athletics as a beneficial experience and a worthwhile part of the entire educational process. All students are invited to participate.

The university is a member of the National Association of Intercollegiate Athletics, and the Rocky Mountain Athletic Conference. USC sponsors the following intercollegiate sports:

Men: basketball, cross country, track and field, wrestling, golf, and tennis.

Women: volleyball, basketball, cross country, track and field, and tennis.

## INTRAMURALS

Intramurals involve students and staff in organized recreation and sports activities. Coeducational and men's and women's activities are offered in a variety of sports. All students are encouraged to participate, either as individuals or with teams.

## FEDERALLY SPONSORED PROGRAMS

**Minority Biomedical Research Support program.** The University of Southern Colorado provides research experience for students interested in pursuing a career in the biomedical disciplines. Participating students often contribute to the publication or presentation of research findings. The Minority Biomedical Research Support program sponsored by the National Institutes of Health has been active on campus since August 1981.

**Special Services.** The Special Services Program expands educational opportunities for students who demonstrate personal motivation and a high potential for academic success. Low-income, first-generation students who meet the criteria established by the U.S. Department of Education are encouraged to apply.

**Educational Opportunity Center.** EOC counselors are assigned to area junior and community colleges to help low-income and first-generation students continue their post-secondary education. Students are assisted with admissions procedures, career counseling, and financial aid preparation.

**Upward Bound.** Upward Bound is a pre-college program for high school students from low-income and first-generation families in Pueblo County. Through counseling and tutoring, the program helps students develop the motivation, interest and skill necessary for acceptance into and success in college. An intensive summer program assists high school graduates through six credits of college courses. Those who have not yet graduated from high school attend classes that emphasize English, mathematics, social studies, science, reading, speech and art.

## VETERANS' AFFAIRS

The Veterans' Affairs Program provides information on programs and benefits available to veterans, including veterans' advisory services, educational benefits and programs, tutorial services and general information. For further details, write to the coordinator of Veterans' Affairs or visit the office, Room 319 of the Administration building.

**Field experience courses.** Certain courses listed in this catalog involve university-supervised, on-the-job experiences. In such courses, which may be required, the student is not permitted to receive remuneration for services performed with the host business or agency. In certain cases, remuneration may be received in courses classified as electives within the student's program. The Veterans Administration has requested that the differentiation be made.

**Benefits.** The courses offered by the university, with certain exceptions, are approved for the training of veterans under Chapter 34, Title 38, U.S. Code (PL 815) as well as for dependents of veterans under Chapter 35, Title 38, U.S. Code. Recipients also include the new Montgomery GI Bill (Chapter 30), which encompasses service personnel recently discharged and active reservists. Veterans and dependents who plan to utilize benefits administered by the Veterans Administration while attending USC must report to the Office of Veterans Affairs as soon as the decision is made to attend the university.

## JOSEPH OCCHIATO UNIVERSITY CENTER

During the academic year, the Joseph Occhiato University Center is open regularly from 6:30 a.m. to 8 p.m. on weekdays and as scheduled events require. Saturday and Sunday, the center is open during meal hours and as scheduled for events. Limited hours are established during summer and when classes are not in session. Center hours are extended to accommodate events and meetings.

## USC BOOKSTORE

The USC bookstore is a modern 20,000 square-foot store in the Joseph Occhiato University Center serving USC faculty, staff and students. Texts for classes, general interest books, current magazines, classroom supplies, notions, calculators, greeting cards and sport and t-shirts are among the many items sold in the bookstore. Hours of operation are printed in the semester bulletin and on the bookstore entryway.

## THE UNIVERSITY LIBRARY

The University Library provides information services to students, faculty, staff, and patrons throughout the city and region.

Library faculty and staff assist patrons in learning how to find and utilize books, periodicals, pamphlets and government documents through instruction for individuals, small groups or formal classes. Staff also prepare subject bibliographies for classes, arrange inter-library loans, and provide computer-based reference searches.

Approximately 200,000 volumes are available, as well as more than 1300 periodical titles. The University Library is a designated selective depository for U.S. Government documents and geological survey maps. Special collections include Colorado documents; a Slavic Heritage collection; the papers of Vincent Massari, former state senator; the Alva Adams family papers; Tobi Hopkins Black Literature, the Ralph Taylor Southwest collection, and the Edward O'Brien Western collection.

The Audiovisual Collection in Library 310 offers student carrels for playback of video tapes, sound filmstrips, sound slides sets and audio cassettes. Students may check out audio cassettes, cassette players and headphones. Software, including 16 mm films, is available to faculty members for use in curricular programs.

## STUDENT AFFAIRS

### EDUCATIONAL RECORDS

**Annual notification of rights.** The university informs students annually of their rights accorded by the Family Educational Rights and Privacy Act of 1974 (P.L. 93-380).

**Right to inspect and review educational records.** Eligible students may inspect and review their educational records except those prohibited by section 438 of the act. A reasonable fee will be charged for requested copies.

"Educational records" means those records which: 1) are directly related to a student, and 2) are maintained by an educational agency or institution or by a party acting for the agency or institution.

**Limitation on destruction of educational records.** The university is not precluded by section 438 of the act from destroying educational records, subject to the exceptions delineated under 20 U.S.C. 1232g(a)(2).

**Request to amend educational records.** An eligible student who believes that information contained in the educational records of the student is inaccurate or misleading or violates the privacy or other rights of the student may request that the university amend the records.

**Right to a hearing.** The university shall, on request, provide an opportunity for a hearing in order to challenge the content of a student's educational records to ensure that information in the educational records of the student is not inaccurate, misleading or otherwise in violation of the privacy or other rights of students.

**Conduct of the hearing.** The hearing required to be held shall be conducted according to procedures which shall include the due process elements as they appear under 20 U.S.C. 1232g (a)(2).

**Prior consent for disclosure required.** The university will obtain the written consent of an eligible student before disclosing personally identifiable information from the **educational records** of a student. This process is not required if the information is considered **directory**. Both terms are defined below.

Educational records requiring student release are defined at USC as grade reports, transcripts, disciplinary files and class schedules.

Directory information which does not require prior consent, is defined as student name, address, telephone number, date and place of birth, major field of study, participation in officially recognized activities and sports,

weight and height of members of athletic teams, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student and other similar information.

Although the university does not abridge either Public Law 93-380 (The Privacy Act) or PL 93-579 (amendment thereto), some educational records may be released without prior student approval under the law. Examples are 1) records that may be released to appropriate parties in a health or safety emergency; 2) records used to help determine the eligibility of the student for financial aid, and 3) personally identifiable information to other school officials within the educational institution or local educational agency who have been determined by the agency or institution to have legitimate educational interests.

**Records of requests and disclosure required to be maintained.** The university shall record all requests for each disclosure of personally identifiable information on each student. The disclosure record is kept with the student's academic records.

**Disclosure to certain federal and state officials for federal program purposes.** Nothing in section 438 of the Act shall preclude official authorized representatives from having access to student and other records which may be necessary in connection with the audit and evaluation of federally supported education programs, or in connection with the enforcement or compliance with the federal legal requirements which relate to these programs.

**Student/staff directory.** A directory is published annually listing the names of students attending USC, their local address, telephone listing, class and major. This information is available to the public and is released unless an annual written request to withhold such information is filed with the Office of Records by the end of the second week of classes.

Parents of the student or the eligible student have the right to refuse to permit the designation of any or all of the categories of personally identifiable information with respect to that student as directory information. Such a request must be made through the Office of Records by the end of the second week of classes.

#### VEHICLE REGISTRATION

Students operating vehicles on campus must register their vehicles with the University Police department before the first day of classes. A student parking permit costs \$12 per year, \$6 for a single semester. To register a vehicle, each student must present a valid driver's license, a vehicle registration card or proof of ownership and valid university identification. The permit does not guarantee a parking space.

#### IDENTIFICATION CARDS

All students enrolled should obtain an ID card, provided by the Joseph Occhiato University Center office (Room 113) during regular working hours Monday through Friday from 8 a.m. to 5 p.m. To obtain an ID, students must show a picture identification and the computer printout of a class schedule for the semester. Continuing students must have ID's validated each semester, and must present confirmation of registration.

#### VIOLATIONS OF LAW ON CAMPUS

To protect its educational mission, the university takes a firm and fair stand concerning violations of law on campus. The University Police department is charged with the responsibility for maintaining law and order at the University of Southern Colorado and for enforcing all national and state laws, local ordinances and regulations of the university, except when such enforcement is, by such law, made the responsibility of another department, official or agency.

Deliberate illegal activity which comes to the attention of USC officials is not tolerated; officials do not interfere with lawful investigations or prosecutions of the law on campus. No one should assume that USC is a sanctuary for persons breaking the law. At USC, each individual is responsible for his or her behavior.

An offense necessitating police action also may be treated internally as a university disciplinary matter.

#### STANDARDS OF CONDUCT

Members of the university community are expected to observe the laws of Pueblo, the state of Colorado and the federal government and to respect other members of the community. Students, faculty and staff members of USC neither gain nor lose any of the rights of citizenship. Activities which render students liable to disciplinary action are:

- 1) Violation of federal, state and city laws and ordinances or any other conduct that adversely affects the functions of the university in the pursuit of its objectives.
- 2) Theft or damage to university property or harm to a member or guest of the university community.
- 3) Unauthorized entry into or use of university-controlled facilities or property.
- 4) Failure to comply with directions of university officials acting in the performance of their duties.

- 5) Violation of the university's and/or residence hall's regulations concerning the use, possession or consumption of alcoholic beverages.
- 6) Use, sale, distribution or possession of drugs, controlled substances, barbiturates, not authorized by a physician or those which are illegal.
- 7) Violation of published university, campus or residence hall policies, rules or regulations.
- 8) Hazing in any and all forms.
- 9) Disorderly conduct or loud, indecent or obscene conduct on university or university-controlled property or at university-sponsored functions.
- 10) Physical or verbal abuse or intimidation of anyone on university or university-controlled premises or at university-sponsored functions or any conduct that endangers or threatens the health, safety or well-being of any person.
- 11) Dishonesty, such as cheating, plagiarism, misrepresenting one's self or facts or knowingly furnishing false information to any person or agency within the university community.
- 12) Any form of academic dishonesty, including the acquisition of tests or other academic material belonging to a member of the university community without proper authorization, whether the acquisition is for personal gain or for the benefit of someone else.
- 13) Forgery, alterations or use of USC documents, records, instruments or identification with intent to defraud or mislead.
- 14) Violation of university traffic or parking regulations.
- 15) Intentional obstruction or disruptions or inciting others to obstruct or disrupt teaching, research, administration, disciplinary proceedings or other university or university-authorized activities.
- 16) Appropriating public or private property without the consent of the owner or person responsible.
- 17) Possessing or using illegal or unauthorized firearms, explosives, dangerous chemicals, or other weapons on university-owned or controlled property.
- 18) Possessing or consuming alcoholic beverages on or in university property, except in those areas authorized by the university, and then only those types of beverages authorized by the university.

- 19) Failing to show proper identification to university police officers or other university staff (acting in official capacity) when requested to do so.
- 20) Failing to meet university financial obligations.
- 21) Tampering with fire equipment in any manner.
- 22) Any fraudulent misuse of university computer hardware or software.

**DISCIPLINARY PROCEDURE**

The primary responsibility for administering student discipline rests with the Office of Dean of Student Services. In this capacity, the dean serves as the disciplinary ombudsman who receives and investigates all disciplinary complaints in an effort to alleviate unnecessary duplication of efforts while affording to all parties equal protection of the law. The dean delegates the responsibility for administering the judicial disciplinary process to a designated hearing officer. The hearing officer is responsible for discipline involving unacceptable student conduct and infractions of USC rules and regulations (other than academic rules and regulations).

The decisions of the hearing officer may be appealed to the campus appeals board, the highest hearing and appeal board for non-academic matters at the university. Decisions involving academic infractions, appeals, etc. must follow the procedures established by the academic division of the university.

If the hearing officer or campus appeals board determines that a student has violated a university regulation, a sanction may be imposed. Sanctions range from warnings to expulsion from the university. The Office of the Dean of Student Services provides upon request the institutions' **Standards of Conduct Handbook**, which contains a detailed explanation and description of institutional disciplinary philosophy, rules and regulations.





## ACADEMIC POLICIES

Students are advised to become familiar with the academic policies of the university. Each student owns the responsibility to comply with those policies. The Office of Records exercises all possible care in checking students' records for graduation; however, **it is the sole responsibility of the student to fulfill all requirements for a degree.**

### CATALOG REQUIREMENTS

Students may graduate under the catalog requirements for the year in which they are first enrolled, provided they complete graduation requirements within a continuous period of no more than 10 years. If a student withdraws or is withdrawn for any reason from the university and is subsequently readmitted after an absence of two or more semesters, readmittance will be governed by the catalog current at the time of readmission. Any exceptions to this policy must have prior approval from the Office of the Provost and Vice President for Academic and Student Affairs. Students should obtain and keep a copy of the catalog under which they enter or are readmitted.

Students in the College of Applied Sciences and Engineering Technology, however, are required to meet the degree program requirements listed in the catalog in effect at the time they are admitted to that degree program, provided they subsequently complete graduation requirements within a continuous period of no more than 10 years.

**TIME LIMITATION ON CREDIT**

Any college credit earned more than 10 years before the date of admission or readmission is not applicable toward the degree desired unless it is approved by the chair of the department offering the course(s) [or equivalent(s)], and by the appropriate dean.

**DEAN'S LIST AND GRADUATION WITH DISTINCTION**

To qualify for placement on the dean's list, published fall and spring semesters, students must achieve a minimum grade-point average of 3.5 and place in the upper 10 percent of all eligible students. To be eligible, students must be degree-seeking and must earn at least 12 credit hours in which grade points were awarded.

Students maintaining high scholastic averages are awarded undergraduate degrees **with distinction** or **with special distinction**. A minimum of 60 hours must be earned at USC for a student to be considered for graduation with distinction. To graduate with distinction, a student must have a minimum cumulative grade-point average of 3.50; for special distinction, a minimum grade-point average of 3.75 is required.

**CLASS HOURS AND CREDIT HOURS**

A class hour consists of 50 minutes. One class hour a week of lecture or discussion for a semester earns a maximum of one credit hour. Two or three class hours a week of laboratory activities for a semester earns a maximum of one credit hour. The number of credits awarded for a given course is determined by the number of lecture or laboratory hours spent each week in class.

**FULL-TIME PROGRAM**

A full-time program of study minimally consists of 12 credit hours per semester and normally consists of 15 to 18 credit hours per semester during the regular academic year. Under a normal full-time program, most students can complete a bachelor's degree in four years. To receive financial aid, insurance discounts, or full veterans' benefits, students must earn at least 12 hours per semester.

**LIMITS ON PROGRAMS OF STUDY**

Programs of study in excess of 18 semester credit hours are defined as overloads. Both resident and extended studies courses are counted in the credit-hour total.

Freshmen who have earned fewer than 15 semester credit hours may not take an overload. Students with 15 or more semester hours may enroll for an overload according to the limits set below.

GPA	Credit-hour overload permitted
less than 2.50	0
2.50-3.40	3
3.41-3.80	6
3.81-4.00	7

**Under no circumstances** may a student enroll for more than a total of 25 semester credit hours in a single semester.

Overload requests must be approved by the student's faculty adviser, department chair and college dean. All three signatures are required. Appeals may be made to the Office of the Provost and Vice President for Academic and Student Affairs.

**CREDIT BY EXAMINATION**

Departmental faculty shall identify those undergraduate courses, if any, for which students may earn credit by examination.

A student may earn credit by examination in any of the approved courses subject to the following conditions:

- 1) The student has not previously earned credit in the course at USC, previously failed a challenge exam for the course, or previously failed the course itself.
- 2) The student has approval of the appropriate department chair (with appeal rights to the dean) to take the challenge examination.
- 3) The student's performance on the examination is at the level of B or better.
- 4) The student is currently admitted to USC or enrolled and in good academic standing at the time the examination is administered.
- 5) The student does not use the challenged course to satisfy the residence request for graduation.
- 6) The student must satisfy any additional criteria as specified by the department.

A student may earn a maximum of 30 hours of credit by examination, with no more than 10 hours of general education courses included in the total.

If the student is successful in challenging a course, the title of the course, credit hours and notation of credit by examination will be recorded on the student's permanent record. Unsuccessful attempts are not recorded on the transcript.

The credit hours earned by examination do not count in the student's load for the semester or in the calculation of the student's grade-point average.

The non-refundable fee for credit earned by examination is \$50 per course. Application forms for credit by examination are available in the Records office.

### CLASSIFICATION OF STUDENTS

Classification of undergraduate students is based on semester credit hours earned as follows:

**Freshman:** A student who has earned fewer than 30 semester hours of credit.

**Sophomore:** A student who has earned 30-59 semester credit hours.

**Junior:** A student who has earned 60-89 semester credit hours.

**Senior:** A student who has earned 90 or more semester credit hours.

**Graduate Student:** See the Graduate Studies section for classification information.

**Unclassified:** A student who has made no commitment to earning a degree. An unclassified student may be classified as degree-seeking when and if admission status is determined. Students under suspension, or those denied regular admission, are not eligible to enroll as non-degree students. Additional information on unclassified students is contained in the Admissions section of this catalog.

**Auditor:** A student who has been permitted to enroll in a course for which he or she will receive no credit. Auditors determine their own attendance, take no examinations, receive no grades, do not participate in classroom discussion except as permitted by the instructor and earn no credit. They pay the same tuition as persons enrolled for credit. An auditor may not be reclassified to receive credit in the course after the final date for adding courses. In place of a grade, students receive the symbol NC (no credit) on their transcripts. Students wishing to register as auditors must declare their intention at registration. Auditor forms are available in the Office of Records.

**Part-time student:** A student carrying fewer than 12 semester hours in any semester.

### GRADING

Course grades are reported by letter only. The scale of grades and grade points follows:

Grade		Grade points per credit
A	(Excellent)	4
B	(Good)	3
C	(Average)	2
D	(Poor, but passing)	1
F	(Failure)	0
IN	(Incomplete)	*
W	(Withdrawal)	*
WF	(Withdrawal failing)	0
WN	(Administrative withdrawal)	0
S	(Satisfactory)	**
U	(Unsatisfactory)	0
NC	(No Credit)	*
IP	(In Progress)	*

\*Credit is not used to compute grade-point average and is not counted toward graduation.

\*\*Credit is not used to compute grade-point average but is counted toward graduation.

Grades of S and U are available only in certain approved courses. Although a D is passing, it does not constitute a satisfactory grade. Students must have a 2.00 cumulative grade-point average (C) to graduate and to avoid being placed on probation. Many departments and programs do not permit D grades to count toward fulfillment of their requirements, even though the hours can be counted toward graduation requirements. D grades from other institutions are not accepted in transfer. Some programs require averages higher than 2.00. Students should check the information provided in the descriptions of the specific majors, minors or other programs in which they are interested. A course grade of F does not constitute a passing grade nor does it satisfy major or institutional requirements.

**In progress.** A grade of IP (in progress) may be given at the close of the term in certain approved courses. Students receiving an IP must register in the same course the next term, pay tuition and must complete the work during that term.

**Incompletes.** A grade of IN (incomplete) is a temporary grade indicating that the student has a satisfactory record in work completed, but for reasons beyond his or her control has missed the final examination or failed to complete other course requirements. Any instructor giving an IN grade must submit an incomplete grade form in four copies. One copy is sent to

the student, one to the Office of Records, one to the department chair's office, and one is kept by the instructor. A grade of IN may be changed by the instructor. If incompletes are not completed by the end of the second semester (excluding summer) after they are received, a letter grade of A, B, C, D or F must be assigned by the instructor. Students are responsible for completing the course and initiating the change of an IN to a permanent grade. Re-registration is not necessary.

**Grade-point average computation.** The grade-point average (GPA) is calculated by totaling the number of grade points earned, based on the scale above, and the number of credit hours undertaken. The total grade points earned divided by the total credit hours undertaken provides the grade-point average. If, for example, the number of credit hours undertaken is 16 and the grade-point is 44, the GPA is 2.75. S's, U's, W's, IP's, IN's, and NC's are not computed in the grade-point average. For the purposes of computing grade-point average, only USC hours are earned.

### FINAL EXAMINATIONS AND GRADE CHANGES

Final examinations are not to be scheduled at times other than those published in the class schedule bulletin. In some courses a final examination may not be appropriate to the material; however, classes continue to meet through the period scheduled for the final examination.

Final grades entered in the Office of Records are unalterable unless a grade change form is completed and signed by the instructor, the department chair, and the dean. A grade-change request should be extremely rare, resulting from an instructor's error in calculating the original grade or a similar occurrence. It is not appropriate to change a grade because the student submitted additional work. Letter grades of A, B, C, D or F may be changed by instructors to letter grades of A, B, C, D or F before the end of the following term (summer excluded) only with the approval of the college dean. Grades of S, U, W, WF and NC may not be changed. Students are responsible for initiating requests for grade changes.

### FACULTY RECORDS

All faculty members keep appropriate records (such as grade books or sheets) of each student's progress in every course offered for university credit. The records are in addition to the final grade reports which are submitted to the Office of Records at the end of each term. Records are retained by the faculty member's department for one year. They are kept in confidence by the faculty member and chair of the department.

### REPEATED COURSES

Undergraduate students may repeat courses. When a course is repeated, only the higher grade and credit earned are computed into the student's grade-point average, provided the student has requested a recomputation of grade-point average by the Office of Records. The previously attempted courses and grades remain in the academic record but are not computed in the overall average.

Transcripts contain an appropriate entry indicating that the grade-point average has been recomputed and stating the basis for recomputation. If a student fails a course twice, only one failure is computed into the grade-point average.

### CLASS SCHEDULE CHANGES

**Changes of major.** All changes of major must be made through the Office of Records with the approval of appropriate department chair and college dean.

**Adding courses.** Students will be allowed to add courses during the first 5 class days of the semester. Course additions must be processed through the Office of Records. After the first 5 class days, additions must be approved by the instructor and department chair.

Students are responsible for processing schedule changes during the drop/add period. **Under no circumstances** shall the instructor assume this responsibility on behalf of the student.

**Addition of independent study and continuing education courses.** A resident student may enroll in independent study and continuing education courses only if the addition of such courses will not cause his or her program to exceed the maximum course load allowable and only after permission has been given by the dean of the appropriate college.

**Dropping courses.** Courses may be dropped from a student's schedule through the initial schedule change period as specified in the class schedule without a record of the dropped course appearing on the student's permanent record. Courses must be officially dropped through the Office of Records. Short or mini-courses may be dropped in the same manner before 15 percent of the course duration has passed.

Following the end of the drop/add period, students may drop classes according to the policies below.

When a student drops a course before 80 percent of the course duration has passed, the instructor gives a grade of W if the student is currently passing the course, or WF to a student not doing passing work. After 80 percent of the course duration has transpired, all drops result in grades of WF.

**NOTE:** 80 percent of a 15-week course occurs at the end of the twelfth week.  
80 percent of a 10-week course occurs at the end of the eighth week.  
80 percent of a 5-week course occurs at the end of the fourth week.  
80 percent of a 8-week course occurs at the end of the sixth week.

Exceptions to the above policy must be approved by the instructor and the dean of the appropriate college. A grade of W does not effect the student's grade-point average, but a WF is calculated as an F grade. Grades of W, WF, and NC may not be recorded during the final week of the semester.

#### WITHDRAWAL.

To withdraw officially from the university students must file a withdrawal form with the Office of Records.

**Timing is critical.** Students who withdraw after the end of the drop/add period, are not refunded full tuition and fees. Students who withdraw after the sixth week of the semester also may suffer academic loss: a grade of F may be assigned by instructors if they are not notified officially of the student's withdrawal. Students residing in the residence hall also must check out with the housing office.

**Military withdrawal.** If military obligations interrupt the academic work of a member of the armed forces registered for courses, the student may ask instructors for an early termination of his or her courses. Early terminations may include, but are not limited to: 1) a grade of W; 2) an incomplete (IN) grade, if there is any chance the student will be able to complete the course requirements; 3) an early final examination and course grade; 4) partial course credit or 5) opportunity to complete the class by independent study. It is the student's responsibility to make such a request in writing to the instructor. After the student and instructor have agreed on the terms of early termination, the agreement must be approved in writing by the department chair and dean.

#### AUDITED COURSES

A student may register for a course as an auditor, without credit, provided the instructor concerned gives permission. The tuition for audited courses is the same as the tuition for credit courses.

Persons 65 years of age or older, or 62 and retired, may audit courses without paying tuition on a space-available basis. Permission of the instructor is required.

#### EXPERIENTIAL CREDIT COURSES

Through cooperative education, internships, field experiences and laboratory research, students in many degree programs have the opportunity to expand their knowledge and apply theory in "real-life" situations. All experiential credit courses occur under the direction of an academic instructor and are a part to the regular university curriculum. In some cases such course are required for majors. All such courses require registration, carry credit, require payment of tuition, are listed in the catalog and include a planned program of activities outlined in the course syllabus. The grading system is the same as the system used for regular courses. Supervised work experience courses are approved for inclusion in veterans' class schedules under Veterans Administration Regulation 14265.

**Credit for life experience.** Some students may seek to receive academic credit for previous, out-of-school work experiences in which the job responsibilities were similar to experiences offered in university-sponsored internships and other programs. Credit for such experiences may be given if the following conditions are met:

- 1) The experience must be directly similar to the content of internships, field courses and or laboratory courses in the regular curriculum.
- 2) The student must describe in writing the nature of the experience and what he or she learned through it.
- 3) The experience and learning also must be documented by the student's supervisor. Documentation must include a detailed account of the nature, frequency and duration of the student's duties.
- 4) A paper integrating the experiences with subsequent or concurrent classroom instruction must be submitted and approved.

The maximum number of semester credit hours allowed for life experiences is six. Any amount over six must be approved and justified by the appropriate dean to the provost and vice president for Academic and Student Affairs. Credit for life experiences is granted only for experience gained within 12 years of the date the degree is expected to be awarded.

Credit for life experiences is subject to the approval of the department chair and the dean of the college in which credit is requested.

### ACADEMIC STANDING

The academic standing of all students is reviewed at the end of each semester. After a student has attempted 12 semester credit hours, he or she must have a grade-point average of 2.00 or higher to remain in good academic standing.

**Probation.** Students are placed on academic probation at the end of any semester in which the cumulative grade-point average falls below 2.00. Notice of probation is given on the grade report. Once a student attains good academic standing (cumulative 2.00 GPA), probationary status is removed. Students on probation are encouraged to contact Counseling Services or their advisers for assistance.

**Suspension.** Students on probation are subject to suspension if at the end of spring semester the cumulative grade-point average falls below the minimum level stated in the following table:

Hours attempted	Cumulative grade point average
12	0.000
24	1.600
36	1.700
48	1.800
60	1.900
72	1.940
84	1.960
96	1.980
108	1.990
120	2.000

Each transfer student must meet the academic standing requirements shown in the admission section of this catalog. For the purposes of measuring hours attempted, the number of hours used shall be the total of transfer credit hours accepted by USC and the number of hours attempted at USC. For purposes of computing grade-point averages of transfer students, only USC hours are used.

Students who have been suspended are not eligible to re-enter for a period of two semesters after the date of suspension except by special permission of the Office of the Provost and Vice President for Academic and Student Affairs. Suspended students are considered on probationary status upon return to the university. Such students remain under the catalog in effect at the time they entered the university. If they exceed the term of the suspension before returning to student status, they re-enter the university under the catalog in effect at the time of readmission.

**Appeals.** Any student wishing to appeal suspension must submit a letter of appeal to the office of the provost and vice president for Academic and Student Affairs. All letters must be postmarked no later than June 30 for admission to the succeeding fall semester. Students submitting appeal letters after June 30 and before October 1 will be considered for spring semester admission. Appeal letters should be addressed to the associate vice president for Academic and Student Affairs and should explain specific reasons for seeking readmission. Students are responsible for initiating the appeals process.

### ATTENDANCE

Students are expected to attend all meetings of the class for which they are enrolled unless excused by the instructor. No extensions of vacation periods are given to students, regardless of the location of their homes. Non-attendance at classes caused by late registration is considered the same as absence.

The university does not have a policy permitting a specific number of cuts or absences from class. Each instructor establishes an attendance policy for his or her classes and must inform students of the policy.

Although students may drop classes on their own initiative within timelines established by policy, faculty members have the right to drop students for non-attendance.

### ACADEMIC INTEGRITY

Any use of unauthorized assistance in preparing materials which students submit as original work is considered cheating and constitutes grounds for dismissal. Instructors should use all practical means of preventing and detecting cheating. Any student judged to have engaged in cheating may receive a reduced grade for the work in question, a failing grade in the course, or any other lesser penalty which the instructor finds appropriate.

### **CLASSROOM BEHAVIOR**

The classroom instructor is responsible for all classroom conduct, behavior and discipline. Only enrolled students, administrative personnel and persons authorized by the instructor are permitted in classrooms and other instructional areas during scheduled periods. University policy and Colorado state law also prohibit all forms of disruptive or obstructive behavior in academic areas during scheduled periods of use or any actions which would disrupt scheduled academic activity. Use of classrooms and other areas of academic buildings during non-scheduled periods is permitted only in accordance with university practices. Anyone in unauthorized attendance or causing a disturbance during scheduled academic activity may be asked to leave. If a person refuses such a request, he or she may be removed by the University Police and is liable to legal prosecution.

### **ACADEMIC APPEALS**

Students have the right to appeal any academic decision, including the assignment of grades. Final grades, however, are unalterable unless a grade change form is completed and signed by the instructor, department chair and the dean. Academic appeals should be made first to the classroom instructor, next to the department chair, then to the dean of the college involved. If a satisfactory resolution cannot be reached, a final appeal may be made to the Office of the Provost and Vice president for Academic and Student Affairs.

### **TRANSCRIPTS OF CREDIT**

Official transcripts are issued by the Office of Records at the request of the student. The first transcript is free; for additional copies, a fee may be assessed.

Students are not issued transcripts until they have arranged to clear any outstanding financial obligations.

## **PROGRAMS OF STUDY**

### **ACADEMIC REQUIREMENTS**

#### **DEGREE REQUIREMENTS**

Candidates for the baccalaureate degree must satisfy institutional and general education requirements, as well as specific requirements for the major and minor or area of concentration. Students should plan to complete the university requirements in the freshman year and should plan to complete the general education requirements in the freshman and sophomore years. Students must file an approved graduation planning sheet with the Office of Records before midterm of the semester prior to the one in which they plan to graduate.

#### **UNIVERSITY REQUIREMENTS**

To earn a baccalaureate degree, students must without exception:

- 1) earn a minimum of 128 semester hours with a cumulative grade-point average of at least 2.00. The 128 semester hours must include a minimum of 40 hours in upper-division courses (numbered 300-499). Of the last 32 semester credits earned immediately preceding graduation, no more than 16 may be completed at other colleges or universities. A minimum of 30 semester hours of resident instruction as approved by the department of the major must be earned in residence at USC;

- 2) demonstrate basic competencies in speech communication, writing, and mathematics:
- Successful completion of SPCOM 101, with a grade of D or better satisfies the speech requirement.
  - Successful completion with grades of D or better of six credit hours of English 110 and 211 or 115 and 216 satisfies the writing requirement.
  - The mathematics requirement must be satisfied in one of the two ways:
    - Scoring 23 or above on the mathematics component of the ACT.
    - Successful completion with a grade of C or better of MATH 120 or an approved higher level mathematics course. **NOTE:** MATH 240, 241, 360, 361, 377, 463 may not be used to satisfy this requirement; substitutions for Math 120 may be authorized by the chair of the Department of Mathematics;
- 3) complete the requirements for an approved major and a minor or area of concentration outside the major. Candidates for a bachelor of science degree must earn a minimum of 48 hours in the college of their major. Candidates for a bachelor of arts degree must satisfy the foreign language requirement; and
- 4) meet all financial obligations.

### GENERAL EDUCATION REQUIREMENT

The general education requirement for graduation is 30 semester hours. A minimum of 10 hours of credit must be earned in each of Groups I, II, and III. The credit must be earned in at least two subgroups within each group. Substitutions may be authorized only by the Dean of the College or School offering the course. For example, the Dean of the College of Liberal and Fine Arts may authorize a substitution in subgroup A of Group I or subgroup C of Group II.

Credits earned in the student's declared major do not count toward fulfilling either the 10-hour requirement within Group I, II or III, or the requirement for taking courses in at least two sub-groups. For example, psychology majors may not count PSYCH 101, 211 or 212 toward general education requirements, and must take 10 hours of courses other than psychology in at least two subgroups in Group II.

		<b>Group I (Humanities)</b>
<b>Subgroup</b>		
A	ART	100, 101, 102, 103
B	FL	100
	FRN	101, 102
	GER	101, 102
	ITL	101, 102
	RUS	101, 102
	SPN	101, 102, 281, 282
C	ENG	130, 131, 132, 210, 212, 221, 222, 231, 232, 254, 260
D	MACOM	101, 102, 215
E	MUSIC	101, 118, 119, 120, 121, 122, 126
F	PHIL	100, 101, 103, 105, 108, 109, 110, 121, 122, 123, 205, 220
G	SPCOM	100, 211, 212, 221, 231, 241, 242
	MILSC	211
H	TH	111, 131, 135, 216, 217
I	HUM	100
	IST	130, 135
J	CS	220
K	HUM	150, 151
L	IS	101, 104, 201, 204,
		<b>Group II (Social Science)</b>
<b>Subgroup</b>		
A	PSYCH	101, 101L, 110, 130, 151, 211, 212, 220, 221, 231
B	ANTHR	103, 105, 106, 107, 108, 251, 252
	MACOM	280
	NSG	117
	SOC	101, 102, 152, 153, 201, 202, 203
	SOCSC	151, 208, 209, 231
C	GEOG	113, 201, 210
	HIST	101, 102, 185, 201, 202, 211
	POLSC	100, 101, 102, 104, 150, 185, 201, 202, 250
	SW	100, 201
D	ACCTG	210
	BUSAD	100
	ECON	101, 201, 202
E	CS	101, 201, 202, 230
F	IS	102, 105, 202, 205



**Group III  
(Natural Science)**

<b>Subgroup</b>	
A AG	101, 101L, 262, 262L,
ANTHR	104
BIOL	101, 112, 121, 132, 141, 162, 191, 191L, 201, 201L, 202, 202L, 221, 221L, 223, 223L, 224, 224L, 262, 262L
PSYCH	120
B CHEM	101, 111, 111L, 121, 121L, 122, 122L
C CST	101, 102
MET	111
D EN	103
GEOG	102, 103, 281
GEOL	101, 101L, 123, 123L
E MATH	109, 121, 122, 124, 126, 131, 132, 156, 207, 221, 231, 232, 245
F PHYS	100, 110, 130, 131, 132, 133, 134, 135, 201, 201L, 202, 202L, 221, 221L, 222, 222L
G IS	103, 106, 203, 206,

**MAJOR REQUIREMENTS**

Every baccalaureate student must elect a major and successfully complete all the requirements of that major prior to receiving a degree. The minimum number of semester hours required varies by major but must include a departmentally approved program of **at least 30 semester hours of course work in the program of study.**

**Emphasis Area.** Programs of study may specify emphasis areas within majors. Students may decide to select emphasis areas within a major and may have the emphasis areas recorded on their transcripts with approval of the department chair.

**MINOR OR AREA OF CONCENTRATION REQUIREMENTS**

In addition to a major, every student must complete either a minor or a concentration of interrelated courses totaling at least 20 semester hours. Minors consist of a sequence of courses in a specific academic discipline which are established by the department. Students taking double majors satisfy the minor requirement. An area of concentration is a selection of interrelated course offerings which is established in support of a specific academic major by the department of the student's major. All courses in the area of concentration must be taken outside the student's major.

**DOUBLE MAJOR**

Students seeking a double major must satisfy the requirements of both (but no more than two) majors as stated by both departments involved.

**BACHELOR OF ARTS: FOREIGN LANGUAGE REQUIREMENT**

Students seeking the degree of bachelor of arts must complete successfully a minimum of six semester hours of an approved foreign language or linguistics.

Courses satisfying this requirement are two semesters of "introduction to" a foreign language (six semester hours) or two semesters of beginning French, German or Spanish (10 semester hours). Separate "introduction to" courses are offered in Italian, Russian and Spanish. Other languages are taught when enrollment permits.

A student with an adequate background in a language may earn credit by successfully completing an achievement test during the first week of classes.

Those not desiring to study a foreign language may elect to complete one semester of FL 100: Introduction to Comparative Linguistics (three semester hours), and ANTHR 106: Language, Thought and Culture (three semester hours). International students may substitute six semester hours of *English courses*.

**SECOND BACCALAUREATE DEGREE**

Students possessing a baccalaureate degree from a regionally accredited college or university who desire a second baccalaureate degree in a specialized field may work toward the second degree provided they have the approval of the department from which the second degree is to be earned. Students must earn a minimum of 30 semester hours at the university in addition to the credit hours already earned for the first bachelor's degree before they can receive a second.

A cumulative grade-point average of at least 2.00 is required for all work completed at USC toward the second degree. The general education and institutional requirements are considered complete for students in this classification.

Candidates for second degrees are eligible for the Dean's List and for graduation with distinction.

## TRANSFER AGREEMENTS

The Colorado State University system is dedicated to the concept of guaranteed transfer opportunities for students enrolled at any of the System's three campuses: the University of Southern Colorado, Fort Lewis College, and Colorado State University. For a complete list of transfer agreements in effect, students should contact the Office of Admissions.

In addition, USC maintains transfer agreements with the two-year institutions in Colorado. Information on these agreements, which include course equivalencies, are available in the Office of Admissions.

## COMMENCEMENT

Commencement exercises take place once a year at the end of spring semester. Students eligible to participate include those who completed their graduation requirements in the preceding summer or fall semester, as well as those who completed requirements in the spring semester.



## UNDERGRADUATE DEGREES

Majors leading to the baccalaureate degree are offered in each of the following fields:

### COLLEGE OF APPLIED SCIENCE AND ENGINEERING TECHNOLOGY

Automotive Parts and Service Management (BS)  
 Civil Engineering Technology (BSCET)  
 Computer Science Technology (BS)  
 Electronics Engineering Technology (BSEET)  
 Industrial Engineering (BSIEN)  
 Industrial Science and Technology (BS)  
 Mechanical Engineering Technology (BSMET)

### COLLEGE OF LIBERAL AND FINE ARTS

Anthropology (BA)  
 Art (BA, BS)  
 English (BA)  
 Foreign Languages (BA)  
 History (BA)  
 Mass Communications (BA, BS)  
 Music (BA)  
 Philosophy (BA) (to be discontinued 1990-91)  
 Kinesiology (BS)  
 Political Science (BA, BS)  
 Psychology (BA, BS)  
 Recreation (BS)  
 Social Work (BSW)  
 Sociology (BA, BS)  
 Social Science (BA, BS)  
 Speech Communication (BA, BS)

### COLLEGE OF SCIENCE AND MATHEMATICS

Biology (BS)  
 Chemistry (BS)  
 Mathematics (BA, BS)  
 Nursing (BSN)  
 Physics (BS)

### SCHOOL OF BUSINESS

Accounting (BSBA)  
 Business Management (BSBA)  
 Economics (BSBA)

**UNDERGRADUATE MINORS**

Undergraduate students may choose academic minors from among the following fields:

Accounting	Mass Communication
Anthropology	Mathematics
Art	Music
Bilingual-Bicultural Education	Philosophy
Biology (General & Professional)	Physical Education
Business Administration	Physics
Chemistry	Political Science
Chicano Studies	Psychology
Computer Science Technology	Reading Education
Economics	Recreation
English	Social Science
French	Sociology
Geology	Spanish
History	Speech Communication and Theatre
Industrial Science & Technology	
Italian	

**GRADUATE DEGREES**

Graduate degrees are described in detail in the Graduate Studies Section of this catalog.

**COLLEGE OF APPLIED SCIENCE AND ENGINEERING TECHNOLOGY**

Systems Engineering (MS)

**COLLEGE OF LIBERAL AND FINE ARTS**

Elementary Education (MA)  
offered in cooperation with Adams State College  
Guidance and Counseling (MA)  
offered in cooperation with Adams State College

**COLLEGE OF SCIENCE AND MATHEMATICS**

Applied Natural Science (MS)

**SCHOOL OF BUSINESS**

Business Administration (MBA)

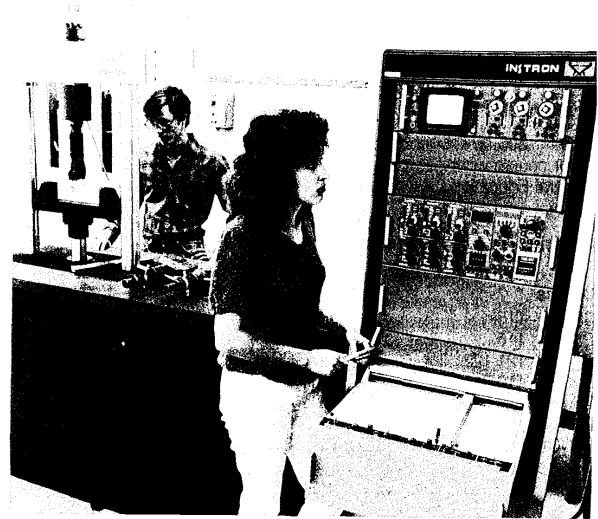
**SAMPLE PROGRAMS****COLLEGE OF APPLIED SCIENCE AND ENGINEERING TECHNOLOGY**

Professor Ray L. Sisson, dean

The College of Applied Science and Engineering Technology offers seven baccalaureate degrees and one master's degree through four academic departments:

Computer Science Technology  
Engineering Technology  
Industrial Engineering  
Industrial Technology

Each degree program is career oriented and designed to prepare students with the knowledge and skills required by modern industry. The college prioritizes emphasis on job placement for its graduates, who earn among the highest entry-level salaries for all graduates with baccalaureate degrees.



**DEPARTMENT OF COMPUTER SCIENCE TECHNOLOGY**

Professor Douglas Knight, chair

Computer science technology offers three options for students seeking the BS degree.

**BACHELOR OF SCIENCE IN COMPUTER SCIENCE TECHNOLOGY (BS)**

**Option 1: Application Programming**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
Course	Credits	Course	Credits
CST 115.....	1	ACCTG 201,202.....	8
CST 116.....	1	CST 210.....	3
CST 121,122.....	8	CST 230.....	3
ENG 110,211.....	6	CST 240.....	3
MATH 124, 156.....	8	CST 270.....	3
SPCOM 101.....	2	MATH 245.....	3
General Education.....	7	Minor course work.....	3
		General Education.....	6
	33		32

<b>Junior Year</b>		<b>Senior Year</b>	
Course	Credits	Course	Credits
CST 316.....	3	CST 380.....	3
CST 331.....	3	CST 450.....	3
CST 341.....	3	CST Electives.....	3
CST 350.....	3	CST Upper-division	
CST 360.....	3	Elective.....	3
ENG 305.....	3	Minor course work.....	8
Minor course work.....	9	Electives.....	5
General Education.....	6	General Education.....	6
	33		31

**Option 2: Systems Programming**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
Course	Credits	Course	Credits
CST 115.....	1	CST 210.....	3
CST 116.....	1	CST 270.....	3
CST 121,122.....	8	CST Electives.....	6
ENG 110,211.....	6	MATH 201, 202.....	2
MATH 124.....	5	MATH 224.....	5
MATH 126.....	5	PHIL 205.....	3
SPCOM 101.....	2	General Education.....	12
General Education.....	4		
	32		34

<b>Junior Year</b>		<b>Senior Year</b>	
Course	Credits	Course	Credits
CST 316.....	3	CST Upper-division	
CST 321.....	3	Electives.....	12
CST 330.....	3	CST Elective.....	3
CST 350.....	3	MATH 456.....	3
CST 360.....	3	Upper-division Elective.....	1
CST Upper-division		Electives.....	8
Elective.....	3	General Education.....	3
ENG 305.....	3		
MATH 325.....	3		
MATH 342.....	3		
General Education.....	6		
	33		30

**Option 3: Hardware/Software Systems**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
Course	Credits	Course	Credits
CST 115.....	1	CST 210.....	3
CST 116.....	1	CST 211.....	3
CST 121.....	4	CST 270.....	3
CST 122.....	4	EET 254.....	4
EET 250.....	3	EET 255.....	4
ENG 110.....	3	ENG 211.....	3
MATH 124.....	5	MATH 201.....	1
MATH 126.....	5	MATH 202.....	1
SPCOM 101.....	2	MATH 224.....	5
General Education.....	4	General Education.....	7
	32		34

<b>Junior Year</b>		<b>Senior Year</b>	
Course	Credits	Course	Credits
CST 316.....	3	CST 418.....	3
CST 321.....	3	CST Upper-division	
CST 350.....	3	Electives.....	9
CST Upper-division		CST Elective.....	3
Elective.....	3	EET Emphasis Course.....	3
CST Elective.....	3	ENG 305.....	3
EET 355.....	3	MATH Upper-division	
EET Emphasis Course.....	3	Elective.....	3
MATH 325.....	3	General Education.....	6
General Education.....	9		
	33		30

**NOTE:** Students may use a technology mathematics sequence of 14 hours to satisfy the Option 3 mathematics requirement (see adviser).

**DEPARTMENT OF ENGINEERING TECHNOLOGY**

Professor Warren Hill, chair

The degree programs in civil, electronics, and mechanical engineering technology offer hands-on laboratory experiences in support of classroom presentations.

**BACHELOR OF SCIENCE IN CIVIL ENGINEERING TECHNOLOGY (BSCET)**

**Sample Program**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
CET 101.....	2	CET 202.....	3
CET 102,103.....	8	CET 206.....	3
CET 104.....	3	CET 311 or 312.....	4
CET 105.....	2	CST 105.....	3
CET 106,106L.....	2	MATH 231,232.....	6
ENG 110,211.....	6	PHYS 201/201L.....	4
MATH 131,132.....	8	PHYS 202/202L.....	4
MET 111.....	3	SPCOM 101.....	2
		General Education.....	4
	<u>34</u>		<u>33</u>

<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
CET 302.....	3	CET 411.....	3
CET 303.....	3	CET Electives.....	12
CET 304,305.....	6	Business Electives.....	6
CET 315/315L.....	3	General Education.....	13
CET 404.....	3		
CET Electives.....	6		
CHEM 111/111L.....	4		
or			
GEOL 101/101L.....	3		
ENG 305.....	3		
General Education.....	3		
	<u>34</u>		<u>34</u>

**BACHELOR OF SCIENCE IN ELECTRONICS ENGINEERING TECHNOLOGY (BSEET)**

**Sample Program**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
EET 110/110L.....	3	CST 225.....	3
EET 121/121L.....	5	EET 211/211L,212/212L.....	8
EET 122/122L.....	5	EET 254/254L.....	4
ENG 110,211.....	6	EET 255/255L.....	4
MATH 131,132.....	8	MATH 231,232.....	6
SPCOM 101.....	2	PHYS 201/201L.....	4
General Education.....	6	PHYS 202/202L.....	4
	<u>35</u>		<u>33</u>

<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
EET 311/311L.....	4	EET 412.....	3
EET 351/351L.....	4	EET 455/455L.....	4
EET 353/353L.....	3	EET 456/456L.....	2
EET 354/354L.....	4	EET Elective.....	3
EET 355/355L.....	4	MGMT 310.....	3
EET 356/356L.....	4	Technical Electives.....	6
EET 393.....	1	General Education.....	11
ENG 305.....	3		
MATH Approved Elective.....	3		
General Education.....	3		
	<u>33</u>		<u>32</u>

**BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY (BSMET)**

<b>Sample Program</b>			
<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
CHEM 111/111L.....	4	EET 250/250L.....	4
ENG 110,211.....	6	MATH 231,232.....	6
MATH 131,132.....	8	MET 202.....	3
MET 105/105L.....	4	MET 203/203L.....	4
MET 111.....	3	MET 204/204L.....	3
MET 112.....	3	MET 206.....	3
SPCOM 101.....	2	PHYS 201/201L.....	4
General Education.....	3	PHYS 202/202L.....	4
		General Education.....	3
	<u>33</u>		<u>34</u>
<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
EET 350/350L.....	4	EN 443.....	3
ENG 305.....	3	MET 442/442L.....	3
MATH 456.....	3	MET 456/456L.....	2
MET 305.....	3	MET 460/461L.....	3
MET 322.....	3	MET Elective.....	3
MET 341.....	3	MGMT 310.....	3
MET 352/352L.....	3	Technical Electives.....	6
MET 356.....	2	General Education.....	11
MET 361/361L.....	3		
MET 441/441L.....	3		
General Education.....	3		
	<u>33</u>		<u>34</u>

**DEPARTMENT OF INDUSTRIAL ENGINEERING**

Professor Walter Giffin, chair

The degree program in industrial engineering prepares graduates to work with the design, improvement, and installation of engineering systems. For information on the graduate program in systems engineering, see the Graduate Studies section of this catalog.

**BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING (BSIEN)**

**Required Program  
(Core Courses are identified by an asterisk)**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
CHEM 119/119L.....	5	EN 211,212.....	6
EN 107.....	2	EN 231/231L.....	5
EN 205.....	3	EN 321.....	3
ENG 110,211.....	6	EN 324/324L.....	4
MATH 126, 224.....	10	*EN 456.....	3
PHYS 221/221L.....	5	MATH 350.....	3
SPCOM 101.....	2	PHYS 222/222L.....	5
		General Education.....	4
		(Group I or II)	
	<u>33</u>		<u>33</u>
<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
BIOL 223.....	3	*EN 443.....	3
EN 301.....	4	*EN 471.....	3
EN 312/312L.....	3	*EN 473.....	3
*EN 315.....	3	*EN 475.....	3
EN 340.....	3	*EN 477.....	3
*EN 342.....	3	*EN 488.....	3
*EN 343.....	3	Approved Elective.....	3
MATH 325,337.....	6	General Education.....	11
General Education.....	5	(Group I or II)	
(Group I or II)			
	<u>33</u>		<u>32</u>

See departmental list of acceptable Group I and II courses.

**ENGINEERING TRANSFER PROGRAM**

**Required Program**

Students planning to transfer to Colorado State University must follow the required program. Students planning to transfer to the University of Colorado, the Colorado School of Mines or other universities should consult an adviser in their expected receiving department for an evaluation of this program.

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
CHEM 119/119L.....	5	EN 211,212.....	6
EN 205.....	3	EN 231/231L.....	5
EN 107.....	2	EN 232 or EN 324/324L.....	4
ENG 110.....	3	EN 321.....	3
MATH 126,224.....	10	MATH 325.....	3
PE 101L-199L.....	2	MATH 337.....	3
PHYS 221/221L.....	5	PHYS 222/222L.....	5
General Education.....	3	General Education.....	3
(Group I or II)	—	(Group I or II)	—
	<b>33</b>		<b>32</b>

See departmental list of acceptable Group I and II courses.

- NOTE:**
- 1) Students expecting to transfer to electrical engineering should take EN 232. All other majors may want to take EN 324, subject to prospective receiving department approval.
  - 2) For priority consideration transfer students should have a grade-point average of 2.5 or better with 60 semester hour credits or more and a grade-point average of 3.0 or better with less than 60 semester hour credits.
  - 3) Applications must be received by February 1 to qualify for priority consideration.
  - 4) Students who have grades of D in any of the pre-engineering courses will be considered on an individual basis.

**DEPARTMENT OF INDUSTRIAL TECHNOLOGY**

Professor Charles Tedrow, chair

The unique degree program in automotive parts and service management combines technical courses and labs with management courses in business. The BS in industrial science and technology offers two options: facilities technology and teaching in secondary schools.

**BACHELOR OF SCIENCE IN AUTO PARTS AND SERVICE MANAGEMENT (BS)**

**Sample Program**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
APSM 105.....	2	APSM 135/135L.....	4
APSM 115.....	4	APSM 165.....	2
APSM 125/125L.....	4	APSM 205.....	5
APSM 155.....	5	APSM 215/215L.....	4
ENG 110.....	3	APSM 245/245L.....	4
MATH 120.....	4	APSM 255/255L.....	3
SPCOM 101.....	2	ENG 211.....	3
General Education.....	10	General Education.....	10
	<b>34</b>		<b>35</b>

Junior Year		Senior Year	
Course	Credits	Course	Credits
ACCTG 201.....	4	APSM 335/335L.....	5
ACCTG 202.....	4	APSM 405.....	5
APSM 235.....	3	APSM 415.....	5
APSM 305.....	3	MET 152/152L.....	3
APSM 325.....	3	MGMT 310.....	3
APSM 345/345L.....	5	MGMT 318.....	3
BUSAD 220.....	3	MGMT 414.....	3
FIN 330.....	3	MKTG 340.....	3
General Education.....	7	General Education.....	3
	<b>35</b>		<b>33</b>

BACHELOR OF SCIENCE IN INDUSTRIAL SCIENCE AND TECHNOLOGY (BS)

Sample Program

Option I: Facilities Technology

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
ENG 110 or 115	3	ACCTG 201	4
ENG 211 or 216	3	BUSAD 220	3
IST 101	3	BUSAD 260	3
IST 102	3	CET 202	3
IST 103	3	CET 203	3
IST 120	2	EET 250	4
MATH 131	4	IST 202	3
MATH 132	4	IST 214	3
MET 111	3	General Education	6
MET 112	3		
SPCOM 101	2		
General Education	3		
	36		32

Junior Year		Senior Year	
Course	Credits	Course	Credits
CET 303	3	IST 312	3
CET 304	3	IST 362	3
CET 313	3	IST 457	3
CHEM 111/111L	4	IST 459	3
IST 302	3	MET 321	3
IST 331	3	MET 452	3
IST 332	3	General Education	11
IST 333	3	Electives	3
IST 361	3		
IST 375	3		
PHYS 201/201L	4		
	35		32

BACHELOR OF SCIENCE IN INDUSTRIAL SCIENCE AND TECHNOLOGY (BS)

Sample Program

Option II: Teaching

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
CST 101	3	APSM 225	3
ENG 110 or 115	3	ED 210	3
ENG 211 or 216	3	ED 202	3
IST 101	3	EET 250	4
IST 102	3	IST 202	3
IST 103	3	IST 204	3
IST 120	2	IST 214	3
MATH 120	4	MET 103	3
MET 104	3	PHYS 100	3
MET 111	3	PSYCH 101	3
MET 112	3	General Education	3
SPCOM 101	2		
General Education	3		
	38		34

Junior Year		Senior Year	
Course	Credits	Course	Credits
CET 313	3	ED 435	3
IST 302	3	ED 460	3
IST 312	3	ED 461	2
IST 320	3	ED 488	15
IST 331	3	IST 455	3
IST 345	2	IST 457	3
IST 361	3	RDG 425	2
IST 375	3	General Education	6
IST 377	3		
PSYCH 351	3		
General Education	6		
	35		37



**COLLEGE OF LIBERAL AND FINE ARTS**

The College of Liberal and Fine Arts offers 23 baccalaureate degrees and two cooperative master's degrees through 10 academic departments:

- Art
- Chicano Studies/History/Philosophy/Political Science
- English/Foreign Language
- Human Performance and Leisure Studies
- Mass Communications
- Music
- Psychology
- Sociology/Anthropology/Social Work
- Speech Communication/Theatre
- Teacher Education

Each degree program combines practical preparation and liberal learning to allow graduates to pursue a wide variety of careers, graduate study in many disciplines, or entrance into the professions. The college places special emphasis on undergraduate learning.



**DEPARTMENT OF ART**

Professor Carl Jensen, chair

Art students enjoy modern, specialized facilities and access to monthly exhibits in Hoag Hall's art gallery.

*BACHELOR OF ARTS OR SCIENCE IN ART (BA, BS)*

**Sample Program  
(Graphics Emphasis)**

<i>Freshman Year</i>		<i>Sophomore Year</i>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
ART 101,102.....	6	ART 233.....	3
ART 115,116.....	6	ART 281.....	3
ART 141,142.....	4	ART 276.....	3
ART 202.....	1	ART 381.....	3
ART 210.....	1	Electives or Minor.....	9
ENG 110,211.....	6	General Education.....	12
MATH 120.....	4		
SPCOM 101.....	2		
General Education.....	3		
	<u>33</u>		<u>33</u>

<i>Junior Year</i>		<i>Senior Year</i>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
ART 274.....	3	ART 410.....	1
ART 374.....	3	ART 494 or 495.....	3
ART 481.....	3	Upper-division Electives.....	22
ART 397.....	3	General Education.....	6
ART 383.....	2		
Electives or Minor.....	10		
General Education.....	9		
	<u>33</u>		<u>32</u>

**DEPARTMENT OF CHICANO STUDIES/HISTORY/PHILOSOPHY/POLITICAL SCIENCE**

Professor Larry Daxton, chair

Degree programs in history, philosophy, political science, and social science, and a minor in Chicano studies, provide excellent undergraduate preparation for law or graduate school.

**BACHELOR OF ARTS IN HISTORY (BA)**

**Sample Program**

<i>Freshman Year</i>		<i>Sophomore Year</i>	
Course	Credits	Course	Credits
ENG 110,211.....	6	HIST 185.....	2
HIST 101.....	5	HIST 201.....	3
HIST 102.....	5	HIST 202.....	3
SPCOM 100,101.....	3	MATH 120.....	4
Foreign Language.....	10	Foreign Language.....	6
General Education		Electives.....	2
(Group III).....	4	General Education	
		(Group II).....	10
		(Group III).....	3
	<u>33</u>		<u>33</u>

<i>Junior Year</i>		<i>Senior Year</i>	
Course	Credits	Course	Credits
HIST Upper-division		HIST Upper-division	
Electives.....	6	Electives.....	7
Electives.....	24	Electives.....	25
General Education			
(Group III).....	3		
	<u>33</u>		<u>32</u>

**BACHELOR OF ARTS IN PHILOSOPHY (BA)**

For a sample program in philosophy, students should contact department advisers. By action of the Colorado Commission on Higher Education this degree will be discontinued following the 1990-91 academic year.

**BACHELOR OF ARTS OR BACHELOR OF SCIENCE IN POLITICAL SCIENCE (BA, BS)**

**Sample Program**

<i>Freshman Year</i>		<i>Sophomore Year</i>	
Course	Credits	Course	Credits
ENG 110,211.....	6	POLSC 201 or 202.....	3
MATH 120.....	4	POLSC 200 or 300 Electives.....	6
POLSC 101.....	3	Minor Requirements.....	6
POLSC 210.....	3	General Education.....	18
SPCOM 101.....	2		
General Education.....	12		
	<u>30</u>		<u>33</u>

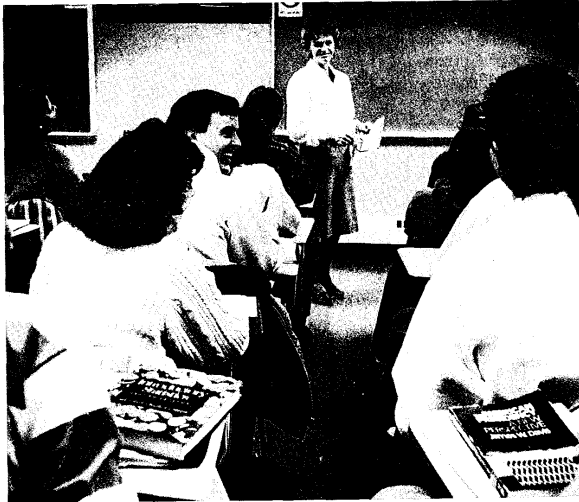
  

<i>Junior Year</i>		<i>Senior Year</i>	
Course	Credits	Course	Credits
POLSC 300 or 400 Electives.....	9	POLSC 370.....	3
General and Upper-division Electives.....	16	POLSC Electives.....	6
Minor Requirements.....	7	POLSC 493.....	3
		General and Upper-division Electives.....	13
		Minor Requirements.....	8
	<u>32</u>		<u>33</u>

**BACHELOR OF ARTS OR BACHELOR OF SCIENCE IN SOCIAL SCIENCE (BA, BS)**

**Sample Program**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
ENG 110,211.....	6	ECON 101 or 201.....	3
GEOG 103.....	3	HIST 202.....	3
HIST 102.....	5	MATH 120.....	4
POLSC 101.....	3	SOC 101,102.....	6
SOCSC 111.....	1	SOCSC 151.....	3
SPCOM 100,101.....	3	Electives.....	9
General Education		General Education	
(Group I).....	3	(Group I).....	6
(Group III).....	4	(Group III).....	3
	28		37
Junior Year		Senior Year	
Course	Credits	Course	Credits
SOCSC Electives.....	15	SOCSC Electives.....	12
Electives.....	18	Upper-division Electives.....	19
	33		31



**DEPARTMENT OF ENGLISH/FOREIGN LANGUAGES**

Professor Kenneth Taylor, chair

The English degree prepares graduates for careers requiring expertise in writing, and literary study especially teaching, business, and the media. Foreign language study, through the major in Spanish or minors in French and Italian, immerse students in understanding and appreciation of foreign cultures as they develop proficiency in language.

**BACHELOR OF ARTS IN ENGLISH (BA)**

**Sample Program**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
ENG 110,211.....	6	ENG 221,222.....	6
ENG 210,212.....	6	ENG 231,232.....	6
MATH 120.....	4	Foreign Language.....	10
SPCOM 101.....	2	or	
Electives.....	2	FL 100 & ANTHR 106.....	6
General Education.....	16	General Education.....	14
	36		36 or 32
Junior Year		Senior Year	
Course	Credits	Course	Credits
ENG 304.....	3	ENG 341.....	3
Upper-division Electives.....	9	ENG 315,340.....	6
Electives.....	20	ENG Upper-division	
		Electives.....	3
		Electives.....	20
	32		32

**Secondary Teacher Certification Endorsement**

Course	Credits
ENG 212.....	3
ENG 231.....	3
ENG 340.....	3
ENG 304.....	3
ENG 315 or 316.....	3
ENG 341.....	3
ENG 342.....	2
ENG 377.....	3
ENG 412.....	2
Other literature courses.....	11
	36

**BACHELOR OF ARTS IN FOREIGN LANGUAGE (BA)**

**Sample Program  
Spanish**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
ENG 110,211.....	6	ENG 130,131,132.....	3
HIST 101 or 102.....	5	MATH 120.....	4
SPCOM 101.....	2	SPN 281,282.....	6
SPN 191,192.....	10	SPN 286,287.....	4
or		SPN 288,289	
SPN 288,289.....	6	and/or	
Electives.....	2	Electives.....	4
General Education		General Education	
(Group III).....	7	(Group I).....	3
		(Group II).....	5
		(Group III).....	3
	28-32		32
<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
SPN 385.....	3	Upper-division Spanish.....	8
SPN 386.....	3	Minor Electives.....	24
Upper-division Spanish.....	6		
Second Foreign Language			
(or test out).....	10		
Minor Electives.....	6		
General Education			
(Group I).....	4		
	32		32

\*Students who plan to teach in the public schools will normally student teach in their last semester; therefore, they will need to complete their upper-division Spanish requirement in three semesters.

**DEPARTMENT OF HUMAN PERFORMANCE AND LEISURE STUDIES**

Professor M. Kay Aguilar, chair

The major in kinesiology requires core courses in kinesiology and in human performance, providing students an emphasis in the study of wellness, fitness, and/or teaching. The major in recreation emphasizes career preparation for immediate job placement in recreation-related professions.

**BACHELOR OF SCIENCE IN KINESIOLOGY (BS)**

**Required Program**

<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
BIOL 162.....	3	ED 210.....	3
ED 102.....	1	HP 231.....	1
ED 202.....	3	HP 232.....	2
ENG 110,211.....	6	HP 233.....	3
MATH 120.....	4	HP 242-248.....	14
PSYCH 101.....	3	KIN 254.....	2
SPCOM 101.....	2	KIN 258.....	2
General Education.....	10	KIN 262.....	2
		SPCOM 211.....	2
		General Education.....	2
	32		33
<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
HP 322.....	2	ED 435.....	3
HP 342.....	2	ED 460.....	3
HP 343.....	2	HP 461.....	3
HP 378.....	2	HP 465.....	2
IST 345.....	2	HP 471-483.....	4
KIN 364.....	2	KIN 442.....	2
PSYCH 351.....	3	ED 489.....	15
RDG 301.....	3		
Electives.....	9		
General Education.....	4		
	31		32

<b>Required Kinesiology Core</b>		<b>Required Human Performance Courses</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
KIN 254.....	2	HP 231.....	1
KIN 258.....	2	HP 232.....	2
KIN 262.....	2	HP 233.....	3
KIN 364.....	2	HP 242.....	3
KIN 442.....	2	HP 243.....	1
		HP 244.....	2
		HP 245.....	2
		HP 246.....	2
		HP 247.....	1
		HP 248.....	3
		HP 322.....	2
		HP 342.....	2
		HP 343.....	2
		HP 461.....	3
		HP 463.....	2
	<u>10</u>		<u>31</u>

In addition, two (2) courses must be selected from the following: HP 276,471-483. Total hours 45.

Any student receiving a grade of "D" or lower in the major courses must retake the course until a grade of "C" or higher is achieved.

<b>Teacher Certification Core</b>	
<b>Course</b>	<b>Credits</b>
ED 202.....	3
ED 435.....	3
ED 460.....	3
ED 489.....	15
HP 378.....	2
IST 345.....	2
PSYCH 151.....	3
PSYCH 351.....	3
RDG 301.....	3
	<u>37</u>

**BACHELOR OF SCIENCE IN RECREATION (BS)**

<b>Sample Program</b>			
<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
ENG 110,211.....	6	HP 233.....	3
MATH 120.....	4	Allieds and Methods.....	22
SPCOM 101.....	2	General Education.....	8
Electives.....	2		
General Education.....	<u>22</u>		
	36		<u>33</u>
<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
REC 340.....	2	HP 461.....	3
REC 350.....	2	REC 480.....	3
REC 389.....	3	REC 482.....	3
REC 481.....	3	REC 493.....	1
Electives.....	22	REC 498.....	9
		Electives.....	13
	<u>32</u>		<u>32</u>

<b>Required Core</b>	
<b>Course</b>	<b>Credits</b>
HP 233.....	3
HP 461.....	3
REC 340.....	2
REC 350.....	2
REC 389.....	3
REC 480.....	3
REC 481.....	3
REC 482.....	3
REC 493.....	1
REC 498.....	9
	<u>32</u>

**DEPARTMENT OF MASS COMMUNICATIONS**

Professor Glenn Miller, chair

The degree program in mass communications allows students to gain valuable experience in print and broadcast media through involvement with the student newspaper, the student radio station, and KTSC-TV, Southern Colorado's public broadcasting station.

**BACHELOR OF ARTS OR SCIENCE IN MASS COMMUNICATIONS (BA, BS)**

**Sample Program  
News-Editorial Emphasis**

<i>Freshman Year</i>		<i>Sophomore Year</i>	
Course	Credits	Course	Credits
ENG 110,211.....	6	MACOM 201.....	3
MACOM 101.....	3	MACOM 202.....	3
MACOM 102.....	3	MACOM 216.....	3
MATH 120.....	4	MACOM 265.....	3
SPCOM 101.....	8	MACOM 280.....	2
General Education		Electives.....	6
(Group I).....	8	General Education	
(Group II).....	2	(Group I).....	2
(Group III).....	10		
	40		34

<i>Junior Year</i>		<i>Senior Year</i>	
Course	Credits	Course	Credits
MACOM 301.....	3	MACOM 411.....	5
MACOM 311.....	3	MACOM 415.....	3
MACOM 401.....	4	MACOM 445.....	5
Electives.....	21	MACOM 465.....	3
		Electives.....	14
	31		30

All students enrolled in the mass communications major must complete an eight-course, 25-credit-hour core curriculum: MACOM 101, 201, 216, 265, 280, 411, 415 and 493.

In addition all majors are required to specialize in one of four emphasis areas or sequences, which require 20 additional credit hours of course work beyond the mandatory 25-credit hour core curriculum. The four emphasis areas are: 1) news-editorial; 2) telecommunications; 3) public relations; 4) advertising.

All mass communications majors should arrange a schedule with the appropriate sequence director and should complete the institutional requirements in basic competencies prior to enrolling in MACOM 201.



**DEPARTMENT OF MUSIC**

Professor J. Michael Beck, chair

Music majors study and perform in one of Colorado's finest facilities, Hoag Hall. Students may audition for a variety of musical ensembles, including those sponsored by the city of Pueblo.

**BACHELOR OF ARTS IN MUSIC (BA)**

<b>Required Core:</b>	
<b>Course</b>	<b>Credits</b>
MUS 101, 102, 201, 202.....	16
MUS 121, 122, 321, 322.....	10
MUS 161-462.....	16
MUS 170-174.....	8
MUS 185-385.....	8
MUS 244, 245.....	4
MUS 311, 312.....	4
	66

**Ensembles.** Each student majoring in music must participate in a major ensemble appropriate for the student's declared performance emphasis:

<b>Major Performance Emphasis</b>	<b>Appropriate Ensemble</b>
1) Voice	1) Choir
2) String instrument	2) Orchestra or string ensemble
3) Brass, woodwind and percussion instruments	3) Band
4) Keyboard instrument	4) Piano ensemble
5) Guitar	5) Guitar ensemble

If the student's performance emphasis is keyboard instruments and the academic emphasis is music education, the student must participate at least two academic years in the university choir.

**DEPARTMENT OF PSYCHOLOGY**

Professor Paul Kulkosky, chair

Psychology majors work closely with the faculty in research laboratories and may pursue specialized emphasis in educational psychology, mental health, or biobehavioral sciences.

**BACHELOR OF ARTS OR SCIENCE IN PSYCHOLOGY (BA, BS)**

<b>Sample Program</b>			
<b>Freshman Year</b>		<b>Sophomore Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
ENG 110,211.....	6	MATH 120.....	4
*PSYCH 101.....	3	*PSYCH 201/201L.....	4
SPCOM 101.....	2	PSYCH Electives.....	6
Electives.....	11	Electives.....	8
General Education.....	10	General Education.....	14
	32		36
<b>Junior Year</b>		<b>Senior Year</b>	
<b>Course</b>	<b>Credits</b>	<b>Course</b>	<b>Credits</b>
*PSYCH 301/301L.....	4	*PSYCH 401.....	3
PSYCH Electives.....	6	PSYCH Electives.....	9
Electives.....	15	Electives.....	20
General Education.....	7		
	32		32

\*Required for all majors

**DEPARTMENT OF SOCIOLOGY/ANTHROPOLOGY/SOCIAL WORK**

Professor Gary Means, chair

The majors in sociology, anthropology, and social work involve students in issues and concerns affecting societal well being, provides them with a foundation for careers in people-oriented services, and allows them to explore solutions to problems facing groups and individuals.

**BACHELOR OF ARTS IN ANTHROPOLOGY (BA)**

For a sample program in anthropology, students should contact department advisers.

**BACHELOR OF ARTS OR SCIENCE IN SOCIOLOGY (BA,BS)**

For a sample program in sociology, students should contact department advisers.

**BACHELOR OF SOCIAL WORK (BSW)**

**Sample Program**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
CS 101	3	BIOL 221	3
ENG 110 OR 115	3	ENG 211 OR 216	3
MATH 120	4	PSYCH 211	3
PSYCH 101	3	SW 201	3
SOC 101	3	SW 202	3
SW 100	3	SW 205	3
SPCOM 101	2	SW 210	3
General Education	11	SW 222	3
		General Education	6
	32		32

Junior Year		Senior Year	
Course	Credits	Course	Credits
PSYCH 352	3	SW 460	3
or		SW 481	3
SOC 352	3	SW 482	3
SW 320	3	SW 488	5
SW 322,323,324	9	SW 489	5
SW 350	3	SW 491	3
SW 420	3	Electives	9
Electives	12		
	33		31

**DEPARTMENT OF SPEECH COMMUNICATION AND THEATRE**

Professor John Sherman, chair

The major in speech communication offers four emphasis areas: general speech communication, speech communication education, communication disorders and theatre.

**BACHELOR OF ARTS OR BACHELOR OF SCIENCE IN SPEECH COMMUNICATION (BA, BS)**

**Sample Program  
(General Speech Communication Emphasis)**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
ENG 110,211	6	SPCOM 212	2
MATH 120	4	SPCOM 221	3
SPCOM 100	1	SPCOM 322	3
SPCOM 101	2	*SPCOM231	3
*SPCOM211	3	SPCOM 241	3
General Education		*SPCOM261	3
(Group I)	6	Electives	2
(Group III)	9	General Education	
		(Group I)	4
		(Group II)	9
	31		32

Junior Year		Senior Year	
Course	Credits	Course	Credits
SPCOM 312	3	SPCOM 443	3
SPCOM 401	3	*SPCOM493	2
SPCOM 361	2	Electives	26
SPCOM Electives	4		
Electives	21		
General Education			
(Group II)	1		
(Group III)	1		
	35		31

\*Required speech communication core for all majors.



**DEPARTMENT OF TEACHER EDUCATION**

Professor James Gutierrez, chair

**TEACHER CERTIFICATION**

USC is approved by the Colorado Department of Education to offer the following endorsements: elementary education (grades K-6); linguistically different bilingual-bicultural emphasis; secondary education (grades 7-12) in art, English, foreign language, industrial education, mathematics, music, physical education, science, social studies and speech; K-12 endorsements in art, music and physical education. A school nurse endorsement is offered in cooperation with the department of nursing. Endorsements are open to approved undergraduate or graduate students. For undergraduate students the teacher certification sequence (except school nurse category which requires only one education course) may be designated as an area of concentration for the baccalaureate degree.

The University of Southern Colorado serves as a special access site for the delivery of graduate programs in education. Information is available from the Department of Teacher Education.

**COLLEGE OF SCIENCE AND MATHEMATICS**

Professor Jack Seilheimer, interim dean

The College of Science and Mathematics offers six baccalaureate degrees and one master's degree through five academic departments:

- Chemistry
- Life Sciences
- Mathematics
- Nursing
- Physics/Physical Science

Each degree requires close interaction with faculty in laboratory and research settings, allowing students to develop the skills necessary for understanding our increasingly complex, science-oriented society. The college offers several pre-professional programs for students interested in dentistry, forestry, and various fields of medicine.



**DEPARTMENT OF CHEMISTRY**

Professor Kent Mahan, chair

The chemistry major offers emphasis in biochemistry and engineering chemistry, biomedical research, and a curriculum approved by the American Chemical Society.

**BACHELOR OF SCIENCE IN CHEMISTRY (BS)**

Sample Program			
Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
CHEM 121/121L	5	CHEM 301/301L	5
CHEM 122/122L	5	CHEM 302/302L	5
ENG 110,211	6	MATH 224	5
MATH 124	3	MATH 240,241	3
MATH 126	5	PHYS 221/221L	5
General Education	4	SPCOM 101	2
		General Education	7
	28		32
Junior Year		Senior Year	
Course	Credits	Course	Credits
CHEM 317/317L	4	CHEM 323	2
CHEM 321,322	6	CHEM 419/419L	4
GER 125	5	CHEM 421	3
PHYS 222/222L	5	CHEM 493	1
Electives	9	CHEM 495	3
General Education	5	Electives	19
	34		32
Required Core			
Course	Credits	Course	Credits
CHEM 121/121L	5		
CHEM 122/122L	5		
CHEM 301/301L	5		
CHEM 302/302L	5		
CHEM 317/317L	5		
CHEM 321,322	6		
CHEM 419/419L	5		
	36		

All options for the BS degree in chemistry are subject to university graduation requirements and all options require a minimum 2.0 GPA in the major.

**DEPARTMENT OF LIFE SCIENCES**

Professor Jay Linam, acting chair

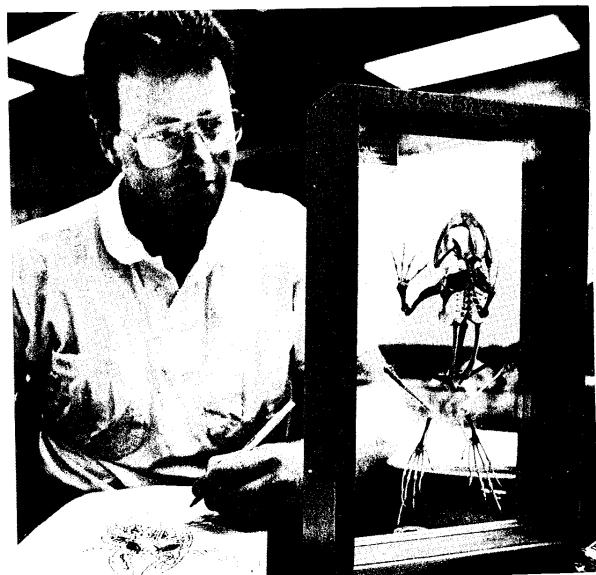
Biology majors may select from among several emphases including biotechnology, teacher certification, environmental health and numerous pre-professional programs. Information on the master's degree in Applied Natural Science is contained in the Graduate Studies section of this catalog.

**BACHELOR OF SCIENCE IN BIOLOGY (BS)**

Sample Program			
Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
BIOL 171	1	BIOL 202/202L	5
BIOL 191/191L	4	CHEM 301/301L	5
BIOL 201/201L	5	CHEM 302/302L	5
BIOL 192	1	MATH 221	5
CHEM 121/121L	5	PHYS 201/201L and	8
CHEM 122/122L	5	202/202L	8
ENG 110 or 115 and		General Education	
ENG 211 or 216	6	(Group I,II)	6
SPCOM 101	2		
General Education			
(Group I,II)	3		
	32		34
Junior Year		Senior Year	
Course	Credits	Course	Credits
BIOL 301/301L	5	BIOL 341/341L	4
BIOL Upper-division		or	
Electives	12	BIOL 412/412L	
Electives	4	BIOL 471	1
General Education		BIOL 493	1
(Group I,II)	11	BIOL Upper-division	
		Electives	18
		Electives	6
	32		30

Course	Required Core	Credits
BIOL 171	.....	1
BIOL 191/191L	.....	4
BIOL 192	.....	1
BIOL 201/201L	.....	5
BIOL 202/202L	.....	5
BIOL 301/301L	.....	5
BIOL 341/341L	.....	4
or		
BIOL 412/412L		
BIOL 471	.....	1
BIOL 493	.....	1
		27

BIOL 171 and 192 should be completed in the first year as a biology major. BIOL 191 and 191L are prerequisites to BIOL 201 201L, 202 and 202L. BIOL 471 should be completed in the fall semester of the senior year.



**DEPARTMENT OF MATHEMATICS**

Professor Ernest Allen, chair

By appropriately choosing electives, mathematics majors may select an emphasis area from among pure mathematics, applied mathematics, statistics or secondary school certification.

**BACHELOR OF ARTS OR BACHELOR OF SCIENCE IN MATHEMATICS (BA, BS)**

**Sample Program**

Course	Freshman Year		Sophomore Year	
		Credits	Course	Credits
ENG 110,211	.....	6	MATH 320	.....3
MATH 126,224	.....	10	MATH 307	.....3
MATH 207	.....	2	MATH 325	.....4
PHYS 221,221L	.....	5	PE Activities Class	.....2
SPCOM 100,101	.....	3	PHYS 222/222L	.....5
Electives	.....	7	Electives	.....7
			General Education	
			(Group I)	.....3
			(Group II)	.....6
		33		33

Course	Junior Year		Senior Year	
		Credits	Course	Credits
MATH 327	.....	3	MATH Upper-division	
MATH 350	.....	3	Electives	.....6
or			MATH 421	.....3
MATH 456	.....		Electives	.....18
MATH Upper-division			General Education	
Electives	.....	3	(Group I)	.....2
PHYS 323/323L	.....	5	(Group II)	.....3
Electives	.....	9		
General Education				
(Group I)	.....	5		
(Group II)	.....	4		
		32		32

Program requirements vary. Advisers are aware of differences. For example, MATH 377 is required of all mathematics teacher preparation majors, but is not acceptable as an elective to meet the requirements of any other mathematics program.

**DEPARTMENT OF NURSING**

Professor Kay King, chair

Nursing majors study a curriculum approved by the Colorado State Board of Nursing and accredited by the National League for Nursing.

**BACHELOR OF SCIENCE IN NURSING (BSN)**

**Required Program**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
BIOL 223/223L	4	BIOL 206/206L	4
BIOL 224/224L	4	MATH 156	3
CHEM 111/111L	5	*NSG 202/202L	4
CHEM 112/112L	4	NSG 301	3
ENG 110,221	6	PSYCH 101	3
MATH 120	4	SOC 101	3
SPCOM 100,101	3	General Education	
General Education		(Group I)	7
(Group I)	3	(Group II)	4
	35		31

Junior Year		Senior Year	
Course	Credits	Course	Credits
**NSG 302	4	NSG 401	2
*NSG 304	4	NSG 404	3
NSG 306	3	NSG 408	5
**NSG 307	3	NSG 410	5
NSG 351	3	NSG 451	3
**NSG 352	6	NSG 452	6
*NSG 354	3	NSG 454	4
**NSG 362	5	Upper-division Electives	3
Elective	3	Area of Concentration	4
	34		35

\*optional for registered nurses

\*\*proficiency tests available for registered nurses

**DEPARTMENT OF PHYSICS/PHYSICAL SCIENCE**

Professor Robert Graham, chair

The major in physics includes options in biophysics, chemical physics, engineering physics, mathematical physics, and teacher certification. The department also offers a minor in geology and coursework in astronomy and physical science.

**BACHELOR OF SCIENCE IN PHYSICS (BS)**

**Sample Program**

Freshman Year		Sophomore Year	
Course	Credits	Course	Credits
CHEM 121/121L	5	MATH 325	3
CHEM 122/122L	5	MATH 337	3
ENG 110,211	6	PHYS 222/222L	5
MATH 126	5	PHYS 323/323L	5
MATH 207	2	SPCOM 101	2
MATH 224	5	Courses in chosen option	10
PHYS 221/221L	5	General Education	
Courses in chosen option	5	(Group I)	3
	38		31

Junior Year		Senior Year	
Course	Credits	Course	Credits
PHYS 301	4	PHYS 431	4
PHYS 321	3	PHYS 432	1
PHYS 322	1	PHYS 480	1
PHYS 341	3	PHYS 492	1
PHYS 342	1	Courses in chosen option	
Courses in chosen option		and/or Electives	15
and/or Electives	15	General Education	
General Education		(Group I)	7
(Group I)	7	(Group II)	3
	34		32

**SCHOOL OF BUSINESS**

Professor Teshome Abebe, dean

The School of Business offers three baccalaureate degrees and the MBA through two academic departments:

- Accounting
- Business Administration/Economics

The major in business management leads to the bachelor of science in business administration (BSBA) degree, and provides students with the theoretical and conceptual basis of business as well as application skills to assume leadership roles in industry, government and education.

The undergraduate business management degree program permits students to select one emphasis as a specialty area. Emphasis areas with this major are available in management, operations and materials management, finance, and marketing. Courses in management, finance, and marketing are listed under separate prefixes in this section of the catalog.

**School of Business policies.** The standard semester course load for full-time students is 16 credit hours. Students must have permission to take courses in which they do not meet the required prerequisites, or they risk being withdrawn and/or losing credit for those courses.

In order to fulfill graduation requirements, students must obtain a minimum grade-point average of C (2.0 GPA) in the courses taken within the School of Business, and must earn C grades or higher in MATH 121. A required course in the major area may only be repeated once.

Students requesting credit for course work taken at another institution are advised that the School of Business has a transfer policy and that students are responsible for having their credits approved according to the policy.

All courses applied toward the major must be approved by the student's adviser. The School of Business does not have a testout or life experience credit program.

All students planning to major in the School of Business area are classified as pre-business upon enrollment in the university. During the first two years of their academic program, students will satisfy a major portion of the general education requirements and the pre-business core. The pre-business core consists of computer and information systems, financial and managerial accounting, macro and microeconomics, business statistics, and business law. A GPA of C or higher is required in the pre-business core. Upon completion of the pre-business core, the student makes a formal

application for admission to upper-division courses in the School of Business. Application forms are available in the Dean's office. Students are responsible for adhering to the pre-business requirements.

School of Business majors must have a minor from either outside the school or a minor from a School of Business emphasis area other than the emphasis area of their major.

School of Business majors must earn 18 of the last 32 credit hours prior to graduation in residency.

*BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION (BSBA)*

<b>Required Program (Pre-Business)</b>	
<b>Freshman/Sophomore Years</b>	
<b>Course</b>	<b>Credits</b>
ACCTG 201.....	4
ACCTG 202.....	4
BUSAD 160.....	3
BUSAD 220.....	3
BUSAD 260.....	3
ECON 201.....	3
ECON 202.....	3
ENG 110, 211 .....	6
MATH 121.....	4
SPCOM 101.....	2
	<u>35</u>

<b>Core Requirements Junior/Senior Years</b>	
<b>Course</b>	<b>Credits</b>
BUSAD 475.....	3
* 484.....	3
ECON 310.....	3
FIN 330.....	3
MGMT 310.....	3
MGMT 311.....	3
MGMT 340.....	3
MGMT 485.....	3
	<u>24</u>

\*Appropriate Prefix  
\*\*31 Credit Hours in Accounting

**DEPARTMENT OF ACCOUNTING**

Professor Gary Bridges, chair

Accounting majors gain valuable experience through the Volunteer in Taxpayers Assistance Program and on-the-job tax preparation activities. Graduates are well prepared to become certified public accountants.

**BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION IN ACCOUNTING (BSBA)**

Required Program	
Junior and Senior Years	
Course	Credits
ACCTG 301.....	4
ACCTG 302.....	4
ACCTG 311.....	4
ACCTG 320.....	4
ACCTG 410.....	4
School of Business	
Specified Upper-division	11
Electives.....	31

Accounting majors may not retake a course offered by the accounting department more than once to improve their academic GPA or satisfy course prerequisites.

- NOTE:**
- 1) Accounting students must earn 20 of the last 32 credit hours prior to graduation in residency.
  - 2) A minimum of 18 credit hours of junior and senior accounting courses must be taken in residency.
  - 3) Students must earn a C or above in all accounting courses.

**DEPARTMENT OF BUSINESS ADMINISTRATION/ECONOMICS**

Professor William J. Askwig, chair

The majors in business management and economics allow students to apply classroom knowledge through contacts with local business. Graduates are well prepared for careers or advanced study in business.

**BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION IN BUSINESS MANAGEMENT (BSBA)**

Emphasis Areas			
Junior and Senior Years			
Management		Operations and Materials Management	
Course	Credits	Course	Credits
BUSAD 270.....	3	BUSAD 261.....	3
ECON 410.....	3	MGMT 362.....	3
MGMT 318.....	3	MGMT 365.....	3
MGMT 320.....	3	MGMT 412.....	3
MGMT 365.....	3	MGMT 460.....	3
MGMT 410.....	3	MGMT 465.....	3
School of Business		School of Business	
Specified Upper-division		Specified Upper-division	
Electives.....	6	Electives.....	6
	24		24
Marketing		Finance	
Course	Credits	Course	Credits
BUSAD 261.....	3	ACCTG 301.....	4
BUSAD 270.....	3	FIN 331.....	3
MKTG 341.....	3	FIN 333.....	3
MKTR 342.....	3	FIN 335.....	3
MKTG 348.....	3	FIN 337.....	3
MKTG 440.....	3	FIN 431.....	3
School of Business Upper-division		School of Business Upper-division	
Electives.....	6	Electives.....	6
	24		24

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION IN ECONOMICS (BSBA)

Required Program	
Junior and Senior Years	
Course	Credits
ECON 301.....	3
ECON 302.....	3
ECON 307.....	3
ECON 330.....	3
ECON 402.....	3
ECON 410.....	3
School of Business	
Specified Upper-division	
Electives.....	6
	24



OTHER ACADEMIC PROGRAMS/SERVICES

CONTINUING EDUCATION

Roger Stubenrouch, director

The university makes available a broad array of credit and non-credit courses and seminars and workshops through the Division of Continuing Education. Some programs are offered on campus and others at off-campus sites more convenient to persons living outside of Pueblo.

Off-campus instruction sites include Peterson Air Force Base and the Air Force Academy in Colorado Springs, the Colorado State Penitentiary in Canon City, community college campuses throughout central and south-eastern Colorado, and on-site in many local businesses.

Both degree and non-degree seeking students are allowed to participate in the extended studies. Persons desiring classification as degree-seeking students must apply for admission to the university.

Credit courses taken through the University of Southern Colorado Continuing Education program have the same credit value as those conducted on campus and may be used in meeting the institutional residency requirement.

A primary aim of the Division of Continuing Education is to provide courses to part-time adult students. A variety of educational methods—classroom instruction, televised courses, conferences, workshops and seminars—are utilized in an attempt to meet the needs of such students at convenient times and settings. Students may earn academic credit toward a degree, study for career advancement, or pursue cultural and avocational interests.

Continuing Education credit courses are normally scheduled in eight or nine-week sessions; special programs are of varied lengths. Intensive classes usually are held in the evening or on weekends for the convenience of working students.

Although the majority of course offerings are initiated by the university, courses may originate through requests by individuals and interested groups. These special request courses may be held either on-or off-campus.

In-house training programs are available to meet the ever-changing training needs of business and industry. These programs can be designed to meet the specific needs of an organization and may be presented at the company site or, if requested, at the university. Similar services are available to school districts.

## COOPERATIVE EDUCATION

*Karel King, coordinator*

Cooperative education provides an educational plan in which periods of study and periods of career-related work are combined in one program, individualized for each student. Students earn a salary and acquire academic credit in their majors while experiencing, on a temporary basis, their chosen career. The experience gives cooperative education students an opportunity to become well-acquainted with the employer which, in many cases, leads to permanent placement upon graduation. All cooperative programs are administered by the academic departments.

## MILITARY SCIENCE (ARMY ROTC)

*Lt. Colonel, Robert Dillon*

In cooperation with the federal government, the university offers courses in military science on a voluntary basis to all qualified male and female students.

The military science department, located in the College of Applied Science and Engineering Technology, recognizes that preparation for national defense is one of the important obligations of citizenship, and the qualities of patriotism, loyalty, discipline, leadership and respect for authority, instilled by proper military training, are valuable characteristics.

The Army four-year program complements the traditional four years of college and includes one summer encampment. Students completing Army ROTC may be commissioned as second lieutenants in the Army Reserve, Army National Guard or the regular Army.

A student may earn a commission after completing only two years of ROTC training during the junior and senior years. The two-year program is designed for transfer students or students who were unable to take ROTC during their freshman and sophomore years.

The programs are designed to enable students to earn, simultaneously, commissions and baccalaureate degrees in their chosen academic fields.

ROTC also offers qualified students two-, three- and four-year scholarships which pay for tuition, laboratory fees and books and provide \$100 per month for subsistence.

## KTSC-TV

*Greg Sinn, general manager*

KTSC-TV, Channels 8 and 53, a non-commercial public television station licensed by the Federal Communications Commission to the university, operates as a public service under the Provost and vice-president for ac-

ademic and student affairs. The station broadcasts seven days a week at full power covering south/southeastern Colorado, including Pueblo, Colorado Springs, Canon City, Walsenburg and the Arkansas Valley. The nightly schedule consists of cultural public affairs and educational programming for viewers of all ages.

KTSC-TV is affiliated with the Public Broadcasting Service and the Pacific Mountain Network. Advanced students in mass communications and electronics receive academic credit for working in the daily operation of the station.

## HONORS

*John Ryan, director*

The university Honors Program provides educational enrichment experiences for academically talented students. Interdisciplinary courses (IS), independent study, and opportunities for experiential learning are available for honors students. **Students completing at least 20 semester hours of coursework in the program fulfill minor or area of concentration requirements for the university.**

Information regarding eligibility, program offerings, and standards for successful completion of the program are available from the director of Special Academic Programs, the university Honors Program, or the Office of the Provost and Vice President for Academic and Student Affairs.

## WOMEN'S STUDIES

The area of concentration in Women's Studies is designed to acquaint students with the current scholarship on women—particularly in humanities and the social sciences. Courses are taught with a positive approach toward correcting conditions for women and raising awareness for advancement possibilities.

The concentration area consists of the following courses: Chicano Studies 210; English 260; Mass Communications 235; Nursing 117; Psychology 211 and 212; and Sociology/ 205, 206, 403 and 407. (See appropriate departmental listings for course titles and descriptions.) The courses may be taken as electives, and some satisfy university requirements. Some departments also offer individualized projects or special topics courses which could add to the offering. With approval of departments offering the major, students may pursue Women's Studies as an area of concentration in lieu of a minor.

For advisement, students should contact course instructors, Women's Studies Committee members, or department chairs.



## *COURSES OF INSTRUCTION*

**The University of Southern Colorado does not offer all the classes listed in this catalog every semester or every year.**

The following pages provide brief descriptions of course offerings, and the career, professional or graduate opportunities open to students who complete degrees in majors. Course listings are subject to change.

Each semester the university publishes a bulletin listing a detailed schedule of courses offered and the times and places of instruction. Courses listed in the bulletin are subject to change.

### **EXPLANATORY NOTES**

#### **NUMBERING OF COURSES**

Course numbering is based on the content level of material presented in courses.

Courses numbered:

100-299 primarily for freshmen and sophomores

300-499 primarily for juniors and seniors

500-599 primarily for students enrolled in master's degree programs or the equivalent. Students may enroll if they have submitted and received approval on graduate planning sheets.



**Variable credit courses.** (1-3 VAR) indicates variable credit; the minimum and maximum credit limitations per semester are shown. An example:

**494 Field Experience (1-5 VAR) (when appropriate). Prerequisite: senior standing and permission of instructor.**

Off-campus individual experience providing transition from classroom instruction to on-the-job experience. Supervised by instructor and job supervisor.

**Prerequisites.** A requirement which must be fulfilled before a student can enroll in a particular course. Permission of the instructor for a student to attend a class is implied when the student has met the prerequisites specified by the department.

**Cross-listed courses.** Courses in which students may earn credit under either of two prefixes (e.g. SOC or HIST) for the same offering.

**Corequisites.** A requirement which must be taken concurrently with another course of instruction.

**Cancellation of courses.** The university reserves the right to cancel courses not selected by an adequate number of students or not suitably staffed by qualified faculty.

**KEYS TO SYMBOLS**

Course descriptions include a variety of symbols conveying essential information. The following standard course description with explanation of symbols serves as a model:

- 191 Aspects of Biology 3(3-0) Corequisite: BIOL 191L. (F,S)**  
Introduction to metric measurement, microscope, cell form, function, reproduction, biologically important molecules, bioenergetics, classifying and keying. GEN.ED. IIIA
- 191** ..... course number
- Aspects of Biology** ..... course title
- 3(3-0)** ..... number of credits (clockhours in lecture per week - clock hours in laboratory demonstration or studio experiences per week)
- Corequisite BIOL 191L** ..... required to be taken concurrently
- (F,S)** ..... taught fall and spring Semesters
- "Introduction to"** ..... explanation of course content
- GEN.ED.IIIA** ..... satisfies the university's general education requirement in Group III, Subgroup A.

- F** Taught fall semester
- S** Taught spring semester
- SS** Taught Summer Session
- \*** Offered upon demand
- #** Taught 1989-90
- VAR** Variable credit course
- L** suffix indicating lab course

Note: Not all of the above information may be noted in each course.

**UNIVERSITY-WIDE "HOUSE-NUMBERED" COURSES**

- 200,300,400,500 - Workshop
- 290,390,490,590 - Special Project
- 291,391,491,591 - Special Topics
- 292,392,492,592 - Research
- 293,393,493,593 - Seminar
- 294,394,494,594 - Field Experience
- 295,395,495,595 - Independent Study
- 296,396,496,596 - Cooperative Education
- 297,397,497,597 - Studio Series
- 298,398,498,598 - Internship
- 299,399,499,599 - Thesis Research

**COURSE PREFIXES**

Course of instruction are identified by the following approved prefixes:

- ACCTG —Accounting
- AG —Agriculture
- ANS —Applied Natural Science
- ANTHR —Anthropology
- APSM —Automotive Parts Service Management
- ART —Art
- BUSAD —Business Administration
- BBE —Bilingual Bicultural Education
- BIOL —Biology
- CET —Civil Engineering Technology
- CST —Computer Science Technology
- CHEM —Chemistry
- CS —Chicano Studies
- ECON —Economics
- ED —Education
- EET —Electronic Engineering Technology
- EN —Engineering
- ENG —English

FIN	—Finance
FL	—Foreign Language
FRN	—French
GEOG	—Geography
GEOL	—Geology
GER	—German
HIST	—History
HP	—Human Performance and Leisure Studies
IS	—Interdisciplinary Studies
IST	—Industrial Science Technology
ITL	—Italian
KIN	—Kinesiology
MACOM	—Mass Communications
MATH	—Mathematics
MET	—Mechanical Engineering Technology
MGMT	—Management
MILSC	—Military Science
MKTG	—Marketing
MUS	—Music
NSG	—Nursing
PHIL	—Philosophy
PHYS	—Physics
POLSC	—Political Science
PSYCH	—Psychology
RDG	—Reading
REC	—Recreation
RUS	—Russian
SOC	—Sociology
SOCSC	—Social Science
SPCOM	—Speech Communication and Theatre
SPN	—Spanish
SW	—Social Work

## ACCOUNTING (ACCTG)

Associate Professor Peterlin  
Assistant Professors Bridges, Whitesell

The major in accounting leads to the bachelor of science in business administration (BSBA) degree. The primary objective is to provide an academic program that covers the conceptual basis of accounting as well as the application of accounting doctrine in current accounting practice. The programs of study are functional in that they provide the broad base of knowledge required by the accounting profession.

The program is accredited by the Colorado State Board of Accountancy. Students completing it qualify under the education requirements of Colorado law for the CPA examination, which they should plan to take during the last semester of their senior year.

In addition to the academic program, various opportunities are available for students to gain some insight into the practical aspects of the accounting profession. Accounting majors are expected to participate in the National Association of Accountants student chapter's activities and the technical sessions scheduled throughout the school year. Student night programs are sponsored by the Colorado Society of Certified Public Accountants, the National Association of Accountants, and the American Society of Women Accountants. Student memberships are available in the National Association of Accountants, the American Accounting Association, and the American Society of Women Accountants. Tax students should participate in the VITA (Volunteers in Tax Payers Assistance). For selected students an internship program is available.

Each year outstanding senior accounting students are recognized for their academic achievements through awards presented by the Colorado Society of Certified Public Accountants (Gold Key Award), American Society of Women Accountants (Outstanding Woman Graduate), the National Association of Accountants, and the Association of Governmental Accountants. Scholarships for accounting majors are available from these professional organizations, including the Clayton A. Becker scholarship and the William G. McDonald, Jr., accounting scholarship.

School of Business students whose major area is other than accounting may minor in accounting by taking ACCTG 301 and 302, and 10 additional hours in accounting.

A non-business baccalaureate degree student may minor in accounting by completing 21 hours of approved accounting courses. ACCTG 201,202,301,302 are required. The remaining five hours of accounting courses must be approved by the student's adviser.

## UNDERGRADUATE COURSES

- 201 Principles of Financial Accounting 4(4-0) Prerequisite: MATH 120. (F,S,SS)**  
An introduction to accounting as the language and tool of business operations. Emphasis is placed upon the reasoning and logic associated with the accounting cycle.
- 202 Principles of Managerial Accounting 4(4-0) Prerequisite: ACCTG 201. (F,S,SS)**  
Managerial uses of accounting information, including cost-based decision making, differential accounting, and responsibility accounting.
- 210 Taxes for Individuals 2(2-0). (F,S)**  
Internal Revenue Code with analysis of political, economic and social ramifications of the law with problem material in tax return preparation solutions. For non-business majors. No graduation credit for accounting majors. GEN.EDIID.
- 301 Intermediate Accounting I 4(4-0) Prerequisite: ACCTG 202. (F,S)**  
A study of financial accounting functions and basic accounting theory, recognition and measurement of assets and liabilities, and stockholders' equity.
- 302 Intermediate Accounting II 4(4-0) Prerequisite: ACCTG 301. (F,S)**  
Pensions, leases, bonds, price changes, presentation and interpretation of financial statements, accounting changes, consignment, sales, segment reporting, interim reporting and EPS.
- 311 Federal Income Tax 4(4-0) Prerequisite: ACCTG 202. (F,S)**  
Rules and regulations of the tax law as applied to income recognition, exclusions from income, deductions from income and credits pertaining to individuals, partnerships, and corporations.
- 320 Cost Accounting 4(4-0) Prerequisite: ACCTG 202. (F,S,SS)**  
Accounting procedures applicable to industries with emphasis on job order process costs, standard cost and profit planning including differential costs, internal profit and price policies, and capital budgeting.
- 401 Advanced Financial Accounting 4(4-0) Prerequisite: ACCTG 302 and senior standing, accounting majors. (F)**  
Application of fundamental theory to partnerships, joint ventures, foreign operations, consolidated statements, and business combinations.

- 403 Accounting Theory and Ethics 4(4-0) Prerequisite: ACCTG 302. (F)**  
Current concepts and developments in accounting theory as indicated by APB, FASB, and the Code of Professional Ethics applied to the practice of public accounting.
- 404 CPA Law Review 3(3-0) Prerequisite: senior standing, accounting major. (F)**  
Business law as found in the Business Law section of the Uniform CPA examination.
- 410 Auditing 4(4-0) Prerequisite: ACCTG 302. (F)**  
A study of the systematic process by which external financial statements and other management assertions are verified and reported upon by independent, internal, and governmental auditors.
- 430 Accounting Information Systems 4(4-0) Prerequisite: ACCTG 302. (S)**  
The study of design and implementation of accounting information systems. Attention directed to the traditional accounting model and its relationship to computerized accounting information systems.
- 440 Fund Accounting 4(4-0) Prerequisite: ACCTG 302. (F,S)**  
A study of advanced accounting topics especially as concerns not-for-profit entities with emphasis on governmental accounting. Prerequisite: ACCTG 302.
- 480 Small Business Studies 3(3-0). Prerequisite: senior standing and permission of instructor. (F,S)**  
Integrating prior studies in business into a realistic approach to assist in solving problems faced by selected firms in the community.
- 484 Senior Studies 3(3-0). (F)**  
A discipline oriented integration of prior course work into a special project, research paper and/or activity that demonstrates proficiency in the major.
- 490 Special Projects (1-6 VAR). (F,S,SS)**
- 491 Special Topics (1-3 VAR). (F,S,SS)**
- 495 Independent Study (1-3 VAR) Prerequisites: senior standing, accounting major and adviser permission. (F,S,SS)**
- 498 Internship (1-6 VAR) Prerequisite: junior or senior standing in School of Business and permission of Internship Coordinator. (F,S,SS)**  
Supervised field work in selected business, social and governmental organizations; supplemented by written reports. (S/U grades.)

## GRADUATE COURSES

- 510 Managerial Accounting 3(3-0) Prerequisite: graduate standing. (SS)**  
Accounting concepts and methods utilized in managerial planning, budgeting, controlling, and evaluating to optimize decision making.
- 591 Special Topics 3(3-0). (SS)**  
Critical review and discussion of relevant accounting topics.
- 592 Research (1-6 VAR). (SS)**  
The student will work under the close supervision of a graduate faculty member in basic or applied research resulting in a thesis or report of high academic quality. (S/U grades.)
- 599 Thesis Research (1-6 VAR). (SS)**

## AGRICULTURE (AG)

Associate Professor Thomas

The University of Southern Colorado and Colorado State University have entered into an agreement which guarantees USC students transfer to CSU in specified life science majors with upper-division status, after satisfactorily completing a prescribed curriculum at USC. Those majors approved are: horticulture (floriculture and horticultural business managements concentrations) and animal science (industry concentration). Requirements for the prescribed curriculum for each of the majors can be obtained from the department of life sciences (LS 207).

- 101 Introductory Animal Science 3(3-0) Corequisite: AG 101L. (\*)**  
Emphasis on origin, breeds, production characteristics, breeding (genetic principles), nutrition, management, and health of domestic animals, cattle, horses, sheep, swine, poultry, and pets. GEN.ED.IIIA.
- 101L Introductory Animal Science Lab 1(0-2) Corequisite: AG 101. (\*)**  
Animal production. GEN.ED.IIIA.
- 103 Livestock Judging 1(1-0) Corequisite: AG 103L. (\*)**  
Evaluation of beef, sheep, swine, and horses for breeding and marketing purposes. Emphasis on type evaluation.
- 103 Livestock Judging Lab 1(0-2) Corequisite: AG 103. (\*)**

- 105 Agriculture Economics 3(3-0). (\*)**  
The role of agriculture in the economy, relation of economic forces to the farm business and agriculture industry.
- 112 Fundamentals of Dairy 2(2-0) Corequisite: AG 112L. (\*)**  
Dairy cattle breeds, selection breeding stock, feed and milking practices, reproductive problems, milk production, marketing.
- 112L Fundamentals of Dairy Lab 1(0-2) Corequisite: AG 112. (\*)**
- 121 Principles of Crop Production 3(3-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: AG 121L. (\*)**  
Crop production, cultural practices, botanical characteristics, techniques of production, and crop improvement.
- 121L Principles of Crop Production Lab 1(0-2) Corequisite: AG 121. (\*)**
- 202 Farm and Ranch Management 3(3-0) Prerequisite: AG 105 or permission of instructor. (\*)**  
Operational economics of a farm or ranch; size, resource allocation, enterprise combination, labor and equipment efficiencies.
- 206 Feeds and Feeding, Applied Animal Nutrition 3(3-0). Prerequisite: AG 101, CHEM 111/111L or 121/121L or permission of instructor. (\*)**  
Nutrient classification, nutrient sources and requirements of food-producing animals, ration formulation for all species of domestic animals.
- 213 Advanced Livestock Judging 2(1-2) Prerequisite: permission of instructor. (\*)**  
Judging, meat animals, breeding animals, beef, sheep, swine and horses.
- 230 Light Horse Management 2(2-0) Corequisite: AG 230L. (\*)**
- 230L Light Horse Management Lab 1(0-2) Corequisite: AG 230. (\*)**
- 262 (BIOL 262) Basic Horticulture 3(3-0) Prerequisite: BIOL 201 and 201L or permission of instructor. Corequisite: AG 262L. (\*)**  
GEN.ED.IIIA.
- 262L (BIOL 262L) Basic Horticulture Lab 1(0-2) Prerequisite: BIOL 201 and 201L or permission of instructor. Corequisite: AG 262. (\*)**  
GEN.ED.IIIA.
- 291 Special Topics (1-3 VAR). (\*)**

**360 (BIOL 360) Applications of Computers in the Laboratory 3(2-2) Prerequisite: BIOL 192 or equivalent. (S)**

Application of computing to medicine, nursing, agriculture, biological sciences with emphasis placed upon the use of microcomputers, peripheral devices, data banks, and communications available to the life scientist.

**381 (BIOL 481) Entomology 2(2-0) Prerequisite: BIOL 191, or permission of instructor. Corequisite: AG 381L. (F)**

Structure, classification, ecology and control of insects.

**381L (BIOL 481L) Entomology Lab 1(0-2) Prerequisite: BIOL 191. Corequisite: AG 381. (F)****385 (BIOL 485) Plant Taxonomy 2(2-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: AG 385L. (F)**

Identification of the common families of conifers and flowering plants, study of their systematic relationships.

**385L (BIOL 485L) Plant Taxonomy Lab 2(0-4) Corequisite: AG 385. (F)****480 Agricultural Policy 3(3-0) Prerequisite: ECON 201, 202, AG 105. (\*)**

Formation and administration of public policies affecting United States agricultural industry farm programs and other government policies associated with agriculture.

**498 Internship (5-15VAR). (\*)**

Career or job field work experience with an individual farm business agency institution, or program. (S/U grades.)

**ANTHROPOLOGY (ANTHR)**

*Professor Buckles*  
*Associate Professor Forsyth*

The major in anthropology leads to the bachelor of arts (BA) degree.

Anthropology is the science of culture, concerned with life in all its complexity. The discipline includes physical anthropology which deals with human biology, archeology which analyzes past societies and peoples, and cultural anthropology which studies lives and cultures of people in particular groups.

The major in anthropology prepares students to work in a wide variety of occupations, including education, law, government, business, industry and private research agencies. Anthropologists find employment in museums, international organizations, the helping professions, and in federal and state agencies. The baccalaureate degree can lead to a career in law, higher education, or in supervisory levels of civil service.

The major in anthropology requires 41 or 42 semester hours, depending on the track. No grades below C are accepted toward the major.

All students must complete the following core courses (three credit hours each): ANTHR 103, 210, 310 and 492. A maximum of 10 credit hours from ANTHR 111, 211, 311, 411 count toward completion of a major. Five credit hours from these courses may be used for upper-division requirements. Fifteen credit hours from these courses may be used toward the number of hours required for the baccalaureate degree.

The anthropology major includes two tracks:

**General track.** Students are prepared for human service work requiring knowledge of different cultures, or for graduate school to pursue an advanced anthropology degree.

**Archeology track.** Students receive a rounded undergraduate education in archeology, including 23 semester hours of courses which emphasize descriptions, methods and theories, as well as actual experiences in archeology. Field schools and trips are sometimes available, with permission of instructor.

**Medical track.** Students are prepared for graduate school, or for careers in agencies or institutions that deal with the aged, or with the mentally or physically ill. Students in this track become familiar with policy issues, current findings, bureaucratic processes, and major theories of sexuality, aggression, gender, deviance, and psychopathology.

A minor in anthropology requires a minimum of 21 semester hours, of which six hours must be at the 300/400 course level. ANTHR 103 is required for the minor. The remaining courses must be selected by the student in consultation with his/her minor adviser. No grades below C are accepted toward the minor.

**103 Introduction to Socio-Cultural Anthropology 3(3-0). (F,S)**

Analysis of human cultures, their evolution, development structures and processes and an explanation of similarities and differences. GEN.ED.IIB.

**104 Physical Anthropology 3(3-0). (F,S)**

Biological nature of humans; emphasis on how forces of evolution have shaped human nature in the past and present. GEN.ED.IIIA.

- 105 Introduction to Archaeology 3(3-0). (S)**  
Evolution of culture as explained through archaeological methods and theories; emphasis on the preservation and protection of the cultural environment. GEN.ED.IIB.
- 106 Language, Thought and Culture 3(3-0). (S)**  
Cross-cultural introduction to language processes in human society. GEN.ED.IIB.
- 107 Cultural Diversity 3(3-0). (F)**  
Survey of multiethnic and multicultural societies with emphasis on social and cultural change and the diversity in patterns of adaptation. GEN.ED.IIB.
- 108 Culture, Technology and Environment 3(3-0). (S)**  
Comparative study of human cultures and ecological principles relating to both subsistence level and complex societies. GEN.ED.IIB.
- 111 Laboratory and Field Techniques (1-10 VAR) Prerequisite: previous work in anthropology recommended and permission of instructor. (F,S)**  
Training in field and/or laboratory techniques by participation in anthropological projects.
- 210 (POLSC/SOC/SW 210) Techniques of Analysis 3(3-0). (F,S)**  
Introduction to the methods of scientific investigation in the social sciences.
- 211 Laboratory and Field Techniques (1-10 VAR) Prerequisite: previous work in anthropology recommended and permission of instructor. (F,S)**  
Training in field and/or laboratory techniques by participation in anthropological project.
- 250 The Sacred in Culture 3(3-0). (S)**  
Concepts of the supernatural viewed cross-culturally and in particular cultural contexts.
- 251 World Archaeology 3(3-0). (S)**  
Awareness and appreciation of cultural evolution and heritages through descriptions and interpretations of archaeological remains throughout the world. GEN.ED.IIB.
- 252 Culture and Personality 3(3-0). (F)** Relationship between group processes and personality factors in a cross-cultural perspective. GEN.ED.IIB.
- 291 Special Topics (1-3 VAR). (\*)**

- 301 Peoples and Cultures of the Southwest 3(3-0). (S)**  
Examination of the region's multiethnic and pluralistic society; emphasis on adverse adaptations to distinctive nature and cultural environments.
- 302 American Myths and Fantasies 3(3-0). (S)**  
Exploration of the relationship between past and present American myths and the personal fantasies underlying them, in order to understand how this relationship affects American historical events.
- 305 Forensic Anthropology 3(3-0). (F)**  
Techniques of excavation and identification of skeletal remains in connection with forensic medicine and criminal investigations.
- 310 Social and Cultural Theory 3(3-0). (F,S)**  
From classical to contemporary theory in sociology and anthropology.
- 311 Laboratory and Field Techniques (1-10 VAR) Prerequisite: previous work in anthropology recommended and permission of instructor. (F,S)**  
Training in field and/or laboratory techniques by participation in anthropological projects.
- 391 Special Topics (2-4 VAR). (\*)**
- 401 (SOC 401) Health, Culture and Society 3(3-0). (F)**  
Analysis of cultural, social, and psychological factors influencing health and health-care.
- 402 (SOC 402) Aging, Culture and Society 3(3-0). (S)**  
Cultural, sociological, and psychological dimensions of aging.
- 411 Laboratory and Field techniques (1-10 VAR) Prerequisite: Previous work in anthropology recommended and permission of instructor. (F,S)**  
Training in field and/or laboratory techniques by participation in anthropological projects.
- 451 Culture/Deviance/Psychopathology 3(3-0). (S)**  
Analysis of the relationship between culture and the causes and manifestations of deviance and psychopathology.
- 453 Southwestern Archaeology 3(3-0). (F)**  
Investigations of the prehistories of diverse peoples and cultures of the Southwest.
- 491 Special Topics (1-3 VAR). (F,S)**
- 492 Research 3(3-0). (S)**  
Analysis of the research process in anthropology.

- 493 Seminar (2-4 VAR). (F,S)**  
Major principles, propositions, and concepts which establish social and cultural understanding.
- 494 Field Experience (3-12 VAR). Prerequisite: permission of instructor. (F,S)**  
Practical experience in an agency setting.
- 495 Independent Study (1-10 VAR) Prerequisite: previous work in anthropology and permission of instructor. (F,S)**  
Directed study of students interested in specific areas of anthropological concern.

### APPLIED NATURAL SCIENCE (ANS)

The following courses are offered in the master of applied natural science curriculum. See the Graduate Studies section of this catalog for information on the program.

#### GRADUATE COURSES

- 501 Ethics of Science 2(2-0). (\*)**  
The main currents of the history of science related to today's ethical issues; stresses critical analysis.
- 510 Scientific Information Systems 1(1-0) Prerequisite: graduate standing. (F)**  
Techniques of the effective and efficient use of scientific literature including the general content and organization of Chemical Abstracts, Biological Abstracts, Beilstein, Current Contents, and primary literature sources; use of computerized data bases for the location of literature and patent information.
- 520 Health and Safety in the Laboratory 1(1-0) Prerequisite: graduate standing. (F)**  
Review of standard potential hazards encountered in the scientific laboratory including fire, chemical, bio- and radiation hazards. Applicable regulations associated with the handling and disposal of hazardous materials and wastes (OSHA, EPA, RCRA, state, "Right to Know," etc.). Sources of information regarding hazards (Material Safety Data Sheets, etc.). Control and prevention of spills and fires.
- 593 Seminar 1(1-0). (F,S)**  
An interdisciplinary seminar on topics appropriate to the application of natural sciences. Repeatable once.

### ART (ART)

*Professors Jensen, Sajbel*  
*Associate Professors Hensch, Marino, Wands*

The major in art leads to the degrees of bachelor of arts (BA) and bachelor of science (BS). A minor in art and an endorsement in teacher certification are also available.

Art majors must complete the art core consisting of 18 semester hours: ART 101, 102, 115, 116, 141, 142, 210, and 410. These core courses except ART 410 are prerequisites for all other courses taken by art majors.

Each art major will confer with an assigned art faculty adviser in matters of academic advising.

The art major pursuing a BA degree is required to take a minimum of 40 semester hours of art courses which include the 18 hours of the art core. To earn a BS degree, the art major is required to complete a minimum of 48 hours of art courses which include the 18 hours of core courses. Students pursuing a state certification to teach elementary or high school art must complete no less than 48 hours of art.

The art minor requires 20 semester hours, including eight hours from the art core: either ART 101 or 102; 115 or 116; and 141 or 142. The additional 12 hours must be selected and approved by the minor adviser.

#### UNDERGRADUATE COURSES

- 100 Introduction to Art 3(3-0). (F,S,SS)**  
Art forms, meanings and ideas across cultures and through time. GEN.ED.IA.
- 101 Art History Survey I 3(3-0). (F,SS)**  
Development of style, iconography and function of art from prehistoric times to the Gothic period. GEN.ED.IA.
- 102 Art History Survey II 3(3-0). (S,SS)**  
Development of style, iconography and function of art from Gothic period to the present period. GEN.ED.IA.
- 103 Art History Survey III 3(3-0). (F,S,SS)**  
Development of style, iconography and function of art in non-western cultures. GEN.ED.IA.



- 115 Design I 3(1-4). (F,S)**  
The foundations of visual form, emphasizing two-dimensional design and color theory.
- 116 Design II 3(1-4) (F,S)**  
The foundation of visual form, emphasizing three-dimensional design.
- 118 Art Non-Major 3(0-6). (F,S)**  
Studio course for non-art majors interested in experiencing specific areas of art, including ceramics, drawing, painting, photography, printmaking, and sculpture.
- 141 Drawing I 2(0-4). (F,S,SS)**  
Development of perception and technical skills in rendering.
- 142 Drawing II: Figure 2(0-4). (F,S,SS)**  
Studio class studying the human figure.
- 202 Art Processes 1(0-2). (F,S,SS)**  
Similarities and differences within visual arts. Sections in sculpture, painting, ceramics, photography, and painting.
- 210 Art Career Orientation 1(1-0). (F,S,SS)**  
Guided development of individual job objectives.
- 233 Sculpture I 3(0-6). (F,S,SS)**  
Basic problems in sculpture relating specific concerns of visual form and process.
- 234 Painting I 3(0-6) Prerequisite: art core. (F,S,SS)**  
Application of materials and techniques through the use of color theories, surface awareness and compositional emphasis.
- 235 Painting II 3(0-6) Prerequisite: art core. (F,S,SS)**  
Continuation of above at higher level of technical and visual pursuit.
- 236 Watercolor Painting 3(0-6) Prerequisite: art core. (F,S,SS)**  
Water media as a specialized approach to painting.
- 241 Drawing III 2(0-4) Prerequisite: ART 141, 142. (F,S,SS)**  
Advanced course in pursuit of increased skills of perception.
- 242 Drawing IV: Figure 2(0-4) Prerequisite: ART 142. (F,S,SS)**  
Continuation of ART 142 with expanded interpretational and compositional awareness of the figure.
- 245 Ceramics I 3(0-6) Prerequisite: art core. (F,S,SS)**  
Essential skills in ceramic processes; emphasis on form and function as related to students' needs and creative intent.
- 270 Printmaking (1-3 VAR) Prerequisite: art core. (F,S,SS)**  
Basic processes of printing from raised surfaces.

- 274 Computer Imaging (1-3 VAR) Prerequisite: art core or permission of instructor. (F,S)**  
Use of microcomputers to develop visual images with commercial applications.
- 276 Photography (1-3 VAR) Prerequisite: art core or permission of instructor. (F,S,SS)**  
Photography as an art form and as an adjunct to other art media.
- 281 Introduction to Graphic Design 3(1-4) Prerequisite: art core. (F,S)**  
Tools, design elements, and processes that concern advertising and communication designers.
- 282 Calligraphy (1-3 VAR). (F,S)**  
Styles of hand lettering and layout of calligraphic forms.
- 291 Special Topics (1-5 VAR). (F,S,SS)**
- 332 Modeled Cast Sculpture 3(0-6) Prerequisite: art core. (F,S,SS)**  
Techniques of producing three-dimensional form through modeling, mold-making, and casting in a variety of materials.
- 333 Sculpture II 3(0-6) Prerequisite: art core or permission of instructor. (F,S,SS)**  
Processes for producing sculpture via the subtractive methods.
- 341 Portrait Painting 1(0-2) Prerequisite: ART 235. (F,S,SS)**  
Representational painting using portrait models.
- 342 Figure Painting 1(0-2) Prerequisite: ART 235. (F,S,SS)**  
Composition and environmental additions to the figure.
- 343 Landscape Painting 1(0-2) Prerequisite: ART 235. (F,S,SS)**  
Perception and interpretation of nature on location.
- 345 Ceramics II 3(0-6) Prerequisite: ART 245. (F,S,SS)**  
In-depth development of specific ceramic techniques; skills and personalization of style.
- 346 Production Pottery 3(0-6) Prerequisite: permission of instructor. (F,S)**  
Intensive experience in practical problems of production; emphasis on functional ware. Material, equipment, sales and procedure to establish a studio.
- 370 Advanced Printmaking (1-3 VAR) Prerequisite: ART 270. (F,S)**  
Basic processes of printing from raised surfaces.
- 371 Intaglio (1-3 VAR) Prerequisite: art core. (F,S)**  
Basic processes of printing from raised and lowered surfaces.

- 372 Lithography (1-3 VAR) Prerequisite: art core. (F,S)**  
Processes of planographic printing from drawings made on stone.
- 373 Serigraphy (1-3 VAR) Prerequisite: art core. (F,S)**  
Process of screen printing including preparation of photographic stencils.
- 374 Computer Imaging (1-3 VAR) Prerequisite: art core or permission of instructor. (F,S)**  
Use of computers to develop visual images for advertising and commercial application.
- 375 History of Art Film 3(3-0). (F,S)**  
Significant art films illustrating the development style, subject matter and techniques of film making from late 19th century to the present.
- 376 Photography (1-3 VAR) Prerequisite: ART 276 or permission of instructor. (F,S)**  
Photography as an art for and an adjunct to other art media.
- 377 Principles of Elementary Art Education 1(1-0). (F,S,SS)**  
Lecture course dealing with the development of visual concepts within the child.
- 378 Art for Young Children 2(1-2). (F,S,SS)**  
Materials and uses of art media and techniques for young children ages 4 to 12.
- 379 Principles of Secondary Art Education 2(2-0). (F,S,SS)**  
Theories and methods of art education beyond the elementary school.
- 381 Graphic Design II 3(1-4) Prerequisite: ART 281. (F,S)**  
Layout and the preparation of mechanicals for commercial application.
- 382 Illustration 2(0-4) Prerequisite: ART 381. (F,S,SS)**  
Images rendered in varying techniques to express ideas related to commercial application.
- 383 Exhibition Design 2(0-4) Prerequisite: permission of instructor. (F,S,SS)**  
Communication and design principles applied to the display of objects. Special attention to museum and gallery installations.
- 397 Studio Series 3(0-6) Prerequisite: permission of instructor. (F,S,SS)**  
Advanced studio offerings for students who have completed all other course offerings in specific discipline. Scheduled concurrently with lower division studios. Repeatable twice.

- 405 Art History: Modern 3(3-0) Prerequisite: permission of instructor. (F,S)**  
Development of style and iconography of 19th- and early 20th- century art in Europe and United States.
- 406 Art History: Contemporary 3(3-0) Prerequisite: permission of instructor. (F,S)**  
Development of style and iconography of contemporary art since 1950.
- 410 Art Career Orientation 1(1-0) Prerequisite: senior standing. (F,S,SS)**  
Evaluation of personal plans toward job objectives and portfolio presentation, including senior exhibition.
- 445 Glaze Calculation 1(0-2) Prerequisite: permission of instructor. (F,S)**  
The simple necessities for forming glazes. Testing, firing, and practical application.
- 446 Kiln Construction 1(0-2) Prerequisite: permission of instructor. (F,S,SS)**  
Building, designing, and construction of kilns.
- 478 Art Education Methods Application Lab 2(0-4). Prerequisite: ART 377 or ART 379. (F,S,SS)**  
Application of theories and methods of art education.
- 481 Communication Graphics 3(1-4) Prerequisite: permission of instructor. (F,S)**  
Design of words, images, and symbols for commercial application.
- 491 Special Topics (1-5 VAR). (F,S,SS)**
- 494 Field Experience (1-5 VAR) Prerequisite: senior standing and permission of instructor. (F,S,SS)**  
Off-campus individual experience providing transition from classroom instruction to on-the-job experience.
- 495 Individual Projects (1-5 VAR) Prerequisite: junior or senior standing and permission of instructor. (F,S,SS)**  
Individual tutorial experience.
- 496 Cooperative Education Placements (1-4 VAR) Prerequisite: permission of instructor. (F,S,SS)**
- 497 Studio Series 3(0-6) Prerequisite: ART 397 or permission of instructor. (F,S,SS)**  
Advanced sections of studio offerings. Repeatable twice.

## GRADUATE COURSES

- 500 Workshop (1-5 VAR) Prerequisite: permission of instructor and graduate standing. (F,S,SS)**  
Using materials and techniques based on advanced concepts and ideas.
- 591 Special Topics (1-3 VAR) Prerequisite: permission of instructor and graduate standing. (F,S,SS)**

## AUTOMOTIVE PARTS AND SERVICE MANAGEMENT (APSM)

Associate Professors Martinet, Wade

The major in automotive parts and service management leads to a bachelor of science (BS) degree designed to provide the student with detailed technical knowledge of the automobile and a broad range of management skills applicable to the automotive industry. The curriculum emphasizes personnel supervision, financial analysis, customer relations, warranty administration, sales promotions, techniques of technical problem-solving, service dissemination, marketing, merchandising and distribution methods used by the automotive aftermarket, automotive manufacturer and import industries. The graduating candidate must have a grade of C or above in each course in the major.

The minor in automotive parts and service management requires a minimum of 26 semester hours. APSM minors will be required to take a core of APSM 115, 125/125L, 135/135L, 155, 205 and 245/245L. Minors should be planned with the assistance of an APSM adviser.

- 105 Introduction to the Parts and Service Industry 2(2-0). (F)**  
Introduction to the industry from viewpoint of history, social impact, organization structure, manpower needs, and future growth.
- 115 Automotive Engine Design and Operation 4(2-4). (F)**  
Design and operation of internal combustion engines, two and four cycle, rotary, diesel, gas, turbine, steam fuelcell and other future automotive power concepts.
- 125 Automotive Suspension and Brake Systems 3(3-0). (S)**  
Design and theory of front and rear automotive suspensions, steering, and brake systems.

- 125L Automotive Suspension and Brake Systems Lab 1(0-2) Corequisite: APSM 125. (S)**
- 135 Automotive Fuel Systems and Exhaust Emissions 3(3-0). (F)**  
Design and theory of automotive fuel systems, carburetion, fuel injection, turbo charging, and supercharging; functions and design of automotive emissions systems.
- 135L Automotive Fuel Systems and Exhaust Emissions Systems Lab 1(0-2) Corequisite: APSM 135. (F)**
- 155 Automotive Jobbers and Dealer Parts Operation 5(5-0). (F)**  
Automotive replacement parts books, inventory control systems, stock control levels, and planographing to improve stock flow.
- 165 Industrial Equipment and Heavy Equipment Parts 2(2-0). (F)**  
Selection of industrial equipment; use of parts catalogs and microfilm in heavy equipment selection.
- 205 Automotive Jobber Distribution and Merchandising 5(5-0). (S)**  
Channels of distribution and merchandising for the automotive jobber from the manufacturer to the user.
- 215 Automotive Power Trains and Drive Lines 3(3-0). (S)**  
Design and theory of standard and automatic transmissions, clutches, drivelines, differentials, and transaxles.
- 215L Automotive Power Trains and Drive Lines Lab 1(0-2) Corequisite: APSM 215. (S)**
- 225 Power Mechanics 3(3-0). (S)**  
Power sources including steam, atomic, internal combustion, turbines, engines, and transmission of power.
- 235 Machine Shop Equipment and Operation 3(2-2). (S)**  
Functions of automotive machine shop equipment and basic automotive machine shop management.
- 245 Automotive Electrical Systems I 3(3-0). (F)**  
Design and theory of operation of automotive electrical circuits; ignition, starting, charging, and accessory circuits, with study of diagnostic equipment used to diagnose system malfunctions.
- 245L Automotive Electrical Systems Lab I 1(0-2) Corequisite: APSM 245. (F)**
- 255 Automotive Electrical Systems II Lab 2(2-0) Prerequisite: APSM 245/245L. Corequisite: APSM 255L. (S)**  
Design and operational theory of solid state ignitions systems and computer-controlled systems including engine, braking, transmission, emission, and comfort systems.

- 255L Automotive Electrical Systems Lab II 1(0-2) Corequisite: APSM 255. (S)**
- 296 Cooperative Education Placement (1-5 VAR). Prerequisite: freshman or sophomore standing, APSM major. (F,S)**  
Supervised industrial field work.
- 305 Auto Parts and Service Management 3(3-0). (S)**  
The industry from a management standpoint; business operations, personnel management, inventory, and expense controls.
- 325 Fuels and Lubricant Production, Marketing and Conservation 3(3-0) Prerequisite: senior standing or permission of adviser. (S)**  
Petroleum industry; basic production processes, marketing techniques, alternate fuel sources, and conservation techniques.
- 335 Automotive Shop Practices 5(2-6) Prerequisite: APSM 115, 125, 135, 245/245L, 255/255L and 345. (S)**  
Diagnosis of electrical, fuel, engine, brake and transmission systems; study of service management and service writer duties.
- 345 Advanced Automotive Systems 5(3-4) Prerequisite: junior standing or permission of instructor. (F)**  
Theory and lab experience on new concepts in automotive electrical, fuel and suspension systems.
- 405 Automotive Sales Principles and Practices 5(5-0). (F)**  
Application of techniques and principles unique to wholesale selling of replacement parts and accessories.
- 415 Automotive Expense Control and Analysis 5(5-0) Prerequisite: ACCTG 201 and 202. (S)**  
Introduction to specialized automotive accounting and inventory control methods; emphasis on analyzing expenses and cutting costs in the retail automotive business.
- 491 Special Topics (1-5 VAR) Prerequisite: permission of instructor. (F,S)**
- 496 Cooperative Education Placement (1-5 VAR) Prerequisite: junior or senior standing APSM major. (F,S)**  
Supervised industrial field work.

**BILINGUAL BICULTURAL EDUCATION (BBE)**

The minor in bilingual bicultural education is available for students pursuing teacher certification in elementary and secondary education.

*UNDERGRADUATE COURSES*

- 363 Multicultural Education 2(2-0). (F,S,SS)**  
Review of significant historical events, sociocultural characteristics, and value orientations of the people of the Southwest.
- 400 Workshop (1-3 VAR). (\*)**  
Development of classroom materials and curriculum in bilingual education.
- 401 Teaching the Limited English Proficient Student 2(1.5-1.5). Prerequisite: admission to teacher education program. (F,S)**  
Methods and techniques of teaching English to children of linguistically and culturally different backgrounds.
- 403 Teaching Elementary Subjects in Bilingual Education 3(2-3). (F,S)**  
Teaching elementary social studies, science, and health in bilingual settings.
- 460 Survey of Language/Cultural Tests in Bilingual Education 2(2-0). (F)**  
Introduction to current language/cultural instruments for the prospective bilingual education teacher in the elementary school.
- 487 Student Teaching Bilingual (1-15 VAR) Prerequisite: admission to the teacher education program. (F,S)**  
For students in elementary bilingual program. Application for student teaching must be submitted one full semester prior to enrollment. (S/U grades.)
- 495 Independent Study (1-2 VAR). (F,S)**  
For the student specializing in bilingual education.

*GRADUATE COURSES*

- 500 Workshop (1-3 VAR) Prerequisite: graduate standing. (\*)**  
Practicums in development of classroom materials/curriculum in bilingual education.

**505 Education Across Cultures 2(2-0) Prerequisite: graduate standing. (\*)**

Analysis of multiculturalism in education and adaptation of the educational process to children of diverse cultural backgrounds.

**541 Survey of Research in Bilingual Education 2(2-0) Prerequisite: graduate standing. (\*)****595 Independent Study (1-2 VAR) Prerequisite: graduate standing. (\*)**

For the student specializing in bilingual education.

**BIOLOGY (BIOL)**

*Professors Dorsch, Farris, Herrmann, Janes, Linam, Osborn, Seilheimer, Sublette*

*Associate Professor Murray  
Assistant Professor Browne*

The major in biology leads to a bachelor of science (BS) degree. Courses in biology serve students by providing fundamental science instruction to meet major, program, and general education requirements.

The biology major is sufficiently flexible for students to prepare for a wide variety of professional careers and carefully supervised career planning is a fundamental concern of the program. Biology courses are taught in a modern building with research-grade equipment available for student use. Specialized facilities include a water research laboratory, a radiation biology complex, a biotechnology laboratory, a controlled-environment greenhouse, a regional museum, a local herbarium, and an electron microscope.

The student majoring in biology may plan to enter the workplace or continue study in graduate school as a professional biologist, or may elect to follow any of the following **pre-professional programs**: pre-chiropractic, pre-forestry, pre-optometry, pre-physical therapy, pre-occupational therapy, pre-physician assistant, pre-podiatric medicine, pre-veterinary medicine, pre-dentistry, pre-medicine or pre-osteopathic medicine. Each of the pre-professional programs has an adviser who can provide detailed and current information about the undergraduate work which the student should pursue to provide the foundation necessary for later entry into a professional school. The student should contact the specialized adviser as early as possible. A list of advisers is available in the departmental office.

Frequently, a pre-professional program involves a combination of majors or a major and minor. For example, many pre-medical students choose a double major in biology and chemistry.

The university has a guaranteed transfer agreement with the College of Forestry and Natural Resources at Colorado State University in pre-forestry and pre-wildlife management. A student who successfully completes the two-year program at USC with 2.50 grade-point average is guaranteed transfer to the baccalaureate program at CSU. Grades of D and F do not transfer.

A major in biology requires a minimum of 47 semester hours of credit in adviser-approved biology courses and a minimum of 35 semester hours of credit in adviser-approved courses in chemistry, physics, mathematics or geology. This requirement is modified for those students seeking teacher certification at either the elementary or secondary level. Each student should obtain a written description of specific degree requirements from the appropriate adviser. All students who might attend a graduate school should take one year of a foreign language and should plan to take the Graduate Record Examination during the senior year.

The specialization in **environmental health** is designed to meet the curriculum recommended by the Accreditation Council of the National Environmental Health Association (formerly the National Association of Sanitarians). Satisfactory completion of this curriculum leads to a BS degree in biology.

The emphasis in **biotechnology** is available to students interested in professions and/or graduate schools which require specialization in molecular biology, industrial microbiology or genetics.

The emphasis in **medical technology** is available to students majoring in biology, stresses microbiology, immunology, parasitology and chemistry. In their senior year students apply for admission to a hospital school of medical technology, and after receiving the degree from USC they spend a one year internship in hospital clinical laboratory practice. They then sit for a certifying exam and are registered as a medical technologist.

Two types of minors in biology are available: The professional biology minor is recommended for students who might at some time intend to continue their academic education in a biologically related professional field or graduate program.

The professional biology minor requires 23 semester hours: 14 semester hours of specific lower-division courses plus nine hours of upper-division electives. Required courses are BIOL 191/191L, 201/201L, 202/202L.

The general biology minor requires 23 hours of BIOL-prefix courses approved by the minor adviser. Eight of these semester hours must be upper division. The courses selected should have some relationship to the major or intended goals of the student (physical education, psychology, business, mass communications, art, biological hobbies, outdoor interest).

#### UNDERGRADUATE COURSES

- 101 Outdoor Biology 4(4-0). (F,S)**  
Principles of biology through outdoor experiences. Mountain survival, native and edible plants, observing and stalking wildlife, environmental awareness, and ecology. GEN.ED.IIIA.
- 112 Nutrition 3(3-0). (F,S)**  
Analysis of personal dietary habits and behavior in relation to basic human nutritional needs and food composition. GEN.ED.IIIA.
- 121 Environmental Conversation 4(4-0). (S)**  
Basic principles of ecology and current issues relating to the use of natural resources. GEN.ED.IIIA.
- 132 Human Heredity and Birth Defects 2(2-0). (F)**  
A non-major course emphasizing the laws and principles of inheritance as they relate to man and the causes of human congenital defects. GEN.ED.IIIA.
- 141 Human Sexuality I 2(2-0). (F,S)**  
Sexual behaviors, physiology, dysfunctions, roles, alternative relationships, parenting, legal aspects, contraception, and current research in sexuality. GEN.ED.IIIA.
- 162 Personal Health 3(3-0). (F,S)**  
In-depth look at the human body from the standpoint of positive health, wellness, and fitness. GEN.ED.IIIA.
- 171 Career Planning I 1(0-4). (F)**  
Identifying career options and creating a personalized educational program. (S/U grades.)
- 191 Aspects of Biology 3(3-0) Corequisite: BIOL 191L. (F,S)**  
Introduction to metric measurement, microscope, cell form, function, reproduction, biologically important molecules, bioenergetics, classifying and keying. GEN.ED.IIIA.
- 191L Aspects of Biology Lab 1(0-2) Corequisite: BIOL 191. (F,S)**  
GEN.ED.IIIA.
- 192 Introduction to Computing in the Life Sciences 1(1-2). (S)**  
Orientation to the software and hardware available in life sciences; a basis for using the computer as a tool in biology laboratories. Required of freshmen students majoring in biology, agriculture, and preprofessional areas.
- 201 Botany 3(3-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 201L. (F,S)**  
Anatomy, physiology, genetics and ecology of the angiosperms. Includes a brief survey of the structures and forms of major plant groups. GEN.ED.IIIA.
- 201L Botany Lab 2(0-4) Corequisite: BIOL 201. (F,S)**  
GEN.ED.IIIA.
- 202 Zoology 3(3-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 202L. (F,S)**  
Anatomy, physiology, ecology and phylogeny of major and minor invertebrate and vertebrate taxa. GEN.ED.IIIA.
- 202L Zoology Lab 2(0-4) Corequisite: BIOL 202. (F,S)**  
GEN.ED.IIIA.
- 206 Introduction to Microbiology 3(3-0) Corequisite: BIOL 206L. (F,S)**  
For students of nursing and allied health. Applied aspects of medical microbiology.
- 206L Introduction to Microbiology Lab 1(0-3) Corequisite: BIOL 206. (F,S)**
- 221 Principles of Human Anatomy and Physiology 3(3-0) Corequisite: BIOL 221L. (F,S,SS)**  
Fundamentals of anatomical structures and physiological function. GEN.ED.IIIA.
- 221L Principles of Human Anatomy and Physiology Lab 1(0-2) Corequisite: BIOL 221. (F,S,SS)**  
GEN.ED.IIIA.
- 223 Human Physiology and Anatomy I 3(3-0) Corequisite: BIOL 223L. (F)**  
Study of human physiology and anatomy designed for students who require or desire a thorough understanding of the functional and structural aspect of the human body. Not for biology majors. Topics include physiologically important molecules and compounds, the cell, tissues, integument, skeleton, muscle, nervous system, special senses, and endocrines. GEN.ED.IIIA.

- 223L Human Physiology and Anatomy Lab I 1(0-2) Corequisite: BIOL 223. (F)**  
GEN.ED.IIIA.
- 224 Human Physiology and Anatomy II 3(3-0) Corequisite: BIOL 224L. (S)**  
A continuation of BIOL 223. Topics include the vascular system, respiration, digestion, metabolism, excretion, fluid balance, and reproduction. GEN.ED.IIIA.
- 224L Human Physiology and Anatomy Lab II 1(0-2) Corequisite: BIOL 224. (S)**  
GEN.ED.IIIA.
- 262 (AG 115) Basic Horticulture 3(3-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: BIOL 262L. (S)**  
Principles of horticulture science applied to the propagation and culture of plants and crops. Landscape design and improvement of plants. GEN.ED.IIIA.
- 262L (AG 115L) Basic Horticulture Lab 1(0-2) Corequisite: BIOL 262. (S)**  
GEN.ED.IIIA.
- 280 Introduction to Biotechnology 3(3-0). (S)**  
Introduction and current developments in the use of biological organisms for research and for commercial and industrial processes.
- 291 Special Topics (1-4 VAR). (F,S,SS)**
- 294 Field Experience (1-4 VAR). (F,S,SS)**  
Volunteer work experience under program director, department coordinator and faculty supervisor through the cooperative education program. (S/U grades.)
- 301 General Microbiology 3(3-0) Prerequisite: BIOL 191 and CHEM 301, 301L or permission of the instructor. Corequisite: BIOL 301L. (F)**  
Introduction to the bacteria and viruses, including microbial genetics and physiology.
- 301L General Microbiology Lab 2(0-4) Corequisite: BIOL 301. (F)**
- 302 Medical Microbiology and Immunology 3(3-0) Prerequisite: BIOL 301 or permission of the instructor. Corequisite: BIOL 302L.(S)**  
Introduction to immunology and survey of pathogenic bacteria, viruses and fungi.
- 302L Medical Microbiology and Immunology Lab 2(0-4) Corequisite: BIOL 302. (S)**
- 320 Emergency Medical Technician (EMT) Training 6(6-0) Prerequisite: standard or advanced first aid or equivalent, or permission of instructor. (F,S)**  
Emergency care and transportation of the sick and injured. Field work in hospital emergency rooms and ambulance. State certification.
- 321 Comparative Vertebrate Anatomy 3(3-0) Prerequisite: BIOL 202 or permission of instructor. Corequisite: BIOL 321L. (S)**  
Comparative study of developmental anatomy of vertebrate animals.
- 321L Comparative Vertebrate Anatomy Lab 2(0-4) Corequisite: BIOL 321. (S)**
- 324 (SPCOM 324) Anatomy of the Head, Neck and Chest 2(2-0) Prerequisite: BIOL 221 or BIOL 321 or permission of instructor. Corequisite: BIOL 324L. (#)**  
Anatomical structures of the head, neck, and chest with analysis of development and function.
- 324L (SPCOM 324L) Anatomy of the Head, Neck, and Chest Lab 1(0-2) Corequisite: BIOL 324. (#)**
- 341 Vertebrate Physiology 3(3-0) Prerequisite: BIOL 202, CHEM 112 and 112L or 301 and 301L. Corequisite: BIOL 341L. (F)**  
Basic general physiology and the functions of animal and human body systems.
- 341L Vertebrate Physiology Lab 1(0-2) Corequisite: BIOL 341. (F)**
- 342 Pathobiology 3(3-0) Prerequisite: BIOL 341 or permission of instructor. (#)**  
Physiological dysfunction and disease mechanisms in humans and other mammals.
- 351 Genetics 3(3-0) Prerequisite: BIOL 191, 201, 202 or permission of instructor. Corequisite: BIOL 351L. (F)**  
Mendelian genetics, cell cycles, molecular genetics, medical genetics and population genetics, with laboratory emphasis on *Drosophila* and man.
- 351L Genetics Lab 1(0-2) Corequisite: BIOL 351. (F)**
- 352 Evolution 2(2-0) (S)**  
Historical view of the theory of evolution with emphasis upon man's place in nature and the forces which have produced evolution.
- 353 Ecology 4(4-0) Prerequisite: BIOL 201 and 202 or permission of instructor. Corequisite: BIOL 353L. (F)**  
Interaction and interdependencies between organisms and their environment.

- 353L Ecology Field Studies 1(0-2) Corequisite: BIOL 353. (F)**
- 360 (AG 360) Applications of Computers in the Laboratory 3(2-2) Prerequisite: BIOL 192. (S)**  
Applications of computing to medicine, nursing, agriculture, biological sciences, with emphasis placed upon the use of microcomputers, peripheral devices, data banks and communications available to the life scientist.
- 377 Methods and Materials in Teaching Biology 2(2-0). (F)**  
Current trends in teaching biology; BSCS biology is given special emphasis. Study of resource materials, techniques of experimentation, and demonstrations.
- 378 Laboratory in Teaching Biology 1(0-2). (F,S)**  
Teaching experience under supervision of instructor.
- 394 Field Experience (1-4 VAR) (F,S,SS)**  
Volunteer work experience under program director, program coordinator, and faculty supervisor through the cooperative education program. (S/U grades.)
- 412 Cellular Biology 3(3-0) Prerequisite: BIOL 201, 202, CHEM 122, 122L, 112, 112L or permission of instructor. Corequisite: BIOL 412L. (S)**  
Structural and functional organization of the cell, life cycles of cells, intracellular digestion, protein synthesis and cell death.
- 412L Cellular Biology Lab 1(0-2) Corequisite: BIOL 412. (S)**
- 426 Plant Morphology 2(2-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: BIOL 426L. (S)**  
Forms, basic structures, relationships, life histories and evolutionary trends of representatives of the major autotrophic plant groups.
- 426L Plant Morphology Lab 1(0-2) Corequisite: BIOL 426. (S)**
- 432 Embryology 2(2-0) Prerequisite: BIOL 202 or permission of instructor. Corequisite: 432L. (F)**  
Development of representative vertebrate and invertebrate animals with particular emphasis on the early embryology of Branchiostoma, frog, chick, and pig.
- 432L Embryology Lab 2(0-4) Corequisite: BIOL 432. (F)**
- 441 Freshwater Invertebrate Zoology 2(2-0) Prerequisite: BIOL 191, 202, or permission of instructor. Corequisite: BIOL 441L. (S)**  
Classification, phylogeny, systematics, morphology, physiology, and natural history of freshwater invertebrates inclusive of insects.

- 441L Freshwater Invertebrate Zoology Lab 2(0-4) Corequisite: BIOL 441. (S)**
- 443 Limnology 2(2-0) Prerequisite: BIOL 191, 201, 202 or permission of instructor. Corequisite: BIOL 443L. (#)**  
Biology, chemistry and physics of lakes and rivers.
- 443L Limnology Lab 2(0-4) Corequisite: BIOL 443. (#)**
- 450 Recombinant DNA Technology 3(3-0) Prerequisite: BIOL 301, 351 or 412. (S)**  
Basic techniques used in rDNA technology. Cloning and expression of foreign genes in bacteria, plants and mammalian cells. Applications of rDNA technology in biology, medicine and industry.
- 471 Career Planning IV 1(1-0). (F)**  
Creating and securing graduate school and employment opportunities. (S/U grade)
- 472 Radiation Biology 3(3-0) Prerequisite: BIOL 201, 202 CHEM 122, 122L, or permission of instructor. Corequisite: BIOL 472L. (F)**  
Nature, production and use of radioisotopes, radiological safety, effects of ionizing radiation at the subcellular, cellular and organism level, environmental radiation, and radionuclide cycling.
- 472L Radiation Biology Lab 1(0-2) Corequisite: BIOL 472. (F)**
- 479 Ichthyology 2(2-0) Prerequisite: BIOL 202/202L. Corequisite: BIOL 479L. (F)**  
The morphology, taxonomy and ecology of fishes; an introduction to fishery biology and aquaculture. Field trips are an integral part of the course.
- 479L Ichthyology Lab 1(0-2). Prerequisite: BIOL 479. (F)**
- 481 (AG 381) Entomology 2(2-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 481L. (F)**  
Structure, classification, ecology and control of insects.
- 481L (AG 381L) Entomology Lab 1(0-2) Prerequisite: BIOL 191. Corequisite: BIOL 481. (F)**
- 482 Parasitology 2(2-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 482L. (S)**  
Taxonomy, morphology, life cycles, host relationships of animal parasites.
- 482L Parasitology Lab 1(0-2) Prerequisite: BIOL 191. Corequisite: BIOL 482. (S)**



- 483 Mammalogy 2(2-0) Prerequisite: BIOL 202. Corequisite: BIOL 483L. (#)**  
Evolution, classification and biology of mammals; practice in identifying and preparing specimens.
- 483L Mammalogy Lab 1(0-2) Prerequisite: BIOL 202L. Corequisite: BIOL 483. (#)**
- 484 Ornithology 2(2-0) Prerequisite: BIOL 202. Corequisite: BIOL 484L. (S)**  
Classification, life history, laboratory and field identification of birds.
- 484L Ornithology Lab 1(0-2) Prerequisite: BIOL 202. Corequisite: BIOL 484. (S)**
- 485 (AG 385) Plant Taxonomy 2(2-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: BIOL 485L. (F)**  
Identification of the common families of conifers and flowering plants; study of their systematic relationships.
- 485L (AG 385L) Plant Taxonomy Lab 2(0-4) Corequisite: BIOL 485. (F)**
- 491 Special Topics (1-4 VAR). (F,S,SS)**
- 493 Seminar 1(1-0) Prerequisite: permission of program chairman. (F,S)**  
Seminar for majors and minors concerning unique, current, or unusual topics in biology. Speakers may include guests, faculty, or students. Required of majors. (S/U grades.)
- 494 Field Experience (1-4 VAR). (F,S,SS)**  
Volunteer work experience under program director, program coordinator and faculty supervisor through the cooperative education program. (S/U grades.)
- 495 Independent Study (1-4 VAR) Prerequisite: junior standing, biology major, permission of instructor and department. (F,S,SS)**
- 498 Internship (5-15 VAR). (F,S,SS)**
1. Measurement and control of air pollution
  2. Noise and the environment
  3. Industrial hygiene and accident prevention
  4. Milk and food sanitation
  5. Water and waste water sanitation
  6. Housing and institutional environmental health
  7. Solid waste management
- (S/U grades.)

## GRADUATE COURSES

**Admission to graduate courses requires approval of the adviser for the graduate program.**

- 526 Plant Morphology 2(2-0) Corequisite: BIOL 526L. (S)**  
Forms, basic structures, relationships, life histories and evolutionary trends of representatives of the major autotrophic plant groups.
- 526L Plant Morphology Lab 1(0-2) Corequisite: BIOL 526. (S)**
- 532 Embryology 2(2-0) Corequisite: BIOL 532L. (F)**  
Development of representative vertebrate and invertebrate animals with particular emphasis on the early embryology of Branchiostoma, frog, chick and pig.
- 532L Embryology Lab 2(0-4) Corequisite: BIOL 532. (F)**
- 540 Molecular Genetics 2(2-0) Corequisite: BIOL 540L. (F)**  
Molecular and biochemical basis of heredity. Regulation of gene expression.
- 540L Molecular Genetics Lab 1(0-2) Corequisite: BIOL 540. (F)**
- 541 Freshwater Invertebrate Zoology 2(2-0) Corequisite: BIOL 541L. (\*)**  
Classification, phylogeny, systematics, morphology, physiology, and natural history of freshwater invertebrates inclusive of insects.
- 541L Freshwater Invertebrate Zoology Lab 2(0-4) Corequisite: BIOL 541. (\*)**
- 543 Limnology 2(2-0) Corequisite: BIOL 543L. (\*)**  
Biology, chemistry, and physics of lakes and rivers.
- 543L Limnology Lab 2(0-4) Corequisite: BIOL 543. (\*)**
- 552 Theory and Application of Electron Microscopy 2(2-0) Corequisite: BIOL 552L. (\*)**  
Theory of specimen preparation, electron optics and image analysis in biological and physical sciences. Preparation of cells and tissues for examination by scanning electron microscopy (SEM) and transmission electron microscopy (TEM).
- 552L Electron Microscopy Lab 2(0-4) Corequisite: BIOL 552. (\*)**
- 572 Radiation Biology 3(3-0) Corequisite: BIOL 572L. (F)**  
Nature, production and use of radioisotopes, radiological safety, effects of ionizing radiation at the subcellular, cellular and organism level, environmental radiation and radionuclide cycling.

- 572L Radiation Biology Lab 1(0-2) Corequisite: BIOL 572. (F)**
- 579 Ichthyology 2(2-0) Prerequisite: BIOL 202/202L. Corequisite: BIOL 579L. (F)**  
The morphology, taxonomy and ecology of fishes; an introduction to fishery biology and aquaculture. Field trips are an integral part of the course.
- 579L Ichthyology Lab 1(0-2). Corequisite: BIOL 579. (F)**
- 581 Entomology 2(2-0) Corequisite: BIOL 581L. (F)**  
Structure, classification, ecology, and control of insects.
- 581L Entomology Lab 1(0-2) Corequisite: BIOL 581. (F)**
- 582 Parasitology 2(2-0) Corequisite: BIOL 582L. (S)**  
Taxonomy, morphology, life cycles, and host relationships of animal parasites.
- 582L Parasitology Lab 1(0-2) Corequisite: BIOL 582L. (S)**
- 583 Mammalogy 2(2-0) Corequisite: BIOL 583L. (#)**  
Evolution, classification and biology of mammals; practice in identifying and preparing specimens.
- 583L Mammalogy Lab 1(0-2) Corequisite: BIOL 583. (#)**
- 584 Ornithology 2(2-0) Corequisite: BIOL 584L. (S)**  
Classification, life history, laboratory and field identification of birds.
- 584L Ornithology Lab 1(0-2) Corequisite: BIOL 584. (S)**
- 585 Plant Taxonomy 2(2-0) Corequisite: BIOL 585L. (F)**  
Identification of common families of conifers and flowering plants; study of their systematic relationships.
- 585L Plant Taxonomy Lab 2(0-4) Corequisite: BIOL 585. (F)**
- 591 Special Topics (1-4 VAR) (F,S,SS)**
- 595 Independent Study (1-4 VAR) Prerequisite: graduate standing, biology major, permission of instructor and department. (F,S,SS)**
- 599 Thesis Research (1-6 VAR). (F,S,SS)**

**BUSINESS ADMINISTRATION (BUSAD)**

*Professor Shirley*  
*Assistant Professors Rader, Zeis*

The School of Business offers a graduate program leading to a master's degree in business administration (MBA). The degree of master of business administration is granted for the completion of a graduate program which 1) includes knowledge of the various functions of the business organization, and 2) synthesizes that knowledge into the practice of management. Students are expected to achieve an advanced understanding of the function of the executive and to develop a high degree of competence in transferring that knowledge to the actual work situation. See the Graduate Studies section for more information.

A non-business baccalaureate degree student may minor in business administration by completing 23 hours of approved business courses: ACCTG 201, 202; ECON 201, 202; FIN 330; MGMT 310; and MKTG 340.

**UNDERGRADUATE COURSES**

- 100 Introduction to Business 3(3-0). (F,S)**  
Introduction to the concepts and practices of business in a free enterprise system, including social responsibilities of business firms. GEN.ED.IID.
- 160 Introduction to Computers and Information Systems 3(3-0). (F,S)**  
Concepts and applications of computers as used by business and management. Emphasis is given to computer productivity software with hands-on exercises.
- 220 Principles of Business Law 3(3-0). (F,S)**  
Law as it relates to business, including contracts, sales, bailments, and personal property.
- 260 Business Statistics I 3(3-0) Prerequisite: MATH 121. (F,S,SS)**  
Statistical methods in business, including descriptive statistics, probability distributions, sampling, parameter estimation and hypothesis testing, correlation and simple linear regression, and chi square tests.
- 261 Business Statistics II 3(3-0) Prerequisite: BUSAD 260. (F,S)**  
More advanced statistical methods for business, including analysis of variance, multiple regression, time series analysis, nonparametric methods, sample survey methods, and basic decision analysis.

**270 Business Communications 3(3-0) Prerequisite: ENG 110 and 211. (F,S,SS)**

Means of extending management capabilities through effective internal and external communications, including data organization and presentation.

**302 Ethical Issues and the Legal Environment of Business 3(3-0) Prerequisite: junior standing. (F,S)**

Examination of issues addressing ethical, legal, social and environmental responsibilities of businesses toward government, customers, employees, and the general public.

**475 International Business 3(3-0) Prerequisite: FIN 330, MGMT 310 and MKTG 340. (#)**

Opportunities and problems of multinational firms, including environmental factors and formulation of strategies and policies for all functional areas of business.

**480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of instructor. (F,S)**

Integrating prior studies in business into a realistic approach to assist in solving problems faced by selected firms in the community.

**490 Special Projects (1-6 VAR). (F,S,SS)****491 Special Topics (1-3 VAR). (\*)****495 Independent Study (1-3 VAR) Prerequisite: senior standing and permission of department chair. (F,S,SS)****498 Internship (1-6 VAR) Prerequisite: junior or senior standing in School of Business and permission of Internship Coordinator. (F,S,SS.)**

Supervised field work in selected business, social and governmental organizations; supplemented by written reports. (S/U grades.)

## GRADUATE COURSES

**550 Quantitative Methods in Managerial Decision Making 3(3-0) Prerequisite: graduate standing. (S)**

The application of mathematical, statistical and computer techniques in managerial decision making, including investigations of problems encountered with decisions in uncertain environments and the methodology of decision analysis. Topics include decision diagramming, expected utility criteria, basics of probability manipulation, subjective probability assessment, value of information, optimization and other formal decision aids.

**551 Business, the Law, and Management Ethics 3(3-0) Prerequisite: graduate standing. (F)**

Specific legal problems encountered by entrepreneurs and the role of ethics in managerial decision making, including investigation of multiple, changing and often conflicting ethical traditions.

**554 Seminar in Management of Non-Profit Organizations 3(3-0) Prerequisite: graduate standing. (S)**

Study of the management of non-profit organizations. Discussions are based upon selected readings and individual and group research papers. Individual work of an advanced and investigative nature is stressed.

**591 Special Topics 3(3-0). (\*)****592 Research (1-6 VAR). (F,S,SS)**

The student will work under the close supervision of a graduate faculty member in basic or applied research resulting in a thesis or report of high academic quality. (S/U grades.)

**599 Thesis Research (1-6 VAR). (F,S,SS)**

## CHEMISTRY (CHEM)

Professors Connelly, Druelinger, Mahan  
Associate Professors Hammer, Saul, Wilkes

The major in chemistry leads to a bachelor of science (BS) degree and is approved by the American Chemical Society. In addition to curricula for students who wish to pursue chemistry as a profession, programs can be designed in pre-professional programs such as pre-medicine, pre-dentistry, pre-veterinary medicine and pre-law. Minors and second

majors are available in a variety of disciplines to provide educational versatility and mobility. While a core curriculum for the major exists, many options are open to students to combine their interests with a major in chemistry.

All students have access to academic advising to ensure that they enroll in the program best suited to their professional goals. All major and minor programs must be approved by the department.

The classrooms, offices and laboratories of the program in chemistry are housed in the Chemistry building. The modern, spacious facility provides a pleasant workplace for both students and faculty. Modern laboratory facilities and instrumentation are available for teaching and research.

Options available in chemistry include:

- I. Bachelor of science degree, chemistry major option  
The minimum requirement for the BS degree, chemistry option is 42 semester hours including the 36-semester-credit-hour core, CHEM 221/221L or 323 and 493.  
Mathematics through two semesters of calculus, computer programming and two semesters of general physics complete the requirements. Transfer students are required to earn a minimum of 20 semester credit hours in approved chemistry courses from USC for graduation with a BS degree in chemistry.
- II. Bachelor of science degree in chemistry, ACS certified option  
Since the University of Southern Colorado is included on the list of Approved Colleges and Universities of the American Chemical Society, a student has the option of pursuing a slightly more rigorous curriculum that will result in a bachelor of science degree in chemistry certified by the American Chemical Society. In addition to the requirements for the basic chemistry major option cited above, the student will be required to complete both CHEM 221/221L, 421 and two approved advanced electives. Also required is a minimum of one semester of independent study consisting of a laboratory-based research project. The student will be required to complete a minimum of 65 clock hours in the laboratory, submit a paper and present a seminar on the findings of his or her research in order to fulfill this requirement.
- III. Bachelor of science degree in chemistry, biochemistry option  
A biochemistry option for the BS degree in chemistry is obtained by completing the 36-credit-hour core plus CHEM 411, 412, 412L and the same mathematics and physics requirements as the basic chemistry major. The biochemistry option requires a minor in biology that totals 23 semester hours. These BIOL prefix courses must have adviser approval.

- IV. Double major option  
While a wide variety of second majors is available, a second major in biology has been the most popular, particularly among pre-medical, pre-dental and other pre-professional students. Requirements for the double-major option include completion of the 36-semester-credit-hour core, (one approved chemistry elective), a year of college physics, a year of college calculus and completion of the requirements for the second major. Requirements for the second major are determined by the department of the second major.
- V. Engineering/chemistry option  
The engineering/chemistry option requires the 36-semester-credit-hour chemistry core plus 34 semester credit hours in approved engineering courses, two semesters of calculus, computer programming, and two semesters of general physics.
- VI. Pre-medicine/chemistry major option  
While medical schools do not mandate any particular major for entering students, biology and chemistry have been the leading majors of students entering medical school. Biology is the leading major in terms of the absolute number of students and chemistry leads in the percentage of students admitted who applied. The requirements for a pre-medicine/chemistry major are the same as for the chemistry major option, plus the student must complete specific courses required by the medical schools to which they are applying. It is recommended that pre-medical and other pre-professional students coordinate their programs with the appropriate pre-professional adviser, as well as the chemistry adviser, to make sure specific course requirements are completed.
- VII. Chemistry/teacher certification option  
Students desiring to major in chemistry and be certified to teach science at the secondary level are required to complete the 38-semester-credit-hour chemistry core, at least one semester of calculus, a year of college physics and computer programming. Since the State Department of Education certification in secondary science requires broad training over all the science disciplines and mathematics, the student is required to complete additional course work in geology, biology, physics and mathematics in addition to the mathematics and physics already required for the chemistry major. Students seeking secondary science certification are supervised by the Teacher Education Committee as well as their major adviser.

The chemistry minor requires a minimum of 20 semester hours in chemistry, which must include General Chemistry I, II and laboratory, and at least 10 semester credit hours in chemistry courses numbered 300 and above. CHEM 101, 111/111L, and 112/112L may not be credited toward a chemistry minor. Transfer students must earn a minimum of 10 of the 20 semester-credit-hour requirement at USC. A minimum 2.0 GPA is required in the chemistry minor.

#### UNDERGRADUATE COURSES

- 101 Chemistry and You 3(3-0). (F,S)**  
Chemistry related to the everyday world. Drugs, food, pollution, pesticides, consumer products, energy, and home health. Principally for nonscience majors. GEN.ED.IIIB.
- 111 Principles of Chemistry 3(3-0) Corequisite: CHEM 111L. (F,S)**  
Fundamental laws, theories and principles of chemical reactions. Not open to chemistry majors or minors. GEN.ED.IIIB.
- 111L Principles of Chemistry Lab 1(0-2) Corequisite: CHEM 111. (F,S)**  
Experiments using common chemical equipment and techniques to aid the student in learning what occurs in the chemical laboratory. GEN.ED.IIIB.
- 112 Introduction to Organic and Biochemistry 3(3-0) Prerequisite: CHEM 111 or permission of instructor. (F)**  
Organic chemistry. Molecular structure, functional groups, carbohydrates, lipids, proteins, biochemistry.
- 112L Introduction to Organic and Biochemistry Lab 1(0-2) Prerequisite: CHEM 111L. Corequisite: CHEM 205. (F)**  
Organic laboratory techniques. Synthesis, purification and uses of organic compounds. Identification of functional groups.
- 119 General Chemistry for Engineers 4(4-0) Prerequisite: high school chemistry or CHEM 111 with minimum grade of C; Math 121 or equivalent. (F)**  
One semester general chemistry emphasizing gases, ionic equilibria, oxidation-reduction, chemical thermodynamics.
- 119L General Chemistry for Engineers Lab 1(0-3) Corequisite: CHEM 119. (F)**
- 121 General Chemistry I 4(4-0) Prerequisite: one year in high school algebra or equivalent, and one year high school chemistry or equivalent. Corequisite: CHEM 121L. (F,S)**  
For science, engineering and preprofessional curricula. Atomic theory, chemical bonding, periodic properties, states of matter, oxidation-reduction, stoichiometry, thermochemistry, inorganic nomenclature. GEN.ED.IIIB.
- 121L General Chemistry Lab I 1(0-2) Corequisite: CHEM 121. (F,S)**  
GEN.ED.IIIB.
- 122 General Chemistry II 4(4-0) Prerequisite: CHEM 121. Corequisite: CHEM 122L. (F,S)**  
Continuation of CHEM 121. Thermodynamics, kinetics, equilibria, nuclear chemistry, electrochemistry, acids and bases, solutions, descriptive, inorganic chemistry. GEN.ED.IIIB.
- 122L General Chemistry Lab II 1(0-2) Corequisite: CHEM 122. (F,S)**  
Laboratory component to CHEM 121 including qualitative analysis. GEN.ED.IIIB.
- 221 Inorganic Chemistry 2(2-0) Prerequisite: CHEM 122.(#)**  
Basic principles of inorganic chemistry. The main properties, reaction chemistry, and descriptive chemistry of inorganic elements and compounds.
- 221L Inorganic Chemistry Lab 1(0-3) Corequisite: CHEM 221. (#)**  
Inorganic laboratory techniques, inorganic qualitative analysis, synthesis and characterization.
- 291 Special Topics (1-5 VAR) Prerequisite: permission of instructor. (\*)**
- 301 Organic Chemistry I 3(3-0) Prerequisite: CHEM 122. Corequisite: CHEM 301L. (F,S)**  
For majors and preprofessional students requiring a strong background in organic chemistry. Organic reactions and mechanisms are related to molecular structure.
- 301L Organic Chemistry Lab I 2(0-6) Corequisite: CHEM 301. (F,S)**
- 302 Organic Chemistry II 3(3-0) Prerequisite: CHEM 301. Corequisite: CHEM 302L. (F,S)**  
Continuation of CHEM 301.
- 302L Organic Chemistry Lab II 2(0-6) Prerequisite: CHEM 301L. Corequisite: CHEM 302. (F,S)**

- 317 Quantitative Analysis 3(3-0) Prerequisite: CHEM 122. Corequisite: CHEM 317L. (F)**  
Volumetric and gravimetric analysis integrated with instrumental analysis, both optical and electrometric methods.
- 317L Quantitative Analysis Lab 2(0-6) Corequisite: CHEM 317. (F)**
- 321 Physical Chemistry I 3(3-0) Prerequisite: CHEM 122. Prerequisite or Corequisite: MATH 224 and PHYS 201 or 221. (F)**  
Chemical thermodynamics, chemical dynamics, quantum chemistry, chemical structure and spectroscopy.
- 322 Physical Chemistry II 3(3-0) Prerequisite: CHEM 321. (S)**  
Continuation of CHEM 321.
- 323 Experimental Physical Chemistry 2(0-4) Prerequisite: CHEM 321 or permission of instructor. (S)**  
Laboratory techniques in thermodynamics, chemical equilibria, phase phenomena, kinetics, spectroscopy.
- 377 Methods and Techniques of High School Teaching 2(2-0). (\*)**  
Instruction and experience in preparing for and conducting discussion sessions and laboratory exercises in high school chemistry.
- 401 Advanced Organic Chemistry 3(3-0) Prerequisite: CHEM 302, or permission of instructor. Corequisite: CHEM 401L. (#)**  
Topics of advanced organic chemistry, including organic reactions, mechanisms, natural products, and spectroscopy.
- 401L Advanced Organic Chemistry Lab 1(0-3) Corequisite: CHEM 401. (#)**  
Laboratory course to accompany CHEM 401. Molecular structure determination by chemical and instrumental methods.
- 403 Polymer Chemistry 3(3-0) Prerequisite: CHEM 302/302L. (#)**  
Study of synthetic polymers including synthesis, mechanisms of formation, structure of elucidation, reactivity, properties, and industrial application. Biopolymers will also be considered.
- 411 Biochemistry I 3(3-0) Prerequisite: CHEM 302 or permission of instructor. (F)**  
Chemistry of constituents of living matter, including proteins, carbohydrates, nucleic acids and lipids. An introduction of enzymes and coenzymes.
- 412 Biochemistry II 3(3-0) Prerequisite: CHEM 311. Corequisite: CHEM 412L. (S)**  
Continuation of CHEM 411. Intermediary metabolism of carbohydrates, lipids, and amino acids. Bioenergetics.
- 412L Biochemistry Lab II 1(0-2) Corequisite: CHEM 412. (S)**

- 419 Instrumental Analysis 3(3-0) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 419L. (S)**  
Emission spectrography, atomic absorption, gas chromatography spectrophotometry, x-ray fluorescence, voltammetry, NMR, IR, etc.
- 419L Instrumental Analysis Lab 2(0-6) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 419L. (S)**
- 421 Advanced Inorganic Chemistry 3(3-0) Prerequisite: CHEM 321 or permission of instructor. (F)**  
Structure and bonding, coordination theory, periodic relations, equilibrium, kinetics, thermodynamics, descriptive chemistry.
- 425 Environmental Chemistry 3(3-0) Prerequisite: CHEM 321 or permission of instructor. (#)**  
Chemical process in air, water and soil. Air, water analysis, and treatment, pollution.
- 431 Radiochemistry 2(2-0) Prerequisite: CHEM 322 or permission of instructor. (\*)**  
Nuclear properties, interaction and detection of radiation, application to chemistry.
- 491 Special Topics (1-5 VAR) Prerequisite: permission of instructor. (\*)**
- 493 Seminar 1(1-0) Prerequisite: permission of department chair. (S)**  
May be repeated once. (S/U grades.)
- 495 Independent Study (1-7 VAR) Prerequisite: permission of instructor. (\*)**

## GRADUATE COURSE

- 501 Advanced Organic Chemistry 3(3-0) Prerequisite: CHEM 302 or permission of instructor. (#)**  
Topics of advanced organic chemistry including organic reactions, mechanisms, natural products, spectroscopy, and industrial applications.
- 501L Advanced Organic Chemistry Lab 1(0-3) Corequisite or Prerequisite: CHEM 501. (#)**  
Molecular structure determination by chemical and instrumental methods. Advanced synthetic techniques.
- 503 Polymer Chemistry 3(3-0) Prerequisite: CHEM 302 or permission of instructor. (#)**  
Study of synthetic polymers including synthesis, mechanisms of formation, structure elucidation, reactivity, properties, and industrial application. Biopolymers will also be considered.

- 511 Biochemistry I 3(3-0) Prerequisite: one year undergraduate Organic Chemistry. (F)**  
Chemistry of constituents of living matter, including proteins, carbohydrates, nucleic acid and lipids. An introduction to enzymes and coenzymes.
- 512 Biochemistry II 3(3-0) Prerequisite: CHEM 411 or 511. (S)**  
Intermediary metabolism of carbohydrates, lipids and amino acids. Bioenergetics.
- 512L Biochemistry II Lab 1(0-2) Corequisite: CHEM 512. (S)**
- 519 Instrumental Analysis 2(2-0) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 519L. (S)**  
Modern methods of chemical analysis, atomic absorption, gas chromatography, XRF, voltammetry, NMR, IR, etc
- 519L Instrumental Analysis Lab 2(0-5) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 519. (S)**
- 521 Advanced Inorganic Chemistry 3(3-0) Prerequisite: CHEM 321 or permission of instructor. (F)**  
Structure and bonding, coordination theory, periodic relations, equilibrium, kinetics, thermodynamics, descriptive chemistry, industrial applications.
- 525 Environmental Chemistry 3(3-0) Prerequisite: CHEM 321 or permission of instructor. (#)**  
Chemical processes in the air, water and soil. Air, water soil analysis and treatment. Special emphasis upon the problems and effects of industrial and other pollution.
- 529 Advanced Instrumentation 2(2-0) Prerequisite: graduate standing. (#)**  
Emphasizes latest developments in the design and application of instrumentation for spectrochemical analysis, electrochemical analysis and separations.
- 531 Radiochemistry 2(2-0) Prerequisite: CHEM 322 or permission of instructor. (\*)**  
Nuclear properties, interaction and detection of radiation, kinetics of decay, application of chemistry in industry.

- 550 Industrial Chemistry 2(2-0). (S)**  
The economic importance and special characteristics of the chemical industry. Feedstocks, intermediates and products of the chemical industry including thermoplastics, thermosetting plastics, paints and coatings, elastomers, fibers, surfactants, pharmaceuticals, agricultural chemicals, paper, acids, etc. Market demands, price and cost factors, scale, research, process chemistry and process control, product development. Case studies illustrating above topics.
- 591 Special Topics (1-5 VAR) Prerequisite: permission of instructor. (\*)**
- 599 Thesis Research (1-6 VAR). (\*)**

### CHICANO STUDIES (CS)

#### Professor Sandoval

The Chicano Studies minor complements majors and careers in law, sociology, social work, languages, education, government, business and other disciplines. Courses offer unique undergraduate preparation for those who seek entrance to graduate studies in law, humanities or the social sciences.

Students who plan to live and work in the American Southwest or aspire to careers that involve relations in the Western Hemisphere are likely to be well-served by Chicano Studies courses. The interdisciplinary approach emphasizes history and cultural studies, and selected courses provide the student with in-depth knowledge of specific aspects of the Chicano community.

A minimum of 21 semester hours is required: CS 101, 201, CS/HIST 440, and CS 493. Twelve semester hours of required courses are supplemented by nine semester hours of electives chosen by the student with approval of the Chicano Studies coordinator. The student may select from at least two disciplines and is required to select an elective that addresses the status of Chicanos in American society.

## UNDERGRADUATE COURSES

- 101 Introduction to Chicano Studies 3(3-0). (F,S,SS)**  
Overview of the historical, political and socio-cultural experience in the Chicano. GEN.ED.IIE.
- 201 Aztlan: Genesis to Today 3(3-0). (S)**  
A survey of Spanish and indigenous origins with concentration on Aztec and Spanish institutions as well as emphasis on the historical, political and socio-cultural experience of the Chicano in the United States. GEN.ED.IIE.
- 202 Contemporary Chicano Movement 3(3-0). (F)**  
Examination and analysis of the political, socio-economic and cultural significance of the Chicano movement. GEN.ED.IIE.
- 220 Survey of Chicano Literature 3(3-0). (F)**  
Survey of outstanding contemporary Chicano works. Literature deals with Chicano themes, including analysis of folklore and myth. GEN ED.I.J.
- 230 Chicano: Social and Psychological Study 3(3-0). (SS)**  
Social and psychological forces faced in the Chicano community. GEN.ED.IIE
- 291 Special Topics (1-3 VAR). (F,S,SS)**  
Topics of interest in Chicano studies, identified by student/faculty interest. Prior work in Chicano studies desirable.
- 296 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (F,S,SS)**  
Arrangements between employers and faculty members to provide students with an opportunity to earn academic credits and monetary reimbursement for on-the-job training in their field of study.
- 303 Chicano Labor History in the United States 3(3-0). (\*)**  
Chicano experience in the American labor market from 1848 to the present.
- 333 The Media and the Minority 3(3-0). (\*)**  
Chicano experience with media; discussion on methods and techniques of various media.
- 335 Health in the Chicano Community 3(3-0). (\*)**  
Health care traditions and current health care systems in the barrio.
- 440 History of Mexico 3(3-0). (S)**  
Political, cultural and economic development of Mexico from pre-conquest civilization to the present.

- 493 Seminar (1-3 VAR) Prerequisite: CS 101. (F,S,SS)**  
Various problems within the realm of Chicano studies; in-depth, integrated approach.
- 495 Independent Study (1-3 VAR) Prerequisite: CS 101. (F,S,SS)**  
Special topics dealing with the Chicano and society.
- 496 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (F,S,SS)**  
Arrangements between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study.

## GRADUATE COURSE

- 540 History of Mexico 3(3-0) Prerequisite: graduate standing. (S)**  
Political, cultural and economic development of Mexico from pre-conquest civilization to the present.

## CIVIL ENGINEERING TECHNOLOGY (CET)

*Professor Cheng*  
*Associate Professor Womack*  
*Assistant Professors Hirth, Holderness*

The major in civil engineering technology leads to a bachelor of science in civil engineering technology (BSCET) degree accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). The major is designed to produce competent field engineering technologists, surveyors, soil, and concrete technologists who have managerial and supervisory capabilities. The curriculum places emphasis on surveying, construction, design, estimating, and water supply systems. The upper-division courses provide a broader and more detailed understanding in areas such as land surveying, water supply systems, architectural drafting and civil design projects. Managerial and supervisory capabilities are developed in courses such as estimating, business law, and construction contracting and supervision.

Students seeking a degree in CET should have a mathematics/science background including algebra, geometry and trigonometry.



The BS degree candidate must complete a minimum of 135 semester hours, with a 2.00 cumulative grade-point average in the major.

- 101 Introduction to Civil Engineering Technology 2(2-0). (F)**  
Acquaints CET students with the university and the engineering profession. Mathematics laboratory for practical applications of algebra, geometry and trigonometry as used in civil engineering technology.
- 102 Surveying I 4(2-4). (F)**  
Beginning course in plane surveying; covers proper chaining techniques, care and use of engineering levels, transits, and traversing.
- 103 Surveying II 4(2-4) Prerequisite: CET 102 or permission of instructor. Corequisite: CET 104. (S)**  
Introductory course in plotting traverses, plainmetric maps, topographic maps, profiles, and highway design.
- 104 Map Drawing 3(0-6) Prerequisite: CET 102, MET 111 or permission of instructor. Corequisite: CET 103. (S)**  
Introductory course in plotting traverses, plainmetric maps, topographic maps, profiles, and highway design.
- 105 Construction Materials 2(2-0). (F)**  
Properties and uses of building materials as they apply to the construction industry.
- 106 Concrete Mix Design 1(1-0). (S)**  
Properties of portland cement concrete and its ingredients, concrete mix design, placing, and finishing.
- 106L Concrete Lab 1(0-2) Corequisite: CET 106. (S)**  
Testing concrete materials using the ASTM concrete specification as a guideline.
- 202 Statics 3(3-0) Prerequisite: MATH 132 or permission of instructor. (F)**  
Theory and application of action and reaction forces, moments as applied to structures.
- 206 Strength of Materials 3(3-0) Prerequisite: CET 202. (S)**  
Basic stress-strain relationships resulting from compression, tensile, shear, bending loads, center of gravity and moments of inertia.
- 211 Structural Detail Drafting 3(0-6) Prerequisite: MET 111. (F)**  
Introduction to the detailing of steel, wood and concrete structural drawings for fabrication.
- 212 Subdivision Design 3(0-6) Prerequisite: CET 103, 104. (S)**  
Basics of subdivision design, preliminary and final plat preparation and horizontal coordinate geometry.

- 296 Cooperative Education Placement (1-5 VAR). (F,S,SS)**  
Industrial cooperative education work experience under the director of a field supervisor and faculty member.
- 302 Structural Analysis 3(3-0) Prerequisite: CET 206. (F)**  
Analysis of statically determinate structures. Beams, trusses, arches and frames, stress resultants, deflections, influence lines. Introduction to computer methods in structural analysis.
- 303 Construction Contracting and Supervision 3(3-0) Prerequisite: junior standing or permission of instructor. (S)**  
Job specifications, organization, bonding, contracts, insurance, labor relations and planning and scheduling.
- 304 Construction Cost Estimating I 3(3-0) Prerequisite: CET 105 or permission of instructor. (F)**  
Estimating related to building construction industry. Quantity take-off, labor and material costs, records and assembling a general contractor's bid.
- 305 Construction Cost Estimating II 3(3-0) Prerequisite: junior standing or permission of instructor. (S)**  
Estimating relating to heavy and highway construction. Covers heavy equipment selection, use and production rates.
- 311 Advanced Surveying I 4(2-4) Prerequisite: CET 103 and MATH 132. (F)**  
Develops professional skill in surveying, triangulation, state plane coordinates and engineering astronomy.
- 312 Advanced Surveying II 4(2-4) Prerequisite: CET 103, MATH 132. (S)**  
Highway and route surveys, horizontal and vertical curves, grades, slope staking and earthwork.
- 313 Architectural Drafting I 3(0-6) Prerequisite: MET 111. (F)**  
Preparation of a complete set of working drawings for a modern residential building.
- 314 Architectural Drafting II 3(0-6) Prerequisite: MET 111. (S)**  
Introduction to architectural design, design sketches and working drawings for a light commercial building.
- 315 Soil Mechanics Technology 2(2-0) Prerequisite: CET 206. Corequisite: CET 315L. (S)**  
Basic principles of soil mechanics and foundation design as they apply to design and construction.

- 315L Soil Mechanics Technology Lab 1(0-2) Corequisite: CET 315. (S)**  
Basic engineering soil field lab tests using the ASTM manual as standard guide for conducting tests.
- 401 Land Surveying 3(3-0) Prerequisite: CET 103 or permission of instructor. (F)**  
Boundary control, property descriptions, deeds, subdivisions, emphasizing the legal aspects of land law and surveying.
- 402 Civil Design Projects 3(0-6) Prerequisite: senior CET or permission of instructor. (F,S,SS)**  
Practical, realistic project relating to civil engineering technology is selected for development, designed and reported.
- 404 Fundamental Structural Design 3(3-0) Prerequisite: CET 302. (S)**  
Structural steel design of beams, columns, girders and trusses to AISC standards.
- 405 Reinforced Concrete Design 3(3-0) Prerequisite: CET 302. (F)**  
Design of reinforced concrete beams, columns, girders and floor systems to conform to current ACI code.
- 411 Hydraulics 3(3-0) Prerequisite: CET 202. (F)**  
Introductory course in the study of non-compressible fluids at rest and in motion, including the flow of water in pipes and open channels.
- 412 Hydrology 3(3-0) Prerequisite: CET 411. (S)**  
Hydrologic cycle including precipitation, streamflow, groundwater runoff and the preparation of hydrographs and frequency analysis.
- 413 Indeterminate Structures 3(3-0) Prerequisite: CET 302. (\*)**  
Introductory course in analysis of statically indeterminate structures. The solution of continuous beams and rigid frames by moment distribution and other methods.
- 414 Bridge Design 3(3-0) Prerequisite: senior status. (\*)**  
Design of bridge slabs, beams, abutments, wingwalls, piers, and footings.
- 415 Water and Sewer System Design 3(3-0) Prerequisite: senior status. (\*)**  
Fundamental principles of water supply and sewage design.
- 421 Architectural Solar Heating 3(3-0) Prerequisite: junior standing. (S)**  
Passive and active solar heating of building spaces and water.
- 491 Special Topics (1-6 VAR) Prerequisite: permission of instructor. (\*)**

- 496 Cooperative Education Placement (1-5 VAR) Prerequisite: junior or senior standing. (F,S,SS)**  
Industrial cooperative education work experience under the direction of a field supervisor and faculty member.

### COMPUTER SCIENCE TECHNOLOGY (CST)

*Professors Cook, Sathi  
Associate Professors Knight, May, Tappen, Padgett  
Assistant Professors Borton, Smith*

The major in computer science technology leads to a bachelor of science (BS) degree designed to meet a variety of student needs, as well as the increasing demand for computer scientists. Students are prepared for careers as computer programmers, as systems analysts and as specialists in software engineering.

The objectives of the program are to provide quality education in state-of-the-art computer science so that graduates are productive upon employment and to provide students with an education which will articulate with a variety of graduate programs. No grades below C in computer science technology are accepted toward the major or minor.

Each student in computer science technology follows a curriculum in one of three option areas. Each option includes specific core requirements related to the area of emphasis, as well as selected major (CST) course work.

All options follow a suggested curriculum of the Association for Computing Machinery (ACM) for small colleges and universities. Each student selecting Option 1 must complete an adviser-approved minor of at least 20 hours. Option 2 requires an emphasis of 25 hours of specialized mathematics. Option 3 requires a minimum of 21 hours of specific electronics engineering technology course work.

A minor may be earned in computer science technology with minimum coursework of 20 semester hours. CST minors will be required to take a core of CST 115, 116, 121, and 122 (10 hours) and a minimum of 6.0 credit hours of upper-division coursework. Students having specific minoring goals will probably have to plan for a minimum of 22 hours to meet requirements. Minors should be planned with the assistance of a CST adviser.

- 101 Computers and You 3(3-0) (non-majors only). (F,S,SS)**  
Computers, information and technological change. The information revolution and its impact. Orientation to computer systems and their objectives, influences on society, common applications - word processing, data base, spreadsheets, and tomorrow's outlook. GEN.ED. I.II.C.
- 102 Programming w/BASIC 3(3-0) (non-majors only). (F,S,SS)**  
Introduction to a computer language, computer awareness and fundamental skills with use and expression of computer languages. Focus on interactive person-machine exchanges, a programming language (BASIC), and the operating system commands (JCL). GEN.ED. I.II.C.
- 105 FORTRAN 3(3-0) Corequisite: MATH 120 or equivalent (for non-majors). (F,S,SS)**  
Principles of FORTRAN-77 programming with problem solving for science and business, including language specifications, functions, arrays and subroutines.
- 115 Operating Systems I 1(1-0) Corequisite: CST 121 or equivalent. (F,S)**  
Introduction to the external command structure needed to utilize the current USC computer system, including file handling, editors, systems utilities and system command files.
- 116 Structured Programming Concepts 1(1-0) Corequisite: CST 122. (F,S)**  
Practical concepts of structured programming design, including functional modules, program debugging and testing tools, algorithm selection and development, structured programming concepts and style, and logic structures.
- 121 Computer Science I 4(4-0) Corequisite: (for majors) CST 115. (F,S,SS)**  
A first course in computer science for majors and minors. Teaches problem-solving heuristics, algorithm development using top-down design and good programming concurrently with the complete syntax and semantics of the Pascal language.
- 122 Computer Science II 4(4-0) Prerequisite: CST 121. Corequisite: CST 116. (F,S)**  
A continuation of CST 121 for computer science majors and minors. Programming style, debugging, testing and algorithm development and analysis, including sorting, searching, linked lists, strings, recursion, queues, stacks, binary trees.
- 200 Micro-Computer Software Applications 2(2-0) (non-majors only). (\*)**  
Utilization of microcomputers for common applications emphasizing the most current software available in an MS-DOS environment, including word processing, data bases, spreadsheets, operating systems and graphics.
- 200L Micro-Computer Software Applications Lab 1(0-2) Corequisite: CST 200. (\*)**  
Hands-on microcomputer laboratory instruction. Use of nationally prominent software packages will be used to solve problem sets.
- 205 (EN 205) FORTRAN 77 for Engineers and Scientists 3(3-0) Prerequisite: CST 122 or 132 or Corequisite: MATH 126. (F,S)**  
A second course in a computer language aimed at problems requiring algebra and trigonometric based solutions; required for CST majors, engineering majors, and students certain of their need for FORTRAN knowledge; includes structured programming, strings, functions, subroutines, formats, arrays,, implied DO-loops, and numerical precision.
- 210 Introduction to Assembler Language 3(3-0) Prerequisite: CST 122. (F,S)**  
Introductory concepts of assembler programming for instruction formats, I/O definition, arithmetic operations and output editing, and integer data handling.
- 211 Unix/C 3(3-0) Prerequisite: CST 122 and 210. (S)**  
A comprehensive study of the C-Language and Unix operating system, emphasizing the use of each in modern software design and implementation.
- 212 PL/1 Programming 3(3-0) Prerequisite: CST 122. (\*)**  
Problem solving and structured programming techniques are presented using PL/1 as a vehicle, including structured pseudocode, text processing problems, and PL/1 syntax, and procedures.
- 225 Introduction to Pascal Programming 3(3-0) Prerequisite: MATH 121 or equivalent. (S)**  
An introductory course in Pascal programming for non-majors needing a course emphasizing modern programming methods; includes pseudocode, computation, character manipulation, top-down structured programming, sequential files, procedures, functions, sorting and searching.
- 230 COBOL Programming I 3(3-0) Prerequisite: CST 122 or BUSAD 160. (F)**  
ANSI COBOL programming principles for basic business applications, including general program development, coding, execution, and debugging.

- 240 Systems Analysis and Design I 3(3-0) Prerequisite: CST 205, 210, 230, or EN 106. (F,S)**  
Systems analysis and design process, actual systems design layout work and integrated business systems analysis.
- 270 File Processing 3(3-0) Prerequisite: CST 122. (F,S)**  
Foundation for applications of data structures and file processing techniques, including sequential access, data structures, random access storage and file input and output.
- 290 Special Projects (1-5 VAR) Prerequisite: sophomore standing and permission of instructor. (\*)**  
Selected projects in computer programming in cooperation and interaction with local business and industry. Maintaining industrial standards in programming and documentation mandatory.
- 291 Special Topics 3(3-0) Prerequisite: CST 122 and one programming language. (\*)**
- 296 Cooperative Education Placement (1-5 VAR) Prerequisite: freshman or sophomore standing. (F,S,SS)**  
Industrial cooperative education work experience under the direction of a field supervisor and faculty member.
- 316 Operating Systems II 3(3-0) Prerequisite: CST 210. (S)**  
Theory and design of supervisors, concepts of job tasks and data management, scheduling, queuing, multi-programming.
- 321 Advanced Data Structures 3(3-0) Prerequisite: CST 270 and MATH 245. (S)**  
A continuation of CST 122, including trees and graphs and their applications, algorithms for sorting and searching of advanced data structures.
- 325 Software Engineering and Ada Programming I 3(3-0) Prerequisite: CST 270 or permission of instructor. (F)**  
Major features of the ADA programming language and their relevance to software engineering.
- 330 Programming Languages 3(3-0) Prerequisite: CST 270. (F)**  
A LISP-based course exploring fundamental issues of programming language design, including syntax, semantics, grammars, control structures, data types, procedures and parameters, nesting and scope, higher level control structures, functions and recursion, exception handling and parallel processing.
- 331 Professional Programming - COBOL 3(3-0) Prerequisite: CST 230 and 270. (S)**  
ANSI COBOL programming for business applications, including magnetic tape, sequential disk, direct access and indexed sequential access methods, language concepts for sort and report generator.
- 341 Systems Design and Analysis II 3(3-0) Prerequisite: CST 240. (F,S)**  
Major projects applying principles of design and analysis as developed in CST 240, emphasis on design and implementation of computer-based systems.
- 350 Data Base Systems 3(3-0) Prerequisite: CST 270 or equivalent. (F)**  
Design, implementation and use of data base management systems; comparison of available software packages; concepts of query languages and security considerations. Laboratory assignments utilize a relational data base system.
- 360 Digital Computer Concepts 3(3-0) Prerequisite: MATH 245, CST 210, and junior standing. (F)**  
Review of assembly language concepts, digital logic design techniques, design of finite state automata, design and operation of the arithmetic/logic unit and the microprogrammable control unit. Not available for students in CST Option 3.
- 380 Data Communications Systems 3(3-0) Prerequisite: CST 360. (S)**  
The fundamentals of data communications explained using the ISO Open Systems interconnection reference model, including communication media, hardware, message flow with protocols, networking, and analysis and management of data communication systems.
- 405 Computer Graphics I 3(3-0) Prerequisite: CST 205, MATH 126 or permission of instructor. (F)**  
Introduction to the theory and applications of computer graphics, including mathematical principles. DISPLA, hidden line problem and special projects. Graphics images will be produced in two and three dimensional representations.
- 418 Compiler Construction I 3(3-0) Prerequisite: CST 321. (S)**  
A project-oriented course in which students write the Lexical analyzer of a simplified PASCAL compiler.
- 420 Artificial Intelligence 3(3-0) Prerequisite: CST 321 and 330. (S)**  
The LISP and PROLOG languages will be used in understanding problems in the area of machine learning, language comprehension, expert systems, tutoring, problem-solving, heuristics, searching, pattern matching, machine vision.

- 425 Ada and Software Engineering II 3(3-0) Prerequisite: CST 325. (\*)**  
A continuation of CST 325 emphasizing a written project.
- 450 Advanced Database Structures 3(3-0) Prerequisite: CST 350 or permission of instructor. (S)**  
Investigation and study of data modeling, system development and data technology, including database engineering and design, hardware, student projects, administration and selection.
- 460 Computer Systems Architecture I 3(3-0) Prerequisite: CST 360 and senior standing. (#)**  
Architecture of modern computers. Arithmetic and logic units, micro-programmable control units, architecture of commercial, micro-, mini-, and maxicomputers, parallel and pipeline processing.
- 464 Computer Systems Fundamentals 1 3(3-0) Prerequisite: CST 210, 360 or equivalent. Corequisite: CST 464L. (F)**  
Exploration and comparison of common CPU systems (microcomputers), particularly instruction sets, solutions to computer problems, elementary software, and methods of programming common interfaces.
- 464L Computer Systems Fundamentals Lab I 1(0-2) Corequisite: CST 464. (F)**  
Laboratory exercises addressing operating systems, machine language and assembly language of currently manufactured microprocessor computers.
- 490 Special Topics (1-5 VAR) Prerequisite: permission of department head. (F,S,SS)**
- 491 Special Topics 3(3-0) Prerequisite: junior or senior standing. (F,S,SS)**  
May be repeated for credit.
- 496 Cooperative Education Placement (1-5 VAR) Prerequisite: junior or senior standing. (F,S,SS)**  
Industrial cooperative education work experience under the direction of a field supervisor and faculty member.

**ECONOMICS (ECON)**

*Professor Askwig, Sarver  
Assistant Professor Ribal*

The major in economics leads to the bachelor of science in business administration (BSBA) degree, and provides students with the theoretical and conceptual basis of economics and an excellent preparation for graduate and professional training in economics, management, banking and law.

A non-business baccalaureate degree student may minor in economics by completing 21 hours of approved economics courses. A minor in economics enhances programs of study in many areas such as accounting, finance, management, marketing, political and the social sciences, mathematics, philosophy, and mass communication. ECON 201 and 202, 301, 302 and 310 are required. (With adviser approval, ECON 101 may be substituted for ECON 201.) The remaining 6 hours must be in 300-400 level economic courses.

School of Business students whose major is other than economics may minor in economics by taking ECON 301, 302, 307, and nine additional hours in economics.

**UNDERGRADUATE COURSES**

- 101 Introduction to Economics 3(3-0). (F,S)**  
Broad aspects of today's economy and problems of general interest. GEN.ED.IID.
- 201 Principles of Macroeconomics 3(3-0). (F,S,SS)**  
Study of fundamental principles with emphasis on macroeconomics. GEN.ED.IID.
- 202 Principles of Microeconomics 3(3-0) Prerequisite: ECON 201. (F,S,SS)**  
Study of fundamental principles with emphasis on microeconomics. GEN.ED.IID.
- 301 Intermediate Macroeconomics 3(3-0) Prerequisite: ECON 202. (F)**  
Economic theory and policy using the national income approach to explain income, employment and growth.
- 302 Intermediate Microeconomics 3(3-0) Prerequisite: ECON 202. (S)**  
Study of price system and theory of the firm under varying market structures.

- 307 Current Economic Issues 3(3-0) Prerequisite: ECON 101 or 202. (#)**  
Critical survey of significant problems of current economic policy and application of economic analysis to important social issues.
- 310 Money and Banking 3(3-0) Prerequisite: ECON 202. (F,S,SS)**  
Study of monetary economics and its application in macroeconomic theory.
- 330 Public Finance 3(3-0) Prerequisite: ECON 202. (S)**  
Principles and issues of government revenue and expenditure policies.
- 340 Comparative Economic Systems 3(3-0) Prerequisite: ECON 202. (F)**  
Contending ideologies which shape economic systems in determining what, how, for whom and the rate of economic growth.
- 402 Economics of Labor 3(3-0) Prerequisite: ECON 202. (F)**  
Labor and management relations, operation of labor markets, determination of and distribution of income. The study of labor supply and demand, impact of unions, wage determinators, distribution of income and productivity.
- 410 Managerial Economics 3(3-0) Prerequisite: ECON 202 and senior standing. (F,S,SS)**  
Practical application of micro-economic principles to managerial decision-making.
- 480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of instructor. (F,S)**  
Integrating prior studies in business into a realistic approach to assist in solving problems faced by selected firms in the community.
- 484 Senior Studies 3(3-0). (S)**  
A discipline oriented integration of prior course work into a special project, research paper and/or activity that demonstrates proficiency in the major.
- 490 Special Projects (1-6 VAR). (F,S,SS)**
- 491 Special Topics (1-3 VAR) Prerequisite: permission of instructor. (\*)**
- 495 Independent Study (1-3 VAR) Prerequisite: senior standing in School of Business and permission of department chair. (F,S,SS)**

- 498 Internship (1-6 VAR) Prerequisite: junior or senior standing in School of Business and permission of Internship Coordinator. (F,S,SS)**  
Supervised field work in selected business, social, and governmental organizations; supplemented by written reports. (S/U grades.)

## GRADUATE COURSES

- 501 Managerial Economics 3(3-0) Prerequisite: graduate standing. (F)**  
The application of analytical economic decision-making methods to managerial problems involving productivity, supply and demand, cost, price, profit and volume.
- 591 Special Topics 3(3-0). Prerequisite: graduate standing. (\*)**
- 592 Research (1-6 VAR). (F,S,SS)**  
The student will work under the close supervision of graduate faculty member in basic or applied research resulting in a report of high academic quality.

## EDUCATION (ED)

*Professors McCanne, Strader*  
*Associate Professor Miller*  
*Assistant Professors Guitierrez, Trujillo*

In cooperation with other academic departments, the teacher education faculty offer courses leading to certification as an elementary teacher; a bilingual elementary teacher; a secondary teacher in selected subject area endorsements; a K-12 teacher in art, music or physical education; or a school nurse. Minors are offered in elementary, bilingual and reading education. Graduate courses for teachers are offered for the renewal of teaching certificates.

Teacher education programs at USC are approved by the Colorado Department of Education and accredited by the National Council for the Accreditation of Teacher Education.

Through a consortium arrangement with Adams State College, USC offers a master of arts degree in elementary education. The two-year cyclical program is designed for certified elementary teachers. Courses are offered

in the evening during the school year, and daily during summer semesters. See the Graduate Studies section of this catalog for details.

Admission to teacher education is based upon a second level of admission. Criteria required for admission include experience with children or youth, a 3.0 grade-point average in certain courses, a 2.5 grade-point average overall, and passing scores on a state-required teacher competency examination. Detailed requirements are described in a Teacher Education Handbook which is available at the USC bookstore. Students are required to meet admission criteria and follow the endorsement program in effect at the time of their admission to teacher education. Since the criteria and program change from time-to-time, it is important that teacher certification candidates consult an education adviser and an adviser in the area of the major each semester. Applications for admission worksheets showing the sequence of courses required for teaching certificate endorsements, and names and appointment times of advisers are available at the department office.

Academic minors are offered in bilingual education and in reading. The minors are not certification programs, but may be chosen by teacher certification candidates at either the elementary or secondary level. See the BBE and RDG sections of the catalog for courses of instruction.

**102 Teaching as a Career 1(1-1). (F,S)**

Orientation to teaching and teacher education. Class sessions and classroom observation required. Not required for teacher certification.

**110 Teacher Aid Field Experience 1(0-3) Prerequisite: initial testing in basic competencies. (\*)**

Work in a public school as teacher aid under the supervision of a classroom teacher and an education department instructor.

**202 Foundation of Education 3(3-0). (F,S,SS)**

Historical, philosophical and sociological dimensions of education including legal and financial challenges associated with the institution of education.

**210 Human Growth and Development for Educators 3(3-0). Prerequisite: admission to teacher education program. (F,S,SS)**

Physical, mental, social and emotional growth of the individual; provides perspective on the elementary and secondary school student as needed by teachers.

**325 Early Field Experience with the Atypical Learner (1-3 VAR) Prerequisite: admission to teacher education. (\*)**

Development and implementation of principles in teaching atypical learners with a tutorial situation.

**400 Workshop (1-3 VAR) Prerequisite: admission to teacher education program or permission of instructor. (\*)**

Designed for special activity-oriented experiences to be conducted in short sessions. Each workshop has a subtitle and no subtitle may be repeated for credit.

**412 Teaching the Special Child 3(2.5-1.5) Prerequisite: admission to teacher education program. (F,S)**

Includes history, philosophy and legislation for special education, the nature of and definitions for exceptionalities and child abuse. Focus is on meeting the instructional and social needs of special children in elementary classrooms. Field experience required.

**413 Teaching Social Studies 2(1.5-1.5) Prerequisite: admission to teacher education program. (F,S)**

Methods of teaching social studies in elementary school. Part of elementary field experience block.

**414 Teaching Elementary Science and Health 2(1.5-1.5) Prerequisite: admission to teacher education program. (F,S)**

Methods of teaching health and science in the elementary school. Part of elementary field experience block.

**415 Kindergarten Education 2(1.5-1.5) Prerequisite: admission to teacher education program. (\*)**

Philosophy and methods of teaching kindergarten. Part of elementary field experience block.

**417 Teaching Mathematics in Elementary School 2(1.5-1.5) Prerequisite: MATH 361, admission to teacher education program. (F,S)**

The scope and sequence of elementary school mathematics are examined. Instructional methods are considered in terms of both the content and the cognitive developmental rates and other individual differences of children.

**420 Microcomputer Applications in Education 2(1-2) Prerequisite: admission to teacher education program. (F)**

Current microcomputer application in the classroom and principles of educational software.

**435 Classroom Management 3(2-3) Prerequisite: admission to teacher education program. (F,S)**

Includes general teaching methods and strategies, learning theories applied to teaching; discipline, curriculum; educational measurement and evaluation; school organization and school law applicable to classroom teachers. Field experience required.

- 460 Educational Media and Technology 3(2-3) Prerequisite: admission to teacher education program. (F,S)**  
Preparation and use of audiovisual materials, equipment and use of computers in instruction. Field experience required.
- 461 Atypical Students in the Secondary School 2(1.5-1.5) Prerequisite: PSYCH 351 and initial testing in basic competencies. Admission to teacher education program. (F,S)**  
Individual differences as they affect the learning process and instructional alternatives for meeting individual needs. Emphasis on mainstreamed students. Field experience required.
- 487 Student Teaching Elementary (1-15 VAR) Prerequisite: approved application for student teaching. (F,S)**  
Elementary level. Application must be submitted one full semester prior to the semester in which student teaching will commence. (S/U grades.)
- 488 Student Teaching Secondary (1-15 VAR) Prerequisite: approved application for student teaching. (F,S)**  
Secondary level. Application must be submitted one full semester prior to the semester in which student teaching will commence. (S/U grades.)
- 489 Student Teaching K-12 (1-15 VAR) Prerequisite: approved application for student teaching. (F,S)**  
K-12 level. Available for art, music and physical education majors. Application must be submitted one full semester prior to the semester in which student teaching will commence. (S/U grades.)
- 491 Special Topics (1-3 VAR). (\*)**
- 494 Field Experience (1-10 VAR). (\*)**  
Field experience in an educational setting. Not applicable to teacher certification. (S/U grades.)
- 495 Independent Study (1-3 VAR). (\*)**

## GRADUATE COURSES

- 500 Workshop (1-3 VAR) Prerequisite: graduate standing. (\*)**  
Designed for activity-oriented experiences to be conducted in short summer sessions. Each workshop has a subtitle and no subtitle may be repeated for credit.
- 501 Research 2(2-0) Prerequisite: graduate standing. (\*)**  
Skills and techniques for locating, analyzing and evaluating educational research.

- 505 Education Across Cultures 2(2-0) Prerequisite: graduate standing. (\*)**  
Analysis of multiculturalism and how the educational process can be adapted to children of diverse cultural backgrounds.
- 512 Teaching the Special Child 3(2.5-1.5) Prerequisite: graduate standing plus PSYCH 351 or ED 555. (F,S)**  
Includes history, philosophy and legislation for special education, the nature of and definitions for exceptionalities and child abuse. Focus is on meeting the instructional and social needs of special children in elementary classrooms. Special project required.
- 520 Microcomputer Applications in Education 2(1-2) Prerequisite: graduate standing.**  
Current microcomputer applications in the classroom and principles of evaluating education software.
- 522 Issues in Education 2(2-0) Prerequisite: graduate standing. (\*)**  
Contemporary problems in education, their historical development and philosophical implications.
- 524 Advanced Techniques of Teaching Elementary Social Studies 2(2-0) Prerequisite: graduate standing. (\*)**  
Analysis of techniques for conceptual approaches to teaching socialization skills, critical thinking and inquiry skills; and helping children develop healthy attitudes and values.
- 525 Advanced Techniques of Teaching Elementary Science and Health 2(2-0) Prerequisite: graduate standing. (\*)**  
Emphasis on the newest concepts, techniques and materials for teaching elementary school science and health.
- 526 School Health Curriculum 2(2-0) Prerequisite: graduate standing. (\*)**  
Training (by grade level) in the use of "Growing Healthy" = m the Primary Grades Health Curriculum Project and the School Health Curriculum Project. This is lateral spread training only, by agreement with the Rocky Mountain Regional Training Center.
- 530 Instructional Programming 2(2-0) Prerequisite: graduate standing. (\*)**  
Principles of curriculum design, educational goals, instructional objectives, and developing long, middle and short-range plans. For elementary and secondary teachers.



- 542 Contemporary Techniques of Classroom Management 2(2-0). (\*)**  
What research and professional practice say about organizing students, space, information, and resources; motivating, goal setting, communicating, and problem solving with student; and handling disruption and behavior problems.
- 549 Child Advocacy 3(2-3) Prerequisite: graduate standing. (\*)**  
Research study of international child advocacy programs, national movement and local adaptations. Requires the analysis of a model operating agency or institution of student's choice.
- 555 Foundations of Learning Disorders 3(3-0) Prerequisite: graduate standing. (\*)**  
Exceptionalities: emphasis on high-incidence handicaps. Includes recent legislation and identification, referral, staffing and placement procedures. Major intervention strategies examined.
- 560 Teacher Effectiveness Training (2-3 VAR) Prerequisite: graduate standing. (\*)**  
Stresses skill-building in classroom interaction between teacher and students. Skills include active listening, "I" messages and problem solving.
- 561 Atypical Students in the Secondary School 2(1.5-1.5) Prerequisite: graduate standing plus PSYCH 351 or ED 555. (F,S)**  
Individual differences as they affect the learning processes. Instructional alternatives for meeting individual needs in regular classes are explored with emphasis on mainstreamed students. Basic principles of behavior modification and contingency contracting are included.
- 591 Special Topics (1-3) Prerequisite: graduate standing. (\*)**
- 592 Research (1-3 VAR) Prerequisite: graduate standing and permission of graduate adviser. (\*)**
- 595 Independent Study (1-2 VAR) Prerequisite: graduate standing and permission of graduate adviser. (\*)**
- 599 Thesis Research (1-6 VAR). (\*)**

## ELECTRONICS ENGINEERING TECHNOLOGY (EET)

*Professors Hill, Jenkins, Perkins, Warfield*

The major in electronics engineering technology leads to a degree of bachelor of science in electronics engineering technology (BSEET) and is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

The EET program prepares graduates for positions in the electronic and computer industries. Basic design concepts, as well as construction, testing, analysis, and computer applications are included in the program. Specifically, theory and laboratory work cover design, construction, testing, analysis and computer applications of conventional and state-of-the-art circuits and systems. Creative design relating to typically used circuits and systems involving both discrete components and integrated circuits is included as part of the course work in the junior and senior years. This program also provides the student with an academic background necessary for many advanced positions in the electronics industry.

Transfer students entering the program must have a minimum 2.5 grade-point average overall and a minimum 2.0 grade-point average in mathematics, physics and electronics.

The BSEET degree candidate must complete, with a minimum 2.0 cumulative grade point average in electronics, at least 133 semester credit hours of work as determined by the program requirements and approved by the adviser.

- 110 Computer Aided Electronic Drafting 2(2-0). (F,S)**  
Graphical representations of data, electrical and printed circuit drafting, electronic fabrication, introduction to computer-aided drafting.
- 110L Computer Aided Electronic Drafting Lab 1(0-2). (F,S)**  
Work with the computer under the direct supervision of a faculty member.
- 121 DC Circuits 4(4-0) Corequisite: MATH 131. (F,S)**  
DC circuits, energy, power, resistance, capacitance, inductance, electro-magnetism, loop and nodal network analysis, and Thevenin's and Norton's theorems.
- 121L Circuits I Lab 1(0-2). Corequisite: EET 121. (F,S)**  
Building and testing basic electrical circuits.

- 122 AC Circuits 4(4-0) Prerequisite: EET 121. Corequisite: MATH 132. (F,S)**  
AC circuit analysis, RMS values, impedance, admittance, phasors, network theorems, resonance transformers, polyphase systems, power, and power factor.
- 122L Circuits II Lab 1(0-2) Corequisite: EET 122. (F,S)**  
Verifying basic ac circuit operation and learning the use of the oscilloscope.
- 210 Computer Applications in Engineering Technology 2(2-0). Prerequisite: MATH 132 or equivalent. (\*)**  
An interdisciplinary examination of techniques, other than programming, by which computers are used to solve problems, focusing on the application of spreadsheet and database programs to the solution of technical problems.
- 211 Electronics I 3(3-0) Corequisite: EET 122, 122L and MATH 132. (F)**  
Semiconductor physics, diodes, analysis and design of transistor circuits, biasing, equivalent circuits, multi-state amplifiers, frequency effects, field effect transistors.
- 211L Electronics I Lab 1(0-2). Corequisite: EET 211. (F)**  
Building and testing basic electronic circuits using diodes and transistors.
- 212 Electronics II 3(3-0) Prerequisite: EET 211, 211L. Corequisite: MATH 231. (S)**  
Feedback effects, oscillators, frequency spectra, harmonics. Transistor and diode switches. Linear waveshaping, multivibrator, Schmitt trigger, and time base circuits.
- 212L Electronics II Lab 1(0-2). Corequisite: EET 212. (S)**  
Building and testing advanced electronic circuits.
- 250 Basic Electronic Principles 3(3-0) Corequisite: MATH 132. (S)**  
Fundamentals of dc and ac electric circuits, and an introduction to electronics. For non-majors.
- 250L Basic Electronic Principles Lab 1(0-2). Corequisite: EET 250. (S)**  
The use of basic electronic instruments in the measurement of electrical quantities.
- 254 Introduction to Digital Systems 3(3-0) Prerequisite: EET 121 or 250. (F)**  
Digital techniques, including binary codes, Boolean Algebra, gates, flip-flops, counters, shift registers and arithmetic operations.
- 254L Digital Systems Lab 1(0-2). Corequisite: EET 254. (F)**  
Building and testing basic digital circuits.

- 255 Introduction to Microprocessors 3(3-0) Prerequisite: EET 254. (S)**  
Analysis of microcomputer systems including both hardware and software considerations, with emphasis on machine language programming. Includes microcomputer design project.
- 255L Microprocessors Lab 1(0-2). Corequisite: EET 255. (S)**  
Writing assembly language programs and designing, building, and testing a complete microprocessor system.
- 296 Cooperative Education Placement (1-5 VAR). (F,S,SS)**  
For freshmen and sophomores. Industrial cooperative education work experience under direction of field supervisor and faculty member.
- 311 Control Systems I 3(3-0) Prerequisite: MATH 232, junior standing. Corequisite: EET 351. (S)**  
System representation, Laplace transforms, solution of differential equations, block diagrams, transfer functions, basic control system operation, system performance, Bode plots.
- 311L Control Systems I Lab 1(0-2). Corequisite: EET 311. (S)**  
Verifying the Laplace transform and analyzing various closed loop control systems.
- 321 Solid State Theory 3(3-0) Prerequisite: EET 212, MATH 232, PHYS 202/202L. (\*)**  
Physical electronics of solid state with applications of design and fabrication of current devices and integrated circuits. Crystal growth and structure, energy band theory, transport phenomena, surface effects, device structures and manufacturing techniques.
- 350 Electric Motors and Controls 3(3-0) Prerequisite: EET 122 or 250. (F)**  
Analysis and operation of AC and DC motors and generators, including both single-phase and three-phase AC machines.
- 350L Motors Lab 1(0-2). Corequisite: EET 350. (F)**  
Verifying the operation of both ac and dc machines
- 351 Linear Integrated Circuits 3(3-0) Prerequisite: EET 212. (F)**  
Applications of linear integrated circuits such as operational amplifiers, power supply regulators and active filters. Includes instrumentation amplifiers, comparators and timers.
- 351L Integrated Circuits Lab 1(0-2). Corequisite: EET 351. (F)**  
Designing, building, and testing circuits using operational amplifiers, comparators, and timers.

- 353 Software Development 2(2-0) Prerequisite: CST 225 or equivalent. (F)**  
Electronics technology applications programming using structured programming techniques with PASCAL.
- 353L Software Development Lab 1(0-2). Corequisite: EET 353. (F)**  
Writing, debugging and running advanced PASCAL programs.
- 354 Computer Architecture Design 3(3-0) Prerequisite: EET 211, 255, and CST 225 or equivalent. (F)**  
Computer architecture, with emphasis on operation and design of both microprogrammed and randomly designed control units. Students must complete an extensive laboratory project which requires the design, instruction and testing of an operational computer.
- 354L Computer Architecture Lab 1(0-2). Corequisite: EET 354. (F)**  
Designing, building, and testing simplified computers from discrete integrated circuits.
- 355 Advanced Microcomputer Systems 3(3-0) Prerequisite: EET 255 and CST 225 or equivalent. (S)**  
Advance microcomputer systems, including the use and application of system development tools such as macro-assemblers and relocation utilities, and the comparative study of state-of-the-art 16/32 bit processors.
- 355L Microcomputer Systems Lab 1(0-2). Corequisite: EET 355. (S)**  
Practicing advanced programming techniques and assembly language programming for 16-bit processors.
- 356 Advanced Integrated Circuits 3(3-0) Prerequisite: EET 351. (S)**  
Analysis of the inter-connection of integrated circuits into systems. Also covers design principles of systems.
- 356L Advanced Integrated Circuits Lab 1(0-2). Corequisite: EET 356. (S)**  
Designing, building, and testing circuits and systems using advanced integrated circuits.
- 393 Seminar 1(1-0) Prerequisite: junior standing. (S)**  
Introduction to the senior projects course in which the student formulates the project proposal and makes both a written and oral presentation of the proposal.
- 412 Communication Systems 3(3-0) Prerequisite: EET 212 and MATH 232. (S)**  
Conventional AM, FM analog systems and applications of the Fourier Series. Modern digital systems such as PAM, PCM, PDM, PPM and Delta Modulation are stressed.

- 412L Communication Systems Lab 1(0-2) Corequisite: EET 412. (S)**  
A laboratory course in which the student experimentally verifies various communication principles and systems.
- 455 Control Systems II 3(3-0) Prerequisite: EET 311. (F)**  
Block diagrams, transfer functions, practical systems, the Z transform, digital systems, frequency response techniques, Bode plots as applied to control systems.
- 455L Control Systems II Lab 1(0-2). Corequisite: EET 455. (F)**  
Verifying the compensation of analog control systems and building, and testing digital control systems.
- 456 Design Projects 1(1-0) Prerequisite: EET 393 and senior standing. (F)**  
Application of theory to practical design of electronic circuits and systems. The student designs, builds, tests and writes a technical report for his or her project.
- 456L Design Projects Lab 1(0-2). Corequisite: EET 456. (F)**  
Building, and testing the project developed in EET 393. Oral and written reports are required.
- 457 Computer Interface Design 2(2-0) Prerequisite: EET 255. (\*)**  
Design and implementation of computer interfaces to input-output devices and other systems.
- 457L Interface Lab 1(0-2). Corequisite: EET 457. (\*)**  
Designing, building, and testing a variety of interfaces to operate with various computers.
- 458 Computer Communications 3(3-0) Prerequisite: EET 255. (\*)**  
Computer communication techniques and computer networks including topics such as topology, protocols, routing and reliability analysis.
- 459 Electronic Graphics 2(2-0) Prerequisite: EET 353 or equivalent. (\*)**  
Pictorial communications with computer, graphic programs and specialized input/output devices.
- 459L Electronic Graphics Lab 1(0-2). Corequisite: EET 459. (\*)**  
Examining various computer graphics programs and other uses for the computer.
- 491 Special Topics (1-5 VAR) Prerequisite: permission of department chair. (\*)**  
Topics in electronics not now included in other courses.

**493 Seminar (1-5 VAR) Prerequisite: qualified junior or senior students. (\*)**

Participation by electronics students and presentation of recent developments in the electronics field.

**495 Independent Study (1-5 VAR) Prerequisite: permission of department chair. (F,S,SS)****496 Cooperative Education Placement (1-5 VAR) Prerequisite: junior or senior standing. (F,S,SS)**

Industrial cooperative education work experience under direction of field supervisor and faculty member.

**ENGINEERING (EN)**

Professors Giffin, Sisson  
Associate Professor Massey  
Assistant Professors Mills, Sarper

The industrial engineering major leads to a bachelor of science in industrial engineering (BSIEN) degree. The department also provides courses for the first two years of other engineering disciplines for potential transfer students, upper-division courses for engineering options in chemistry and physics, and a master of science in systems engineering (MS) degree.

As defined by the Institute of Industrial Engineers: "Industrial engineering is concerned with the design, improvement and installation of integrated systems of people, materials, and equipment. It draws upon specialized knowledge and skill in the mathematical and physical sciences, together with the principles and methods of engineering analysis and design, to specify, predict and evaluate the results to be obtained from such integrated systems."

Industrial engineering is a major branch of engineering with applications in manufacturing, service, governmental, and non-profit organizations. Industrial engineers are productivity people who deal with the human aspects of work in addition to the advanced technologies of computer software and production-related hardware.

Students transferring into industrial engineering from other universities and/or departments must have earned a minimum overall grade-point average of 2.5. Students transferring into industrial engineering from the USC pre-engineering (engineering transfer) program must be in good academic standing at the time of the transfer request. Transfer students may be subject to examination at the discretion of the department.

Students attempting any engineering course shown as being required for the four-year industrial engineering program must have completed all prerequisite courses with a minimum grade of C or they risk being withdrawn and/or losing credit for the course being attempted.

A cumulative average of at least 2.00 in all industrial engineering core courses is required for graduation in addition to those requirements specified for all USC degrees. Core courses are identified in the required program listing.

Engineering options in chemistry and physics offer students in each of these majors an opportunity to achieve specific employment or graduate educational goals. The program requirements for the individual engineering options are described in the chemistry, and physics sections of this catalog.

USC's two-year engineering transfer program provides basic engineering education suitable for a variety of majors for students who wish to transfer to four-year engineering programs as juniors with minimal loss of credit. USC students planning to transfer to Colorado State University must follow the prescribed curriculum (see page 74).

Students planning to transfer to universities other than Colorado State University should consult an adviser in their expected receiving department for an evaluation of the suitability of courses in this program.

The master of science in systems engineering is an interdisciplinary degree which utilizes tools and techniques from the engineering disciplines, as well as from the mathematical, behavioral and physical sciences to analyze and design large-scale human/machine/software systems. For more information on the MS in systems engineering see the Graduate Studies section of this catalog.

**UNDERGRADUATE COURSES****103 Introduction to Engineering 2(2-0). (S)**

Introduction to the solution of engineering problems. Application of algebraic, trigonometric and calculus techniques to engineering problems. GEN.ED.IIID.

**107 Engineering Graphics 2(0-4). (S)**

Introduction to the preparation of engineering drawings using free-hand sketching, drafting, instruments and graphics of software.

- 205 (CST 205) FORTRAN 77 for Engineers and Scientists 3(3-0) Prerequisite: CST 122 or MATH 132 or Corequisite: MATH 126. (F,S)**  
A course in a computer language aimed at problems requiring algebra and trigonometric based solutions. The course is specified for CST majors, engineering majors, and students certain of their need for FORTRAN knowledge. Topics include structured programming, strings, functions, subroutines, formats, arrays, implied DO-loops, and numerical precision.
- 211 Engineering Mechanics I 3(3-0) Prerequisite: PHYS 221 or permission of instructor. (F)**  
Introduction to the relationship between forces and moments acting on an object that is in equilibrium.
- 212 Engineering Mechanics II 3(3-0) Prerequisite: EN 211. (S)**  
Introduction to the relationship between forces and moments acting on rigid objects and the motion of objects.
- 231 Circuit Analysis I 4(4-0) Prerequisite: MATH 224. Corequisite: EN 231L, PHYS 222. (F)**  
Circuit concepts, conventions and network equations. Initial conditions and classical method of obtaining transient and steady-state solutions.
- 231L Circuit Analysis I Lab 1(0-2) Corequisite: EN 231. (F)**  
Observation and analysis of electrical circuits and transients involving resistance, inductance and capacitance.
- 232 Circuit Analysis II 4(4-0) Prerequisite: EN 231. (S)**  
Continuation of EN 231 including waveform synthesis, network theorems, Fourier series, pole-zero diagrams and two-port network theory. Introduction to Laplace transform.
- 245 Pascal Computer Programming 2(2-0).(\*)**  
Computer programming using Pascal language, application in engineering and science areas, practical programming exercises.
- 270 Material and Energy Balances 3(3-0) Prerequisite: CHEM 119, PHYS 221 and MATH 126. (\*)**  
Material and energy balances with or without chemical reactions in chemical engineering applications.
- 291 Special Topics (1-5 VAR). (\*)**
- 296 Cooperative Education Placement (1-5 VAR) Prerequisite: freshman or sophomore standing. (\*)**  
Work experience under direction of a field supervisor and faculty member.

- 301 Fluid Mechanics 4(4-0) Prerequisite: EN 212. (F)**  
Introduction to the relationship between the forces applied to a fluid, the motion of the fluid, and the mechanical properties of the fluid
- 312 Materials Science 2(2-0) Prerequisite: PHYS 221, CHEM 119. Corequisite: EN 312L. (F)**  
The nature of engineering materials, emphasizing the relationship between macroscopic and atomic and microscopic structures.
- 312L Materials Science Lab 1(0-2) Corequisite: EN 312. (F)**  
Experimental studies of material properties, characteristics and microstructures. Effects of plastic deformation and heat treatment.
- 315 Introduction to Industrial and Systems Engineering 3(3-0). Prerequisite: EN 205, 456. (F)**  
Engineering viewpoints of the principles of organization for production and the operations applicable to accomplishing organizational responsibilities.
- 321 Thermodynamics I 3(3-0) Prerequisite: PHYS 221. (S)**  
Introduction to energy equations and flows, entropy, kinetic theory and statistical mechanics.
- 322 Thermodynamics II 4(4-0) Prerequisite: EN 321. (\*)**  
Application of laws of thermodynamics to chemically reacting thermodynamic systems, vapor cycles, gas engine cycles, propulsion system, refrigeration and air-water vapor mixtures.
- 324 Mechanics of Materials 3(3-0) Prerequisite: EN 211. Corequisite: EN 324L. (S)**  
Stress-strain relationships, fundamentals of elasticity, torsional loading, flexural loading, combined stresses.
- 324L Mechanics of Materials Lab 1(0-2) Prerequisite: EN 211. Corequisite: EN 324. (S)**  
Measurements of stress-strain and other destructive or non-destructive testing.
- 333 Computer Components Engineering 3(3-0) Prerequisite: EN 231 and 312. (\*)**  
Engineering design and fabrication of silicon-based, bipolar, MOS microcircuits and other computer elements. Microcircuit design and layout.
- 340 Principles of Industrial Engineering 3(3-0) Prerequisite: EN 315, BIOL 223 and junior standing. (S)**  
Principles and techniques of work measurement and production standards, human performance in man-machine systems.

- 341 Engineering Economy 3(3-0) Prerequisite: junior standing. (\*)**  
Economic and financial aspects of investments in engineering projects.
- 342 Engineering of Manufacturing Processes 3(3-0) Prerequisite: EN 107, 312/312L. (S)**  
Materials and processes for manufacturing including machining, casting, and forming processes: design, modeling and control.
- 343 Industrial Engineering Economy 3(3-0) Prerequisite: EN 315 or permission of instructor. (S)**  
Modeling, analysis and decision making involving time value of money, depreciation and taxation effects. Optimization and replacement analysis.
- 351 Heat Transfer 3(3-0) Prerequisite: EN 321. (\*)**  
Steady and unsteady conduction of heat. Convection heat transfer in boundary layer and duct flows. Forced and free convection. Thermal radiation.
- 421 Structural Analysis 3(3-0) Prerequisite: EN 324. (\*)**  
Analysis of indeterminate beams, frames and trusses by methods of moment of distribution, slope deflection, real work, virtual work and least work.
- 435 Microprocessor Control Systems 3(2-2) Prerequisite: EN 333. (\*)**  
Components of a microprocessor control system, digital processing, survey of state-of-the-art microprocessor control systems.
- 436 Computer Systems Engineering 3(3-0) Prerequisite: EN 333 and MATH 337. (\*)**  
Analysis, mathematical modeling and design of integrated control and physical systems used in product and process design engineering.
- 442 Manufacturing Processes II 3(3-0) Prerequisite: EN 342. (\*)**  
Materials and processes for manufacturing including sheet metal forming, welding machining, and advanced manufacturing processes.
- 443 Quality Control and Reliability 3(3-0) Prerequisite: EN 456. (S)**  
Control charts, acceptance sampling, rectifying inspection, standard sampling plan. Failure time distribution models, reliability estimation, hazard function, reliability of systems.
- 456 Applied Statistics I 3(3-0) Prerequisite: MATH 224 and 350. (S)**  
Probability space, discrete and continuous random variables: distributions; mathematical expectation; sampling; statistical inference. Bayesian rule; and linear regression.

- 461 Engineering Hydraulics 3(3-0) Prerequisite: EN 301 or permission of instructor. (\*)**  
Steady and unsteady flow in pipes, open-channel flow, hydraulic measurements, critical depth and hydraulic jump, and design of spillways.
- 471 Engineering Operations Research 3(3-0) Prerequisite: EN 340 and MATH 325, 337. (F)**  
Application of mathematical models to engineering problems. Linear and dynamic programming, optimization and queuing theory and probabilistic models.
- 473 Production and Computer-Aided Engineering 3(3-0) Prerequisite: EN 340, 342. (F)**  
Engineering design, modeling and applications in production; automated flow lines, numerical control and computer usage in manufacturing.
- 475 Engineering Systems Analysis and Design 3(3-0) Prerequisite: EN 471, 473. (S)**  
Engineering systems design, planning and control engineering analysis and design applications in resource utilization.
- 477 Operations Planning and Control 3(3-0) Prerequisite: EN 471, 473. (S)**  
Engineering analysis and design in the planning and control of operations in production systems.
- 488 Industrial Engineering Design Projects (1-5 VAR). Prerequisite/ Corequisite: EN 475, 477. (S)**  
Application of industrial engineering principles to a design project.
- 491 Special Topics (1-5 VAR) Prerequisite: junior standing. (\*)**
- 495 Independent Study (1-5 VAR) Prerequisite: junior standing. (\*)**
- 496 Cooperative Education Placement (1-5 VAR) Prerequisite: junior or senior standing. (\*)**  
Work experience under direction of field supervisor and faculty member.

## GRADUATE COURSES

- 500 Logistics, Maintainability and Life-Cycle Support 3(3-0) Prerequisite: graduate standing. (F)**  
Application of management systems analysis to problems of system maintainability and maintenance. Models of repair and failure, wear-out processes, maintenance and inspection of policies and spare parts policies.

**501 Software Systems Engineering 3(3-0) Prerequisite: graduate standing. (S)**

Software systems development and life cycles to include applications development stratagem, system development life cycle and phases, system development management, group dynamics in the development process, user requirements determination, and analysis and logical specification of the system. Cost forecasting of the engineering design through modeling.

**503 Ergonomics 3(3-0) Prerequisite: graduate standing. (F)**

Basic understanding of the theory and practice of human factors engineering. Topics are presented within the framework of humans as a functioning system and their requirements when incorporated in hardware and software systems.

**504 Data Processing Systems Management 3(3-0) Prerequisite: graduate standing. (F)**

Data processing and computer-oriented engineering systems management, including system controls, resources, growth programmer teams, user requirements, maintenance of hardware and software, standards, policies, training, scheduling of resources and computer environments.

**510 Product and Service Engineering 3(3-0) Prerequisite: graduate standing. (F)**

Production evaluation, testing, liability, field service and customer support, cost estimating.

**530 R&D Project Planning and Control 3(3-0) Prerequisite: graduate standing. (F)**

Techniques in analysis of complex engineering systems. Methodology for determining optimum operating criteria.

**540 Advanced Engineering Economics 3(3-0) Prerequisite: graduate standing. (S)**

Advanced concepts of economic analysis using probability and morality techniques for equipment. Models for equipment replacement and cost effectiveness concepts.

**571 Engineering Operations 3(3-0) Prerequisite: graduate standing. (F)**

The application of mathematical models to industrial problems. Linear programming, queuing theory, inventory model, dynamic programming and simulation models to solve actual problems.

**575 Engineering Systems Analysis and Design 3(3-0) Prerequisite: graduate standing. (S)**

Production systems management, planning and control including forecasting, requirements planning, layout, capacity planning, and scheduling.

**577 Operations Planning and Control 3(3-0) Prerequisite: graduate standing. (S)**

Design, modeling, and applications of production operation elements including work stations, material handling, line balancing, automation, and computer-aided manufacturing.

**590 Special Projects (1-3 VAR) Prerequisite: graduate standing and adviser approval. (\*)**

May be repeated.

**591 Special Topics (1-3 VAR) Prerequisite: graduate standing. (\*)**

May be repeated.

**593 Seminar 3(3-0) Prerequisite: graduate standing. (F)**

For students entering the systems engineering program. Philosophical, methodological and ethical issues in systems engineering are discussed. (S/U grades.)

**599 Thesis Research (1-6 VAR) Prerequisite: graduate standing and adviser approval. (\*)**

By arrangement with major adviser. May be repeated. (S/U grades.)

**ENGLISH (ENG)**

*Professors Bassein, Dille, Griffin  
Associate Professors Croxton, Vincent  
Assistant Professors Illick, Olin, Pence, Senatore, Taylor*

The major in English leads to a bachelor or arts (BA) degree. Offerings in literature, the English language and writing prepare professional and pre-professional majors for many careers. Secondary and elementary teacher certification in English is also offered.

The institutional basic competency requirements in English composition may be satisfied by successful completion of ENG 110 and 211 or 115-216.

An English major requires completion of 36 semester credit hours of courses in English, 14 of which must be numbered 300 or above. The student must verify choice of courses with an adviser in English.

To earn a minor in English, a student is required to complete 20 semester hours. Minors with emphasis in literature, language, writing, and professional communication are designed to meet the needs of individual students majoring in other disciplines.

#### UNDERGRADUATE COURSES

##### 110 Composition I 3(3-0). (F,S,SS)

Beginning course in expository writing, emphasizing skills of written expression, organization, and presentation.

##### 115 Technical and Scientific Communication I 3(3-0). (F,S)

Course for technology students placing emphasis upon vocabulary, grammar, sentence structure, outlining and written expression. Equivalents to ENG 110.

##### 120 Literature, the Creative Writing Experience 3(3-0). (F)

Use of models from recent poets, short story writers and novelists to stimulate creative and analytical writing skills. Writing assignments prompted by class discussion and analysis of the readings lead to the writing of articulate prose and poetry.

##### 121 The Writer's Response: Evaluating Literature 3(3-0) Prerequisite: ENG 120 or permission of instructor. (S)

Explication of literary texts. Use of evidence in forming evaluations and conclusions about novels, poems and short stories. Introduction to modern literary criticism.

##### 130 Introduction to Fiction 1(1-0) (F,S,SS)

Introduces short stories and novels from varying times and places for students with a limited literature background. GEN.ED.IC.

##### 131 Introduction to Plays 1(1-0). (F,S,SS)

Dramatic literature with emphasis on artistry, especially desirable for the student with a limited literature background. GEN.ED.IC.

##### 132 Introduction to Poetry 1(1-0). (F,S,SS)

Verse and poetry for students with a limited literature background. GEN.ED.IC.

##### 150 Spelling Review 1(1-0) Prerequisite: ENG 110 or 115, or permission of instructor. (\*)

Intensive study of spelling conventions such as phonetic principles, prefixes, plural forms and compounds.

##### 152 Punctuation Review 1(1-0) Prerequisite: ENG 110 or 115, or permission of instructor. (\*)

Intensive study of punctuation convention such as use of comma, apostrophes, colon, dash, italics and other signals.

##### 153 Correct Sentences 1(1-0) Prerequisite: ENG 110 or 115, or permission of instructor. (\*)

Intensive study of sentence correctness in using clauses and phrases effectively.

##### 157 Paragraph Development 1(1-0) Prerequisite: ENG 110 or 115, or permission of instructor. (\*)

Intensive study of methods of paragraph organization and development.

##### 161 Careers for English majors 1(1-0). (F)

Identifies career options and presents employment opportunities for English majors.

##### 210 American Literature I 3(3-0). (F)

Literature from colonial times to 1900, including the growth of naturalism and the rise of Romanticism and Realism. GEN.ED.IC.

##### 211 Composition II 3(3-0) Prerequisite: ENG 110 or 115. (F,S,SS)

Sequential course to provide intensive consideration of essay development and to introduce procedures and techniques in preparing the referenced paper.

##### 212 American Literature II 3(3-0). (S)

Continuation of ENG 210; literature from 1900 to the present; GEN.ED.IC.

##### 216 Technical and Scientific Communication II 3(3-0) Prerequisite: ENG 110 or 115. (S)

Writing course specializing in composition skills which benefit students in technical and scientific areas.

##### 221 Western World Literature I 3(3-0). (F)

Historical and thematic study of major writers from ancient Greece to the Renaissance. GEN.ED.IC.

##### 222 Western World Literature II 3(3-0). (S)

Continuation of ENG 221; literature from the Renaissance to the present. GEN.ED.IC.

##### 231 Literature of England I 3(3-0). (#)

Literature and literary history of English from the Anglo-Saxon period to Romantic period. GEN.ED.IC.



- 232 Literature of England II 3(3-0). (#)**  
Continuation of ENG 231; literature and literary history of England from Romantics, Victorians, and Twentieth century. GEN.ED.IC.
- 251 Traditional Grammar Theory 2(2-0). (F,S)**  
Primarily for non-majors who wish to improve their understanding of how language works, teacher education majors, and English majors who want additional background for advanced language courses.
- 254 Science Fiction 3(3-0). (S)**  
Imaginative literature of fact and fiction, reading, lectures, movies, and television. GEN.ED.IC.
- 260 Women in Literature 3(3-0). (F)**  
Examines female stereotypes deeply carved in literature and developments toward breaking up these stereotypes; opens the study of literature to feminist thinking, treats both female and male authors. GEN.ED.IC.
- 291 Special Topics (1-3 VAR). (F,S)**
- 296 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (\*)**  
Arrangements between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study.
- 304 (SPCOM 304) Language Awareness and Human Behaviors 3(3-0). (F,S)**  
Effects of semantic and pragmatic language factors on human relationships and behavior. How language is used in our society.
- 305 Technical and Scientific Report Writing 3(3-0) Prerequisite: ENG 211 or 216, or permission of instructor. (S)**  
Emphasis on discrete professional formats and styles in writing manuals, proposals, government contracts and reports and journal articles. For upperclassmen in technical and professional fields.
- 315 Creative Writing: Poetry 3(3-0) Prerequisite: ENG 211 or 216 or permission of instructor. (F)**  
Introduction to writing poetry. A studio workshop for students to grow in their appreciation of poetic processes.
- 316 Creative Writing: Fiction 3(3-0) Prerequisite: ENG 211 or 216 or permission of instructor. (S)**  
Introduction to creating character, situation, and overall structure, emphasis on imaginative and real-life portrayal.

- 331 Development of the Novel I 3(3-0). (#)**  
Emphasis on social problems and European influences, focus on trends coming to full development in the 20th century. Includes recent works.
- 335 Writing for Publication 3(3-0). (F)**  
Focuses on developing writing techniques and styles applied to periodical publications.
- 340 Advanced Composition (1-3 VAR) Prerequisite: ENG 211 or permission of instructor. (F,S)**  
Advanced forms of non-fiction writing; essays, articles and reports.
- 341 History of the English Language 3(3-0). (F)**  
English language from Anglo-Saxon period to present; emphasis on history of linguistic and structural changes.
- 342 English Syntax and Usage 2(2-0). (S)**  
English usage and language systems, emphasis on forms and functions of language analysis.
- 351 Children's Literature 2(2-0). (F,S,SS)**  
Classic and contemporary children's literature with emphasis on selection and evaluation.
- 363 17th Century British Literature 3(3-0). (#)**  
Drama, prose, and poetry of Bacon, Donne, Jonson, Herbert, Melton, Marvel, Pepys, Behn, and others.
- 364 18th Century British Literature 3(3-0). (#)**  
Dryden, Swift, Defoe, Boswell, Johnson, Pope, Fielding, Blake, Austen, Radcliffe, and/or other major writers.
- 365 19th Century British Literature 3(3-0). (#)**  
Arnold, Tennyson, E. Browning, R. Browning, Eliot, Ruskin, Carlyle, Mill and the poetry of women writers.
- 377 Materials and Techniques in Teaching English 3(3-0). (S)**  
Materials and teaching/learning systems for literature, language, composition in secondary schools.
- 381 Drama of Shakespeare 3(3-0). (#)**  
Shakespeare's dramaturgy and developments of Shakespearean criticism, major histories and tragedies.
- 391 Special Topics (1-3 VAR) Prerequisite: ENG 211 or 216 and permission of instructor. (S)**
- 412 Literature for Adolescents 2(2-0). (F,S)**  
Literature suitable for adolescents, including classical and contemporary authors, and issues in selection and evaluation.

- 441 Chaucer and His Age 3(3-0). (#)**  
Chaucer and his contemporaries in their cultural and historical setting.
- 443 English Linguistics 3(3-0). (#)**  
The study of linguistics and its application in the English language.
- 461 Careers for English Majors 1(1-0). (F)**  
Identify and explore graduate school and employment opportunities.
- 481 Literary Criticism 3(3-0). (#)**  
Traditional and contemporary critical approaches to literature and their applications.
- 491 Special Topics (1-3 VAR). (\*)**
- 493 Seminar 3(3-0). (\*)**  
In-depth analysis of specific topics, themes, authors, and works in American, English or world literature.
- 494 Field Experience (1-5 VAR). (F,S)**  
A semester-long internship. Student performs professional duties and English-related skills required by the cooperating agencies.
- 495 Independent Study (1-3 VAR). (F,S)**  
Directed, intensive study and guidance in studying major literary figures or movements, arranged with the chair of the department.
- 496 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (\*)**  
Arrangements between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study

## GRADUATE COURSES

- 511 Seminar: American Literature 2(2-0) Prerequisite: graduate standing. (#)**  
In-depth analysis of specific topics, themes, authors, and works.
- 512 Literature for Adolescents 2(2-0) Prerequisite: graduate standing. (F,S)**  
Literature suitable for adolescents, including classical and contemporary authors as well as issues in selection and evaluation.
- 578 Workshop in the Teaching of Writing 2(2-0) Prerequisite: graduate standing. (\*)**  
Theories of composition, methods, sources and resources for teachers of writing.

- 591 Special Topics (1-3 VAR) Prerequisite: graduate standing. (F,S)**
- 595 Independent Study 2(2-0) Prerequisite: graduate standing. (F,S)**  
Directed, intensive study and guidance for studying major literary figures or movements; arranged with the chair of the department.

## FINANCE (FIN)

*Professor Abebe*  
*Associate Professors Dhatt, Noreiko*

School of Business students whose emphasis area is other than finance may minor in finance by taking FIN 331, 333 and 12 additional hours elected from ACCTG 301; ECON 302, 330; FIN 335, 337, 430 and 431.

## UNDERGRADUATE COURSES

- 330 Corporate Financial Management 3(3-0) Prerequisite: ACCTG 202, BUSAD 260 and ECON 202. (F,S,SS)**  
Principles of finance involved in problems confronting business organizations.
- 331 Managerial Finance: Policy, Planning and Control 3(3-0) Prerequisite: FIN 330. (S)**  
Financial management; planning, policy formulation and financial decision making.
- 333 Investment Analysis 3(3-0) Prerequisite: FIN 330. (F)**  
Analysis and forecasting of security markets, industry and company studios, portfolio selection and management.
- 335 Real Estate 3(3-0) Prerequisite: ECON 101 or ECON 201. (F)**  
Principles of real estate with emphasis on residential markets, including economics, governmental and locational factors, appraising, financing, and real estate transactions.
- 337 Insurance 3(3-0) Prerequisite: ECON 101 or ECON 201. (S)**  
Principles of insurance with emphasis on the operation and contributions of the insurance industry.

- 430 Financial Institutions and Markets 3(3-0) Prerequisite: ECON 310. (S)**  
Structure, operations and portfolio compositions of financial intermediaries, including commercial banks, savings and loans, life insurance companies, pension fund management, mortgage banking and credit agencies.
- 431 Financial Policy Analysis 3(3-0) Prerequisite: FIN 331 and 333. (F)**  
Analysis of financial policies in various organizations. Emphasis on managerial problems in long-range planning, decision-making under uncertainty, risk measurement and applications of capital markets.
- 480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of the department instructor. (F,S,SS)**  
Integrating prior studies in business into a realistic approach to assist in solving problems faced by selected firms in the community.
- 484 Senior Studies 3(3-0). (S)**  
A discipline oriented integration of prior course work into a special project, research paper and/or activity that demonstrates proficiency in the major.
- 490 Special Projects (1-6 VAR). (F,S,SS)**
- 491 Special Topics (1-3 VAR) Prerequisite: permission of instructor. (\*)**
- 495 Independent Study (1-3 VAR) Prerequisite: senior standing in School of Business and permission of the department chair. (F,S,SS)**
- 498 Internship (1-6 VAR) Prerequisite: junior or senior standing in School of Business and permission of Internship Coordinator. (F,S,SS)**  
Supervised field work in selected business, social and governmental organizations; supplemented by written reports. (S/U grades.)

## GRADUATE COURSES

- 530 Financial Management 3(3-0) Prerequisite: graduate standing. (F)**  
The foundations of business financial management and the valuation of the corporation, including financial analysis, fund-flow analysis, forecasting financial requirements, short-and intermediate-term financing, principles of valuation in perfect and imperfect markets, capital budgeting involving deterministic and risky investment projects and required rates of return for capital investments; emphasis on the integration of theory and methods through the use of cases.

- 531 International Financial Management 3(3-0) Prerequisite: graduate standing. (S)**  
Aspects of international environment relevant for managers of internationally active businesses including: foreign exchange transactions, exchange rate behavior, foreign exchange management (measuring and managing both financial and real variables), financing choices, risk-return concepts, valuation and capital budgeting in an international context and financial control; emphasis on the application of theory to current problems such as commercial policy and international liquidity.
- 532 Management of Financial Institutions 3(3-0) Prerequisite: graduate standing. (S)**  
General management and policies of financial institutions included will be commercial banks, investment banks, thrift institutions, insurance companies and other financial intermediaries.
- 533 Advanced Investment Portfolio Management 3(3-0) Prerequisite: FIN 530. (F)**  
Theory and practice in the construction and management of investment portfolios stressing security evaluation, portfolio analysis, capital asset pricing, capital market efficiency, performance evaluation, and investment strategy. The viewpoints of the individual and institutional investors are considered in the formulation of investment policy.
- 534 Loan and Risk Evaluation: A Case Approach 3(3-0) Prerequisite: FIN 530. (\*)**  
A commercial bank's perspective is applied to analyze loan applications, consolidation, and participations. Consideration is given to problems of lead bank line of credit management. Creative finance is applied to develop financing for the increased risk or emerging high technology firms.
- 591 Special Topics 3(3-0). (\*)**
- 592 Research (1-6 VAR). (F,S,SS)**  
The student will work under the close supervision of a graduate faculty member in basic or applied research resulting in a report of high academic quality.
- 599 Thesis Research (1-6 VAR). (\*)**

**FOREIGN LANGUAGE (FL)**

Professor Bright  
Associate Professor Milne  
Assistant Professors Covi, Morales

Courses with the FL prefix are available for all students. Consult with the departmental advisers for specific information on FL courses.

**UNDERGRADUATE COURSES**

- 100 Introduction to Comparative Linguistics 3(3-0). (F)**  
Basic concepts in linguistics; comparison of languages. GEN.ED.1B.
- 101 Introduction to a Critical Foreign Language I 3(3-0). (\*)**  
Study of a foreign language not offered regularly. Different languages are offered when enrollment permits.
- 102 Introduction to a Critical Foreign Language II 3(3-0) Prerequisite: FL 171 or permission of instructor. (\*)**
- 110 Foreign Language for Travel 1(1-0). (\*)**  
Fundamental vocabulary for basic tourist communication.
- 270 Foreign Language Field Trip (2-6 VAR) Prerequisite: permission of instructor. (\*)**  
Communication, lectures by writers, artists, political leaders and specialists. Visits to museums. Attendance at movies, theatre and excursions.
- 291 Special Topics (1-3 VAR). (F,S)**
- 388 Materials and Techniques in Teaching Foreign Languages 2(2-0). (F)**  
Preparation of materials and techniques of teaching foreign languages in grades K-12. Teacher's aid training and applied linguistics.
- 494 Field Experience (1-7 VAR) Prerequisite: two years of college study in the language of the country or countries visited. (\*)**  
Communication, lectures by writers, artists, political leaders and specialists. Visits to museums, attendance at movies, theatres and excursions.
- 495 Independent Study (1-3 VAR). (\*)**  
Specific themes which address particular problems of literature or civilization. May be repeated for credit with approval of major adviser.

**GRADUATE COURSES****591 Special Topics (1-3 VAR). (\*)****FRENCH (FRN)**

Assistant Professor Covi

The minor in French requires the satisfactory completion of 23 credit hours, including FRN 101, 102, 201, 202 and approved French electives numbered above 300. (Courses may be waived through advanced placement by the department.) An endorsement to teach French requires the satisfactory completion of a minimum of 32 credit hours, as approved by an adviser.

- 101 Beginning Spoken French I 4(3-2). (F,S)**  
Grammar and pronunciation with aural-oral training to develop skills in understanding and speaking. Written exercises to develop reading and writing skills. Introduction to French culture. GEN.ED.1B.
- 102 Beginning Spoken French II 4(3-2) Prerequisite: FRN 101 or equivalent. (S)**  
GEN. ED.1B
- 201 Intermediate French I 4(3-2) Prerequisite: FRN 102 or equivalent. (F)**  
Grammar review, idioms and writing of compositions. Selected readings with oral and written exercises.
- 202 Intermediate French II 4(3-2) Prerequisite: FRN 201 or equivalent. (S)**  
Grammar review idioms and writing of compositions. Selected readings with oral and written exercises.
- 301 Advanced French Grammar I 3(3-0) Prerequisite: FRN 202 or permission of instructor. (\*)**  
Systematic review of grammar; presentation of the more sophisticated syntactical patterns to enable students to write correctly. Required for teacher certification.
- 311 Advanced French Conversation I 3(3-0) Prerequisite: FRN 202 or permission of instructor. (#)**  
Emphasis on acquisition of vocabulary and idiomatic expressions. Advanced oral practice.

- 312 Advanced French Conversation II 3(3-0) Prerequisite: FRN 202 or permission of instructor. (#)**
- 341 Masterpieces of French Literature 3(3-0) Prerequisite: FRN 202 or permission of instructor. (#)**  
Close study of outstanding French works with emphasis on literary forms, critical methods and techniques.
- 351 French Phonetics and Diction 3(2-2) Prerequisite: FRN 202 or permission of instructor. (#)**  
French pronunciation, theory, correction and practice of diction and intonation. Phonetic transcription and remedial exercises. Required for teacher certification.
- 381 French Civilization I 3(3-0) Prerequisite: FRN 202 or permission of instructor. (#)**  
Geography, art architecture, economics and social problems, correlated with history from the origins to contemporary French. Required for teacher certification.
- 382 French Civilization II 3(3-0) Prerequisite: FRN 202 or permission of instructor. (F)**  
Required for teacher certification.
- 494 Field Experience Prerequisite: 2 years College French. (\*)**  
Communication, lectures by writers, artists, political leaders and specialists. Visits to museums, attendance at movies, theatres and excursions.
- 495 Independent Study (1-3 VAR). (\*)**  
Specific themes which address particular problems of literature of civilization. May be repeated for credit with approval of major advisor.

## GEOGRAPHY (GEOG)

### UNDERGRADUATE COURSES

- 102 Principles of Geography 3(3-0). (#)**  
Landforms, climate, agriculture, population, manufacturing, resources and urbanization. Emphasis on interrelationships and spatial variations. GEN.ED.IIID.

- 103 World Geography 3(3-0). (F,S)**  
Geographic structure of the major physical and cultural realms of the world. Characteristics and interrelationships of regional environmental patterns. GEN.ED.IIID.
- 113 Geography of Food and Hunger 2(2-0). (\*)**  
Analysis of the world's food and consumption patterns; emphasis on increasing production and improving food distribution to meet the requirements of a rapidly growing population. GEN.ED.IIC.
- 201 Economic Geography 3(3-0). (#)**  
Areal variations on the earth's surface in man's activities related to producing, exchanging and consuming resources. GEN.ED.IIC.
- 210 Cultural Geography 3(3-0). (\*)**  
Description, distinction and significance of cultural differentiation based upon language, religion, political organization, urbanization and population. GEN.ED.IIC.
- 250 Field Trip (1-7 VAR) Prerequisite: permission of instructor. (SS)**  
Intensive experiences in historical, physical, economic or cultural geography leading to insights and skills in data gathering and group leadership. Requirements include pre-trip preparatory planning and instruction sessions, a prescribed journal and post-trip major written report.
- 281 Geography of the Rocky Mountains 3(3-0). (F)**  
Analysis of the cultural and physical environment, distribution of population and economic activity in the region. GEN.ED.IIID.
- 431 Historical Geography 2(2-0) Prerequisite: HIST 101 or 201. (\*)**  
Reconstruction of past environments and social systems of the great civilizations; policies, life styles, internal development and national aspirations.
- 450 Field Trip (1-7 VAR) Prerequisite: permission of instructor. (\*)**  
Intensive research in physical, economic or cultural geography, domestic or foreign, leading to insights, experience in leadership and skill in group management.
- 461 Political Geography 2(2-0). (\*)**  
Factors affecting the internal and external affairs of state. Physical basis of power, elements of the state, environmental determiners of national policy.

## GRADUATE COURSE

- 531 Historical Geography 2(2-0) Prerequisite: HIST 101 or HIST 201; graduate standing. (SS)**  
Reconstruction of past environments and social systems of the great civilizations; policies, life styles, internal development and national aspirations.

## GEOLOGY (GEOL)

Professor Schaeffer

The geology minor requires successful completion of 20 credits in geology, including GEOL 101 and at least 12 upper-division credits. A minimum of seven credits must be earned at USC.

- 101 Earth Science 3(3-0) Corequisite: GEOL 101L. (F,S)**  
Classification and origin of rocks and minerals. Weathering, mass-wasting, running water, glaciers and crustal structure, elementary oceanography, planetary geology, geodesy and geomagnetism. GEN.ED.IIID.
- 101L Earth Science Lab 1(0-2) Corequisite: GEOL 101. (F,S)**  
GEN.ED.IIID.
- 123 Historical Geology 3(3-0) Prerequisite: GEOL 101. Corequisite: GEOL 123L. (S)**  
Genesis of rock formations throughout geologic time, paleogeology of North America, identification and classification of fossils. GEN.ED.IIID.
- 123L Historical Geology Lab 1(0-2) Corequisite: GEOL 123. (S)**  
GEN.ED.IIID.
- 300 Environmental Geoscience 3(2-2) Prerequisite: GEOL 101 or 123. (F,S)**  
Geological conditions and influences affecting the life and development of man: mineral, oil, stream erosion, landslides, subsidence, earthquakes.
- 304 Mineralogy and Petrology 4(2-4) Prerequisite: GEOL 101, 101L and permission of instructor. (F,S)**  
The physical and chemical properties of minerals. The study of rock origins and methods of identification by use of macroscopic and microscopic methods.

- 308 Invertebrate Paleontology 3(1-4) Prerequisite: GEOL 123 or BIOL 202. (F,S)**  
Identification, classification, morphology and stratigraphic significance of fossil macroinvertebrates plus micro.
- 313 Geomorphology and Remote Sensing 4(3-2) Prerequisite: GEOL 101 or 123. (F,S)**  
Classification and genesis of landforms of earth's surface. Includes fluvial and glacial processes.
- 315 Geologic Field Techniques 3(1-4) Prerequisite: permission of instructor. (F,S)**  
Use of Brunton compass, alidade, aerial photographs and geomorphic interpretation. Introduction to geologic mapping.
- 405 Ground Water 4(3-2) Prerequisite: GEOL 101 or 123, MATH 120. (F,S)**  
Principles of ground water hydrology. Methods of conducting ground water survey. Ground water case histories, especially Colorado's.
- 410 Stratigraphy and Sedimentation 4(3-2) Prerequisite: GEOL 123. (F,S)**  
Methods of transportation and environments of deposition of sediments. Geologic formations, facies and tectonic framework.
- 411 Structural Geology and Tectonics 4(3-2) Prerequisite: GEOL 123 and permission of instructor. (F,S)**  
Origin, description, classification and analytical interpretations of the structural features of the earth's crust.
- 415 Exploration Geophysics 4(3-2) Prerequisite: GEOL 101, PHYS 201, 201L and MATH 126 or 221. (F,S)**  
A discussion and analytical interpretation of gravimetric, magnetic, seismic, electrical, and gamma-neutron exploration methods as applied in the petroleum industry and water resource governmental agencies.

## GERMAN (GER)

- 101 Beginning Spoken German I 5(5-0). (F)**  
Pronunciation and grammar with oral-aural training. Easy reading and conversation. GEN.ED.IB.
- 102 Beginning Spoken German II 5(5-0) Prerequisite: GER 101 or equivalent. (S) GEN.ED.IB**

- 201 Intermediate German I 5(5-0) Prerequisite: GER 102 or equivalent. (\*)**  
Review and expansion of first-year grammar. Compositions, reading and discussion of contemporary German life.
- 202 Intermediate German II 5(5-0) Prerequisite: GER 201 or equivalent. (\*)**
- 301 Advanced German Grammar I 3(3-0) Prerequisite: GER 202 or permission of instructor. (\*)**
- 302 Advanced German Grammar II 3(3-0) Prerequisite: GER 202 or permission of instructor. (\*)**
- 381 German Civilization I 3(3-0) Prerequisite: GER 202 or permission of instructor. (\*)**  
German geography, culture and history from the beginning to the present.
- 382 German Civilization II 3(3-0) Prerequisite: GER 202 or permission of instructor. (\*)**

## HISTORY (HIST)

*Professors Daxton, Eagan, Sandoval*

The major in history leads to a bachelor of arts degree (BA) and prepares students for careers in teaching, law, government, and private enterprise, as well as entry into graduate programs.

The history major requires 30 credit hours, including HIST 101, 102, 185, 201, and 202. Other courses are selected by students with adviser approval.

The history minor requires twenty hours of history courses with three options of core courses: 1) HIST 102, 202, 211 (10 hrs.); or 2) HIST 185, 201, 202, 211 (10 hrs.); or 3) HIST 101, 102, 185 (12 hrs.). The remaining courses are to be chosen by the student with adviser approval.

No grade below C is acceptable in the major.

## UNDERGRADUATE COURSES

- 101 World Civilization to 1500 5(5-0). (F)**  
Cultural and political growth of civilizations from prehistoric times to 1500; emphasis on the unique contributions of independent cultures to world history. GEN.ED.IIC.
- 102 World Civilization since 1500 5(5-0). (S,SS)**  
Cultural and political interaction of civilizations from 1500 to the present; emphasis on common problems and goals of mankind. GEN.ED.IIC.
- 185 Research in History 2(2-0). (S)**  
Enhances general knowledge of all students by developing skills to evaluate historical data. GEN.ED.IIC.
- 201 The United States to 1865 3(3-0). (F)**  
United States from founding of British North American colonies through the Civil War. GEN.ED.IIC.
- 202 The United States since 1865 3(3-0). (S,SS)**  
United States from reconstruction era to the mid-20th century. GEN.ED.IIC.
- 211 Colorado History 2(2-0). (F)**  
History, government and economic factors important to the settlement and development of Colorado. GEN.ED.IIC.
- 301 U.S. Emergence: Building a Nation 3(3-0). (F)**  
The trends, events and people involved in the shaping of the United States and its national character.
- 305 Development of a World Power (1850-1920) 3(3-0). (S)**  
The growth of U.S. politically, economically and socio-culturally, into a major power.
- 306 20th Century America 3(3-0). (S)**  
United States from the New Deal to the present.
- 311 History of United States Foreign Policy 3(3-0). (#)**  
United States foreign policy from the founding of the republic to the present.
- 313 American West 3(3-0) Prerequisite: permission of instructor. (\*)**  
Role of the individual and the group in the development of the frontier into the 20th century.

- 321 (POLSC 321) **American Constitutional Development 3(3-0). (F)**  
**Prerequisite: HIST 202 or POLSC 101. (F)**  
 Origin, development, broadening of the American Constitution by legal decisions, customs, political parties, executive agreements, legislative interpretation.
- 362 **History of Russia 3(3-0). (S)**  
 Cultural and political development of Russian and Soviet history from 800 to the present; emphasis on impact of the Bolshevik revolution on history.
- 389 **History of the Southwest 3(3-0). (F)**  
 History of the Mexican cession to the United States from its Indian and Hispanic origin to the present.
- 401 (MILSC 401) **The American Military Experience 3(3-0). (F)**  
 Origins and development of the armed forces in American society; six themes: the democratic revolution, the industrial revolution, the managerial revolution, the mechanical revolution, the scientific revolution and the social revolution. Themes developed in chronological sequence.
- 415 **Historical Biography 2(2-0). (\*)**  
 Introduction to biography as a form of history. Students select, study and critique the lives of great men and women.
- 440 **History of Mexico 3(3-0). (S)**  
 Political, cultural and economic development of Mexico from pre-conquest civilizations to the present.
- 446 **History of Empires (500-1500) 3(3-0). (#)**  
 Survey of the rise of great empires of the world, including Arab, Gupta, Tang, Sung and Yuan empires to 1500.
- 447 **History of the Decline of Empires (1500-Present) 3(3-0). (#)**  
 Survey of the decline of empires and the impact of European conquest in all areas of the world. WWI and WWII are included in this course.
- 458 **20th-Century Europe 3(3-0). (S)**  
 Events and personalities from World War I to the present.
- 491 **Special Topic (1-3 VAR) Prerequisite: junior or senior status with adequate preparation and permission of instructor. (F,S,SS)**

#### GRADUATE COURSES

- 501 **U.S. Emergence: Building a Nation 3(3-0) Prerequisite: graduate standing. (\*)**  
 The trends, events and people involved in the shaping of the United States and its national character.

- 513 **American West 3(3-0) Prerequisite: graduate standing. (SS)**  
 Role of the individual and the group in the development of the frontier into the 20th century.
- 540 **History of Mexico 3(3-0) Prerequisite: graduate standing. (S)**  
 Political, cultural and economic development of Mexico from pre-conquest civilizations to the present.
- 558 **20th-Century Europe 3(3-0) Prerequisite: graduate standing. (SS)**  
 Events and personalities from World War I to the present.
- 589 **History of the Southwest 3(3-0) Prerequisite: graduate standing. (F)**  
 History of the Mexican cession to the United States from its Indian and Hispanic origin to the present.
- 591 **Special Topics (1-3 VAR). (F,S)**

#### HUMAN PERFORMANCE AND LEISURE STUDIES (HP)

*Professors Aguilar, Stutters*  
*Assistant Professors Banks*

The major in kinesiology leads to the degree of bachelor of science (BS). Minors in physical education, coaching and recreation are available, as are activities courses for all students.

The professional preparation leading to a degree in kinesiology includes teacher certification with endorsements in kindergarten through 12th grade. Certification requirements are accomplished by completing the kinesiology program and the teacher certification core listed under the kinesiology major requirements.

The requirements for the major consist of a minimum of 45 credits in approved human performance and kinesiology courses. All courses applied toward the major must be approved by the student's adviser and by the department chair.

The requirements for these minors consist of a minimum of 20 hours in human performance, leisure studies, and kinesiology courses which must be approved by the student's adviser and the department chair.



## UNDERGRADUATE

- 101L Basketball 1(0-2). (F,S)
- 103L Military Fitness 2(0-2). (F,S)
- 104L Personal Fitness 1(0-2). (F,S)
- 105L Soccer 1(0-2). (F)
- 106L Softball 1(0-2). (S)
- 107L Scuba Diving 1(0-2). (F,S)
- 108L Windsurfing 1(0-2). (F,S)
- 109L Volleyball 1(0-2). (F,S)
- 110L Weight Training 1(0-2). (F,S)
- 115L Skiing 1(0-2). (S)
- 116L Camping 1(0-2). (F)
- 117L Backpacking 1(0-2). (F)
- 118L Jogging 1(0-2). (F,S)
- 120L Rhythmic Aerobics 1(0-2). (F,S)
- 150L Archery 1(0-2). (F)
- 167L Bowling 1(0-2). (F,S)
- 174L Tennis 1(0-2). (F,S)
- 175L Racquetball 1(0-2). (F,S)
- 176L Advanced Life Saving 1(0-2) Prerequisite: swimming pre-test. (S)
- 180L Intercollegiate Volleyball 2(0-15). (F)
- 182L Intercollegiate Basketball 2(0-15). (S)
- 183L Intercollegiate Cross Country 2(0-15). (F)
- 184L Intercollegiate Wrestling 2(0-15). (S)
- 187L Intercollegiate Track and Field 2(0-15). (S)
- 188L Elementary Physical Conditioning 2(0-15). (F,S)
- 204L Fitness for Life 2(0-4). (F,S)  
Physical fitness information and training for life. Extensive physical fitness activities; emphasis on cardiovascular adaptation.
- 231 **Cardiopulmonary Resuscitation 1(1-0). (F,S)**  
Technique of applying a combination of artificial respiration and artificial circulation in the event cardiac arrest occurs. (S/U grades.)
- 232 **Advanced First Aid 2(2-0). (F,S)**  
Knowledge and skills in the latest approved first-aid procedures. Advanced Red Cross certification.
- 233 **History and Principles of Physical Education and Recreation 3(3-0). (F)**  
Study of the history, philosophy and contemporary problems and trends of physical education and recreation, and their influences upon contemporary American society.
- 242 **Skills and Techniques of Motor Learning and Elementary Activities 3(3-0). (F)**  
Techniques of teaching low organized games and enrichment activities at the elementary school level with emphasis on the development of perceptual-motor learning.
- 243 **Skills and Techniques of Teaching Rhythmic Activities 1(1-1). (S)**  
Fundamentals of folk, square and social dance; emphasis on the teaching techniques involved in basic dance styles and rhythms.
- 244 **Skills and Techniques of Soccer and Volleyball 2(2-0). (F)**  
Basic skills and techniques of soccer and volleyball; emphasis on teaching procedure.
- 245 **Skills and Techniques of Weight Training and Fitness Activities 2(2-0). (F)**  
Basic skills and techniques of weight training and fitness activities; emphasis on teaching procedures.
- 246 **Skills and Techniques of Track and Field, Basketball and Softball 2(2-0). (S)**  
Basic skills and techniques of track and field, basketball and softball; emphasis on organization and teaching procedures.
- 247 **Skills and Techniques of Tumbling 1(1-0). (F)**  
Basic skills and techniques of tumbling activities; emphasis on spotting and teaching procedures.
- 248 **Skills and Techniques of Individual and Dual Sports 3(3-0). (S)**  
Basic skills and techniques of tennis, racquetball, badminton and golf; emphasis on teaching procedures in these activities.
- 276L **Water Safety Instructor Certification 2(0-2) Prerequisite: advanced life saving. (S)**  
Water safety instruction certification may be earned in this course.

- 280L Intercollegiate Volleyball 2(0-15). (F)
- 282L Intercollegiate Basketball 2(0-15). (S)
- 283L Intercollegiate Cross Country 2(0-15). (F)
- 284L Intercollegiate Wrestling 2(0-15). (S)
- 287L Intercollegiate Track and Field 2(0-15). (S)
- 288L Advanced Physical Conditioning 2(0-15). (F,S)
- 289L Student Assistant 1(0-2). (F,S)
- 291L Special Topics (1-5 VAR). (F,S)
- 322 Elementary School Physical Education 2(2-0). (F,S)  
Mental, emotional, social and physical needs of elementary school-age children; planning programs, selecting materials and methods of teaching physical education at this level.
- 342 Training Room Methods 2(2-0) Prerequisite: BIOL 221,221L. (F)  
Procedures utilized in prevention, care and treatment of athletic injuries.
- 343 Measurement and Evaluation in Physical Education 2(2-0). (F)  
Modern testing programs in physical education; emphasis on preparation and administration of both written and skills tests.
- 378 Methods in Physical Education 2(2-0) Prerequisite: acceptance into department of teacher education. (S)  
Classroom course used to identify and examine methods in teaching of physical education activities.
- 389L Student Assistant 1(0-2) Prerequisite: PE 289L. (F,S)
- 461 Program Administration in Physical Education and Recreation Athletics 3(3-0). (F)  
Organizational and administrative process necessary for the responsible conduct of physical education, recreational activities and inter-scholastic athletics.
- 465 Adapted Physical Education and Recreation 2(2-0). Prerequisite: KIN 254. (S)  
Remedial and corrective programs in physical education; emphasis on diseases and injuries which cause individuals to require special attention above and beyond the regular physical education program.
- 471 Coaching and Officiating Football 2(2-0). (F)  
Techniques and strategy of coaching football.
- 472 Coaching and Officiating Basketball 2(2-0). (S)  
Techniques and strategy of coaching basketball.

- 473 Coaching and Officiating Track and Field 2(2-0). (S)  
Designed for students with majors or minors in physical education, recreation and coaching, and is intended to provide knowledge and experience in coaching and officiating cross country and track and field.
- 474 Coaching and Officiating Gymnastics 2(2-0). (F)  
Designed for students with majors in physical education, recreation and coaching, and is intended to provide knowledge and experience in coaching and officiating gymnastics
- 475 Coaching and Officiating Volleyball 2(2-0). (S)  
Designed for students with majors or minors in physical education, recreation and coaching and is intended to provide knowledge and experience in coaching and officiating volleyball
- 482 Coaching and Officiating Wrestling 2(2-0). (S)  
Designed for students with majors in physical education, recreation and coaching, and is intended to provide knowledge and experience in coaching and officiating wrestling.
- 483 Coaching and Officiating Baseball 2(2-0). (F)  
Designed for students with majors or minors in physical education, recreation and coaching, and is intended to provide knowledge and experience in coaching and officiating baseball.
- 491 Special Topics (1-5 VAR). (\*)  
(S/U grades.)
- 494 Field Experience (1-5 VAR) Prerequisite: approval of the department chair. (\*)  
Learning experience to be conducted in the actual environment and supervised by the physical education program. (S/U grades.)
- 495 Independent Study (1-5 VAR) Prerequisite: approval of the department chair. (\*)

## GRADUATE COURSES

- 500 Workshop (1-5 VAR) Prerequisite: approval of program chair. (\*)  
Graduate learning experience in physical education offered in large blocks of time not corresponding to the weekly meeting times of the regular course offerings.
- 522 Elementary School Physical Education 2(2-0) Prerequisite: graduate standing. (\*)  
Advanced course of mental, emotional, social and physical needs of elementary school age children; emphasis on planning programs, selecting materials and methods of teaching physical education at this level.

- 591 Special Topics (1-5 VAR) Prerequisite: approval of program chair. (\*)**  
Graduate-level study and/or activity designed to increase understanding in areas not covered by regular offerings of the department.

### HUMANITIES (HUM)

- 100 Film: Art and Technology 3(3-0). (\*)**  
Study of development of style and subject matter of a significant art form which reflects the impact of technology on the film industry. GEN. ED.I-I
- 150 Humanistic Traditions: From the Hand of Man 3(3-0). (F,S)**  
Study of the historical interrelationship between the fine arts and the humanities and contemporaneous social and technological developments from antiquity to the Renaissance. GEN.ED.IK.
- 151 Humanities and Technology 3(3-0). (F,S)**  
Study of the historical interrelationship between the fine arts and the humanities and contemporaneous social and technological developments from the Renaissance to the present. GEN.ED.IK.

### INDUSTRIAL SCIENCE AND TECHNOLOGY (IST)

*Associate Professors Bottini, Tedrow*

The major in industrial science and technology leads to a bachelor of science (BS) degree. The program has two options.

#### Option 1: Facilities Technology

This option prepares students to serve in administration and supervisory positions in industry and in physical plant departments. Graduates will be prepared to plan, program, and supervise plant operation and construction in major physical facilities, such as schools, industry, malls, hotel/motel complexes, hospitals, office buildings, etc.

#### Option 2: Teaching Industrial Science and Technology

This option is designed to prepare teachers for junior and senior high schools. Graduates will be skilled in teaching methods, techniques, organization, curriculum, evaluative processes, safety and philosophy. Students will develop manipulative skills in the use and operation of the latest tools, machines, and products used in industry. They will learn technical information as it relates to our industrial society. State of Colorado (I.A.) certification requirements will be accomplished by completing this program and the teacher certification.

A minor in industrial science and technology teaching (Option 2) may be earned by completing 33 credits in the following courses: Automotive 3 credits; Drafting 6 credits; Metals 6 credits; Wood 9 credits; Welding 3 credits; IST 377 3 credits; and IST 455 33 credits.

#### UNDERGRADUATE COURSES

- 101 Woods Technology 3(0-6). (F,S)**  
Development of proficiency in the operation and maintenance of modern woodworking, machinery, safety education, cutting principles and techniques, machine design and capabilities.
- 102 Wood Fabrication Technology 3(1-4) Prerequisite: IST 101. (S)**  
Construction of cabinets, millwork, and furniture: design, construction details, production methods. Structure characteristics and physical properties of wood; strength values, grading and moisture relationships.
- 103 Commercial and Residential Construction 3(1-4) Prerequisite: IST 102. (S)**  
Principles of frame construction including blueprint reading, foundations, framing, exterior and interior finish and related areas of layout: conventional and modular component system. The uniform building code is considered in the teaching of these principles.
- 106 Fundamentals of Carpentry I 3(0-6) Prerequisite: IST 101. (F,S)**  
Tools and types of building materials essential in planning and building houses and furniture.
- 120 Introduction to Industrial Science Technology 2(2-0). (F)**  
Qualifications, opportunities, preparation, and duties of workers in teaching technology and facilities management careers.
- 130 Period and Modern Architecture 3(3-0). (F,S)**  
Identification of European and American architectural masterpieces. Particular emphasis on functional aspects of structure. Some field experience may be required. GEN.ED.I-I

- 135 Period and Modern Furniture Design 3(3-0). (F,S)**  
The history and practical application of period and modern styles of furniture. GEN.ED.I-I.
- 202 Industrial Materials Technology 3(0-6). (F)**  
Modern manufacturing processes and materials in industry. Emphasis on plastics, laminates, fiberglass, rubber, construction materials, insulating materials, industrial chemicals and adhesives.
- 203 Wood Turning 3(0-6). (F,S)**  
Basic skills in wood turning and the use of the lathe to supplement bench and machine woodworking.
- 204 Production Woods 3(0-6) Prerequisite: IST 102. (S)**  
The introduction of the mass production philosophy including the additional emphasis on jigs and fixtures.
- 214 Commercial Finishing Materials 3(0-6) Prerequisite: IST 101 or equivalent. (F)**  
Specialized activities related to the finishing of wood and metal products. New materials are used and tested.
- 221 Sheet Metal 2(0-4). (\*)**  
Sheet metal shear, brake, rolls. Joining of sheet metal by seaming, riveting and soldering.
- 296 Cooperative Education Placement (1-5 VAR). (\*)**  
For freshmen and sophomores. Work experience under direction of a field supervisor and faculty member.
- 302 Production Technology Applications 3(0-6). (F)**  
A laboratory course integrating new production technologies with traditional materials and processes.
- 305 World of Construction and Manufacturing 2(0-4) Prerequisite: IST 102. (\*)**  
Cognitive and psychomotor skills and attitudes in manufacturing practice experiments.
- 312 Construction Manufacturing Technology 3(0-6) Prerequisite: IST 102. (F)**  
Modern techniques in the manufacturing of prefabricated cabinets and accessories. Theory application through the implementation of new tooling available in the cabinet industry.
- 320 Metal Casting Technology 3(2-4) Prerequisite: IST 101. (F)**  
Casting, fabrication and uses in service kinetics of solidification, phase transformation and equilibrium. Casting design and modern casting technology.
- 331 Manufacturing Fabrication Processes 3(0-6) Prerequisite: MET 104. (S)**  
Hot and cold iron worked into ornamental objects using various forming tools. Bending, cutting, riveting, welding, layout and design work.
- 332 Facilities Management I 3(3-0). (\*)**  
The basic understanding of personnel services, budgeting and maintenance in physical plant.
- 333 Facilities Management II 3(3-0). (\*)**  
Understanding the operations, planning, design, and construction of a physical plant. Evaluating plant organization.
- 345 Career Education 2(2-0) Prerequisite: IST 202. (F,S,SS)**  
Design, implementation and conducting of career education programs. Selection and preparation of teaching materials for career education programs.
- 361 Building Materials 3(3-0) Prerequisite: IST 302. (S)**  
Properties and functional applications of building materials: wood, steel, concrete, ceramics, plastics, insulation, adhesives and sealants. Recent developments in new materials and application.
- 362 Building Systems 3(3-0) Prerequisite: IST 103. (\*)**  
The basic applications of building services in typical structures, including heating, water, plumbing, drainage, ventilation, air conditioning, vertical transportation, acoustical control, basic electrical controls, and code requirements.
- 375 Facilities Layout/Organization 3(3-0). (S)**  
The principles of shop planning as applied to location and types of shops, flow of materials, selection and equipment, layout of working areas, installation of machinery and tool management.
- 377 Methods/Techniques of Teaching Industrial Science Technology 3(3-0) Prerequisite: IST 120. (F)**  
Methods and techniques of teaching industrial science technology courses in laboratory management, professional development, certification, accreditation, public relations and school policies.
- 455 Curriculum Development and Evaluation in Industrial Science Technology 3(3-0) Prerequisite: IST 120. (S)**  
Organization of units of instruction, lesson plans, instruction sheets, evaluative procedures and tests.
- 457 Industrial Safety 3(3-0) Prerequisite: IST 120. (S)**  
Laboratory organizational patterns, administrative duties of the teacher, and safety regulations.

- 459 Facilities Supervisor 3(3-0) Prerequisite: IST 332,333. (SS)**  
Preparation for leadership in industry as foremen, supervisors, and directors for individuals in construction and building maintenance.
- 490 Special Projects (1-5 VAR) Prerequisite: junior or senior standing; permission of instructor. (F)**
- 493 Seminar (1-5 VAR). (F,S)**  
Individual and small-group activities. Individual experimentation and expertise development in industrial education. May be repeated.
- 495 Independent Study (1-5 VAR). (F,S)**  
For advanced students. Each student selects, outlines and pursues a project. Instructor approval and supervision provided. May be repeated.
- 496 Cooperative Education Placement (1-5 VAR) Prerequisite: junior or senior standing. (F,S,SS)**  
Work experience under direction of field supervisor and faculty member.

*GRADUATE COURSES*

- 500 Workshop 2(2-2) Prerequisite: graduate standing. (\*)**  
Offered in any of the technical areas for special groups of individuals who have similar interests and needs. Investigates special trends and problems. May be repeated.
- 545 Career Education 2(2-0) Prerequisite: IST 345 or equivalent and graduate standing. (\*)**  
Design, implementation and conducting career education programs. Selecting and preparing teaching materials for career education programs.
- 546 Problems in Career Education 3(3-0) Prerequisite: IST 345 or 545 and graduate standing. (\*)**  
Develop instructional materials, design teaching aids and collect occupational information. Review of facilities, equipment and supply needs of career education programs.
- 547 Career and Occupational Education 2(2-0) Prerequisite: graduate standing. (\*)**  
Techniques and procedures in analyzing occupations. Problems, methods and procedures involved in planning, organizing and disseminating occupational information to students.

- 555 Trends and Problems in Industrial Science and Technology 3(3-0) Prerequisite: graduate standing. (\*)**  
Practical methods and techniques of organizing curriculum materials and controlling a typical industrial education program. May be repeated.
- 557 Organization and Administration in Industrial Science and Technology 3(3-0) Prerequisite: graduate standing. (\*)**  
Shop organizational patterns, administrative duties of the teacher, and new trends in selection and arrangement of equipment and facilities.
- 570 Special Problems in Woodworking 3(0-6) Prerequisite: graduate standing. (\*)**  
Experimental work with new tools, equipment, materials and processes for improved program development and teaching techniques in woodworking.
- 571 Materials and Processes in Teaching Woodworking 3(0-6) Prerequisite: graduate standing. (\*)**  
Intensive study in selected areas of the woodworking industry as it relates to materials, processes and construction. Mass production and experimentation.
- 577 Materials and Techniques of Teaching Industrial Science & Technology in the Secondary Schools 3(3-0) Prerequisite: graduate standing. (\*)**  
Practical method and techniques in teaching industrial education classes.
- 580 Problems in Industrial Science and Technology 3(3-0) Prerequisite: graduate standing and permission of instructor. (\*)**  
In-depth study by one or more students who wish to enrich their teaching ability in specific area of industrial education. May be repeated.
- 581 Curriculum Development in Industrial Science and Technology 3(3-0) Prerequisite: graduate standing. (\*)**  
Derivation of objectives, selection and arrangements of instruction units and materials for industrial education classes.
- 582 History of Industrial Education 3(3-0) Prerequisite: graduate standing. (\*)**  
Leaders, agencies and movements that have contributed to the social and philosophical influences in industrial education.
- 583 Visual Aids in Industrial Science and Technology 3(3-0) Prerequisite: graduate standing. (\*)**  
Instructional sheets, charts, graphs and other instructional devices planned and developed by students.

- 584 Philosophy of Industrial Education and Vocational Education 3(3-0) Prerequisite: graduate standing. (\*)**  
Overview of the nature and purpose of the practical arts and vocational education, their relationships, differences and the place each should have in public schools.
- 585 Organization and Administration of Industrial Science and Technology 3(3-0) Prerequisite: graduate standing. (\*)**  
Organization and administration of industrial education programs as they relate to federal, state and local school administration.
- 588 Experimentation in Industrial Science and Technology 2(2-2) Prerequisite: graduate standing. (\*)**  
Investigation of the latest materials, tools and techniques used in industry. May be repeated.
- 590 Special Projects (1-5 VAR). Prerequisite: graduate standing. (\*)**  
For advanced students. Each selects, outlines and pursues a project. Instructor approval and supervision provided. May be repeated.
- 591 Special Topics (1-5 VAR). Prerequisite: graduate standing (\*)**  
Individual and small-group activities in individual experimentation and expertise development in industrial education. May be repeated.
- 592 Research (1-5 VAR). (\*)**
- 593 Seminar (1-5 VAR). (\*)**  
Individual and small-group activities. Current topics, issues, resources, and practices. May be repeated.
- 595 Independent Study (1-5 VAR) Prerequisite: graduate standing. (\*)**  
For advanced students. Each selects, outlines and pursues a project. Instructor approval and supervision provided. May be repeated.

### INTERDISCIPLINARY STUDIES (IS)

Associate Professor Ryan

The University Honors Program provides educational enrichment experiences for academically talented students. All honors program courses carry the IS prefix.

Students completing 20 semester hours of approved IS coursework in the honors program fulfill minor or area of concentration requirements for graduation.

- 101 Freshman Honors Seminar I 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 102, 103. (F)**  
A thematic, interdisciplinary, small-group seminar dealing with the aesthetic and historical aspects of natural and physical science. Guest speakers, research, visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.II.L.
- 102 Freshman Honors Seminar I 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 101, 103. (F)**  
A thematic, interdisciplinary, small-group seminar dealing with the sociological and cultural aspects of natural and physical science. Guest speakers, research, visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIF.
- 103 Freshman Honors Seminar I 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 101, 102. (F)**  
A thematic, interdisciplinary, small-group seminar dealing with the technological and applied aspects of natural and physical science. Guest speakers, research, visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIIG.
- 104 Freshman Honors Seminar II 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 105, 106. (S)**  
A thematic, interdisciplinary, small-group seminar dealing with the aesthetic and historical aspects of the liberal and fine arts. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.II.L.
- 105 Freshman Honors Seminar II 1(1-0) Prerequisite: acceptance into university honors program. Corequisites: IS 104, 106. (S)**  
A thematic, interdisciplinary, small-group seminar dealing with the sociological and cultural aspects of the liberal and fine arts. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIF.
- 106 Freshman Honors Seminar II 1(1-0) Prerequisite: acceptance into university honors program. Corequisites: IS 104, 105. (S)**  
A thematic, interdisciplinary, small-group seminar dealing with the scientific and technological aspects of the liberal and fine arts. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIIG.

**201 Sophomore Honors Seminar I 1(1-0) Prerequisite: acceptance into university honors program. Corequisites: IS 202, 203. (F)**

A thematic, interdisciplinary, small-group seminar dealing with the aesthetic and historical aspects of applied science and technology. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.II.

**202 Sophomore Honors Seminar I 1(1-0) Prerequisite: acceptance into university honors program. Corequisites: IS 201, 203. (F)**

A thematic, interdisciplinary, small-group seminar dealing with the sociological and cultural aspects of applied science and technology. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIF.

**203 Sophomore Honors Seminar I 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 201, 202. (F)**

A thematic, interdisciplinary, small-group seminar dealing with the scientific aspects of applied science and technology. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIIG.

**204 Sophomore Honors Seminar II 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 205, 206. (S)**

A thematic, interdisciplinary, small-group seminar dealing with the aesthetic and historical aspects of business and the professions. Guest speakers, visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIL.

**205 Sophomore Honors Seminar II 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 204, 206. (S)**

A thematic, interdisciplinary, small-group seminar dealing with the sociological and cultural aspects of business and the professions. Guest speakers, visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIF.

**206 Sophomore Honors Seminar II 1(1-0) Prerequisite: acceptance into the university honors program. Corequisites: IS 204, 205. (S)**

A thematic, interdisciplinary, small-group seminar dealing with the scientific and technological aspects of business and the professions. Guest speakers, visits to museums, exhibits, and cultural events related to the course's theme. GEN.ED.IIIG.

**291 Special Topics (1-3 VAR) (\*)**  
(S/U grades.)**301 Junior Honors Seminar 3(3-0) Prerequisite: three hours previous honors work. (F)**

A thematic, interdisciplinary, small-group seminar dealing with scientific, technological, sociological, aesthetic, ethical, and historical aspects of international and multicultural issues. Guest speakers and visits to museums, exhibits, and cultural events related to the course's theme.

**401 Senior Honors Seminar 3(3-0) Prerequisite: IS 301. (F)**

A thematic, interdisciplinary, small-group seminar dealing with scientific, technological, sociological, cultural, aesthetic, ethical, and historical aspects of issues of education and research. Guest speakers and visits to museums, exhibits and cultural events related to the course's theme. Senior honors project will be introduced.

**490 Special Projects 2(2-0) Prerequisite: three hours of previous honors work and IS 301. (\*)****491 Special Topics (1-3 VAR) (\*)**  
(S/U grades)**ITALIAN (ITL)***Assistant Professor Covi*

The minor in Italian requires the satisfactory completion of 23 credit hours, including ITL 101, 102, 201, 202 and approved Italian electives numbered above 300. (Courses may be waived through advanced placement by the department.) An endorsement to teach Italian requires the satisfactory completion of a minimum of 32 credit hours, as approved by an adviser.

**101 Introduction to Italian I 4(3-2). (F,S)**

Pronunciation and grammar with oral-aural training. Easy reading and conversation. GEN.ED.IB.

**102 Introduction to Italian II 4(3-2) Prerequisite: ITL 101 or equivalent. (S)**

GEN.ED.IB.

**201 Intermediate Italian 4(3-2) Prerequisite: ITL 102 or equivalent. (F)**

Reading and conversation in Italian, review of grammar, study of idioms, theme writing in Italian.

**202 Intermediate Italian II 4(3-2) Prerequisite: ITL 201 or equivalent. (S)**

- 301 Advanced Italian Grammar I 3(3-0) Prerequisite: ITL 202 or permission of instructor. (#)**  
Linguistic analysis, vocabulary building and composition.
- 302 Advanced Italian Grammar II 3(3-0) Prerequisite: ITL 202 or permission of instructor. (#)**  
Linguistics analysis, vocabulary building and composition.
- 381 Italian Civilization I 3(3-0) Prerequisite: ITL 202 or permission of instructor. (#)**  
Italian geography, culture and history from the beginning to the present.
- 382 Italian Civilization II 3(3-0) Prerequisite: ITL 202 or permission of instructor. (#)**
- 494 Field Experience (1-7 VAR) Prerequisite: 2 years of college Italian. (\*)**  
Communication, lectures by writers, artists, political leaders and specialists. Visits to museums, attendance at movies, theatres and excursions.
- 495 Independent Study (1-3 VAR). (\*)**  
May be repeated for credit with approval of major adviser.

### KINESIOLOGY (KIN)

Professors Aguilar, Stutters

#### UNDERGRADUATE COURSES

- 254 Anatomical Kinesiology 2(2-0). (F)**  
Fundamentals of anatomical and structural components of Human Movement.
- 258 Maturational Kinesiology 2(2-0). (F)**  
Study of the maturational components of human movement with emphasis on analyzing movement problems.
- 262 Psychological Kinesiology 2(2-0). (S)**  
Study of neuropsychological components of human movement.

- 364 Mechanical Kinesiology 2(2-0) Prerequisite: KIN 254. (S)**  
Fundamental body movements and the primary muscles involved in those movements.
- 442 Physiology Kinesiology 2(2-0) Prerequisite: KIN 254. (F)**  
Effects of muscular activity on the various organs and systems of the body; an analysis of intramuscular and extramuscular adaptations which occur with training.

### MANAGEMENT (MGMT)

Professor Kochenberger  
Associate Professor Eisenbeis, Watkins  
Assistant Professors Ahmadian, Chandler

School of Business students whose emphasis area is other than management may minor in management by taking: (1) MGMT 318, 320, 365, and 9 additional hours elected from 300-400 management courses; or (2) minor in operations and material management by taking BUSAD 261; MGMT 362, 365, 465; ECON 410 and 3 additional hours elected from 300-400 level management courses.

#### UNDERGRADUATE COURSES

- 310 Principles of Management 3(3-0) (F,S,SS)**  
Decision-making communication and leadership principles in business and not-for-profit organizations.
- 311 Production/Operations Management 3(3-0) Prerequisite: BUSAD 260 AND MGMT 310. (F,S)**  
Techniques and procedures for efficient operations and problem solving.
- 318 Personnel Management 3(3-0) Prerequisite: MGMT 310. (F,S)**  
Recruiting, testing, interviewing, training and evaluating workers; planning for personnel needs; establishing personnel functions; employment laws; establishing pay plans.



- 320 Organizational Behavior 3(3-0) Prerequisite: MGMT 310. (F,S)**  
Behavior of individuals and small groups in organizational settings. Managerial style, social system analysis, motivation, and communication.
- 362 Purchasing and Materials Management 3(3-0) Prerequisite: MGMT 311. (F)**  
Strategies and tactical methods, opportunities and problems associated with the flow of materials in an organization will be covered.
- 365 Management Information Systems 3(3-0) Prerequisite: MGMT 310, 362. (F)**  
Analysis and design of computer-based management information systems to satisfy needs of functional areas of organizations such as finance, marketing, accounting, engineering, production and operations management.
- 410 Industrial Relations 3(3-0) Prerequisite: MGMT 318. (F,S)**  
Employer-employee relationship; legal rights of organizations and collective bargaining.
- 412 Issues in Operations Management 3(3-0) Prerequisite: MGMT 362. (S)**  
Contemporary trends and areas of management interest regarding materials and operations management techniques and methodologies. The current academic and practitioner literature is emphasized.
- 414 Entrepreneurship 3(3-0) Prerequisite: ACCTG 202, MGMT 310 and MKTG 340, or permission of instructor (S)**  
The environment, management, marketing, accounting and legal considerations facing the small business manager and owner.
- 460 Operations Planning and Strategy 3(3-0) Prerequisite: MGMT 311 and 362. (S)**  
Examination of recent developments in the strategy of operations in the manufacturing and service sectors involving technological policy, new process development, and new product introduction.
- 465 Operations Research/Management Science 3(3-0) Prerequisite: MGMT 311. (S)**  
Examination of deterministic tools in managerial problem solving; mathematical programming methods, linear, nonlinear, network, and inventory problems. Computer solutions of structured business problems.
- 467 Computer Simulation 3(3-0) Prerequisite: BUSAD 260, MGMT 311, senior standing or permission of instructor. (F)**  
Recognition of problems suited for simulation, building, verifying, validating, and analyzing models using simulation software. Interpretation of simulation results.
- 470 Managerial Decision Support 3(3-0) Prerequisite: BUSAD 260. (S)**  
Examination of modern managerial decision-making processes. The course stresses the general nature of decision-making, decision tree analysis, subjective elements, and decision support software.
- 480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of instructor. (F,S)**  
Integrating prior studies in business into a realistic approach to assist in solving problems faced by selected firms in the community.
- 484 Senior Studies 3(3-0). (F,S,SS)**  
A discipline oriented integration of prior course work into a special project, research paper and/or activity that demonstrates proficiency in the major.
- 485 Management Strategy and Policy 3(3-0) Prerequisite: MGMT 484, senior standing in the School of Business and completion of all core courses. (F,S,SS)**  
Integration of all prior course work into a realistic and scientific approach to the solution of organizational problems and evaluation of opportunities. Case method used extensively.
- 490 Special Projects (1-6 VAR). (F,S,SS)**
- 491 Special Topics (1-3 VAR). (\*)**
- 495 Independent Study in Management (1-3 VAR) Prerequisite: senior standing in School of Business and permission of department of chair. (F,S,SS)**
- 498 Internship (1-6 VAR) Prerequisite: junior or senior standing in School of Business and permission of Internship Coordinator. (F,S,SS)**  
Supervised field work in selected business, social and governmental organizations; supplemented by written reports. (S/U grades.)

## GRADUATE COURSES

- 520 Management Theory and Practice 3(3-0) Prerequisite: graduate standing. (F)**  
The examination of approaches currently used by behavioral science practitioners to assist organizations in achieving planned change; specific focus on the processes of behavioral change at the individual, group and organizational levels; use of case studies.
- 521 Corporate Strategy and Industrial Structure 3(3-0) Prerequisite: graduate standing. (\*)**  
Exploration of important relationships between the structural characteristics of an industry and the performance of firms competing in the industry; the nature of the competitive interaction among firms and the rules of the strategic game determined by the industry's structural characteristics.
- 523 Strategic Management in Public Sector Companies 3(3-0) Prerequisite: graduate standing. (\*)**  
Strategic and policy difference between service sector companies and organizations whose product is a tangible result of a manufacturing process, emphasizing overall strategy as viewed by the general manager as well as the interrelationships and conflicts among marketing, human resources, finance, and operations.
- 560 Management Information Systems 3(3-0) Prerequisite: graduate standing. (S)**  
The development of an overall framework for analyzing the use of information by organizations along with examples of different types of information systems. The analysis and design of information systems is stressed through case study and projects, emphasizing the role of computing in information systems and the design of computer-based systems and decision support systems.
- 561 Advanced Database Management Systems 3(3-0) Prerequisite: MGMT 560. (\*)**  
Development of database management systems for specific managerial applications, e.g., control and operation of managerial functions; focus on hierarchical, network and relational models, data sublanguages, and query facilities, teleprocessing with database systems; examination of the database environment at the organization and management of the database. Mainframe and microsystem-based software.
- 567 Computer Simulation 3(3-0) Prerequisite: BUSAD 260, MGMT 311, senior standing or permission of instructor. (F)**  
Recognition of problems suited for simulation, building, verifying, validating, and analyzing models using simulation software. Interpretation of simulation results.

- 585 Management Policy and Strategy 3(3-0) Prerequisite: graduate standing. (S)**  
Implementation of strategic decisions at differing managerial levels within a firm, including operational planning and budgeting, resolving short and long-term tradeoffs, designing the organization (both structure and process), building a management team, bringing about strategic change and prioritizing actions among conflicting goals. Use of case studies.
- 591 Special Topics 3(3-0). (\*)**
- 592 Research (1-6 VAR). (F,S,SS)**  
The student will work under the close supervision of a graduate faculty member in basic or applied research resulting in a report of high academic quality. (S/U grades.)
- 599 Thesis Research (1-6 VAR). (\*)**

## MARKETING

*Assistant Professor Shah*

School of Business students whose emphasis area is other than marketing may minor in marketing by taking BUSAD 261; MKTG 341, 440, and 9 additional hours of 300-400 level marketing courses.

## UNDERGRADUATE COURSES

- 340 Principles of Marketing 3(3-0) (F,S,SS)**  
Analytical survey of problems encountered in distributing goods and services from a marketing-management approach with emphasis on the role of consumer and the social-responsibility of the marketer.
- 341 Sales Force Management 3(3-0) Prerequisite: MKTG 340. (F)**  
Managing a sales force including recruiting, selection, training, compensation, supervision, stimulation and sales planning. Computer simulation used to do forecasting, budgeting, territory allocation, sales analysis and control.

- 342 Promotional Strategy 3(3-0) Prerequisite: MKTG 340. (S)**  
Principles, concepts and problems involved in development and management of advertising, personal selling, public relations and sales promotion programs, activities in the global economy.
- 344 Industrial Marketing 3(3-0) Prerequisite: MKTG 340 and BUSAD 261. (F)**  
Activities involved in marketing of industrial goods and services. A quantitative orientation towards economic analysis of industrial marketing decisions.
- 348 Consumer Behavior 3(3-0) Prerequisite: MKTG 340. (F)**  
Survey of contributions of behavioral sciences to understanding and prediction of consumer behavior in the decision-making processes.
- 440 Marketing Research 3(3-0) Prerequisite: MKTG 340 and BUSAD 260 (S)**  
Fundamental techniques. Practical experience in research methodology: planning an investigation, questionnaires, sampling, interpretation of results, report preparation.
- 441 Marketing Strategies 3(3-0) Prerequisite: MKTG 340 and MKTG 440, second semester seniors. (S)**  
Detailed consideration of process of formulating and implementing strategies in marketing. Major emphasis on markets, channels of distribution, and product analysis.
- 444 International Marketing 3(3-0). (F,S)**  
This course examines the impact of world markets on marketing strategy and implementation.
- 480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of instructor. (F,S)**  
Integrating prior studies in business into a realistic approach to assist in solving problems faced by selected firms in the community.
- 484 Senior Studies (3-0). (F)**  
A discipline oriented, integration of prior course work into a special project, research paper and/or activity that demonstrates proficiency in the major.
- 490 Special Projects (1-6 VAR). (F,S,SS)**
- 491 Special Topics (1-3 VAR). (\*)**
- 495 Independent Study (1-3 VAR) Prerequisite: senior standing and permission of department chair. (F,S,SS)**

- 498 Internship (1-6 VAR) Prerequisite: junior or senior standing in School of Business and permission of Internship Coordinator. (F,S,SS)**  
Supervised field work in selected business, social and governmental organizations; supplemented by written reports. (S/U grades.)

## GRADUATE COURSES

- 540 Marketing Management Strategies 3(3-0) Prerequisite: graduate standing. (F)**  
The investigation of strategic decisions necessary to match organizational resources and objectives with market opportunities. Examination of strategy areas of product development and diversification, pricing, communication through advertising and selling and distribution. Emphasizes an understanding and forecasting market behavior, coordination of marketing with other managerial decisions, and the integration of theory and principles through the use of cases.
- 541 Cases in Marketing Management 3(3-0) Prerequisite: MKTG 540. (S)**  
Tests the application skills of students in legitimate, actual marketing situations faced by corporations large and small, product and service industries, profit as well as non-profit institutions. Logic and reasoning ability will be stressed rather than attempting to develop one, single, inflexible "right" answer.
- 591 Special Topics 3(3-0). (\*)**
- 592 Research (1-6 VAR). (F,S,SS)**  
The student will work under the close supervision of a graduate faculty member in basic or applied research resulting in a thesis or report of high academic quality. (S/U grades.)
- 599 Thesis Research (1-6 VAR). (\*)**

## MASS COMMUNICATIONS (MACOM)

*Professors Anderson, Pavlik  
Associate Professor Orman  
Assistant Professors Binkly, Miller, Kondas*

The major in mass communications leads to the degrees of bachelor of arts (BA) and bachelor of science (BS).

A degree in mass communications leads to careers in reporting, editing, news direction and production, public relations, advertising and photography. Alternative career areas include law enforcement, teaching, sales, law, and management.

Some students find the program excellent preparation for graduate or professional study, such as law school.

In keeping with the university's mission, the primary objective of the department of mass communications is to offer a professionally oriented program aimed at preparing majors for careers in mass media and related agencies.

Application of the principles of mass communications is accomplished through supervised work on campus publications, a departmental newspaper, the university's FM radio station, KTSC-TV, the university's communication services and sports information offices, and local internship programs. Internships (MACOM 494-Field Placement) are strongly recommended but not required.

Students planning careers in secondary education, technical writing or a similar field may major in mass communications with a minor as an emphasis area in English. Students must complete the mass communications core curriculum as well as an arranged program of course work, preferably including MACOM 377. The English curriculum is arranged by an adviser from the English faculty.

USC TODAY, the university's weekly newspaper is published each Wednesday of the regular academic year as a laboratory tool of the mass communications department. The newspaper serves the students, faculty, and staff of USC in addition to the Pueblo community. Editorial and management positions are awarded each spring for the following academic year after review of all applications from qualified students. The newspaper is funded totally through advertising revenue. The newspaper's editorial and advertising advisers are members of the mass communications faculty who may also participate on the publications review board.

KTSC-FM is licensed to USC as an educational radio station by the Federal Communications Commission. Operated by the mass communication department, the 10,000-watt station serves a 50-mile radius of the campus. Advanced mass communications students are involved in the daily programming, production, and news. KTSC-FM operates on a daily basis throughout the calendar year.

USC's Public Broadcasting System affiliate, KTSC-TV, provides laboratory training and on-campus jobs for television students.

Students desiring a minor in mass communications must complete at least 20 credit hours of arranged courses, depending upon the student's interest area. All credits applied to the minor must be approved by the student's adviser.

#### UNDERGRADUATE COURSES

- 101 The Mass Media 3(3-0). (F,S,SS)**  
Mass media in American society, their growth, development and impact on contemporary culture. GEN.ED.ID.
- 102 Introduction to Broadcasting 3(3-0). (F,S)**  
Introductory course in broadcasting with emphasis on the historical and social impact of radio and television on American culture. GEN.ED.ID.
- 110 Career Orientation 1(1-0). (F,S)**  
Survey of career opportunities in the communication industry with emphasis on the mass media and related agencies. Recommended for majors and minors in mass communications.
- 201 News Writing 3(3-0) Prerequisite: ENG 110, 211. (F,S)**  
Instruction and practice in basic news writing skills including interpretation of news values and interviewing techniques for both print and broadcast media. Required of all majors and minors. Basic typing skills required.
- 202 Feature Writing 3(3-0) Prerequisite: MACOM 201. (F,S)**  
Reporting campus events via interpretative articles, news features, straight features, seasonal stories and series articles.
- 215 Media and Human Relations 3(3-0). (F,S)**  
Behavioral science/communications approach to media, their roles and functions, with emphasis on interpersonal interaction in mass society. GEN.ED.ID.
- 216 Advertising 3(3-0). (F,S)**  
Principles of advertising on local and national levels for newspapers, magazines, radio and television.
- 222 Broadcast News Writing 3(3-0) Prerequisite: MACOM 102, 201. (F)**  
Preparation of copy for radio/television news reports, interviews and commentary.
- 224 (SPCOM 224) Broadcast Announcing 3(3-0) (F)**  
Study and application of the principles of oral communication to radio and television announcing.

- 226 Introduction to Television Production 4(2-4) Prerequisite: MACOM 102. (F)**  
Concepts, skills and technical facilities involved in production of television programs. Emphasis on the understanding of the technical equipment used in program broadcasting.
- 235 Women in Media 3(3-0). (S)**  
The historical and cultural implications of the mass media's portrayal of women and the extent of their media participation from colonial to contemporary times.
- 250 Media Lab 1(0-2) Prerequisite: freshman or sophomore standing; permission of instructor. (F,S,SS)**  
A laboratory course for students involved in university publications and campus broadcast operations. May be repeated for up to four credits.
- 251 Sports Writing and Statistics 3(2-3) Prerequisite: MACOM 202, 202. (F,S)**  
Study and practical application of sports writing and statistics; emphasis on press box experience at intercollegiate athletic events. Repeatable once.
- 265 History of Journalism 3(3-0). (F,S)**  
History of the press in America from colonial times to the present day; political and economic impact of newspapers and magazines during the 19th and 20th centuries.
- 280 Public Relations 2(2-0). (F,S,SS)**  
Historical and theoretical approach to contemporary public relations, with emphasis on the public relations process and ethics of contemporary practice. GEN.ED.IIB.
- 301 Editorial Writing 3(3-0) Prerequisite: MACOM 201, 202. (F)**  
Study of editorial page management and policy, with emphasis on preparation of editorials, columns and critical reviews. Attendance at weekly editorial board meetings and selected on- and off-campus events required.
- 302 Advertising Writing 3(3-0) Prerequisite: MACOM 215 or permission of instructor. (F,S)**  
Copy writing essentials and formats for print, broadcast and direct mail advertising. Emphasis on developing writing techniques for practical application in both retail and product advertising.
- 311 Copy Editing and Makeup 3(3-0) Prerequisite: MACOM 201, 202. (F)**  
News evaluation, copyreading, rewriting, headline writing, page makeup and similar duties of the newspaper copy editor.

- 316 Advertising Campaigns 3(3-0) Prerequisite: MACOM 216 or permission of instructor. (F)**  
Practical application of planning and development of advertising campaigns for print and broadcast media; emphasis on the use of creative strategy.
- 317 Advertising Strategy 3(3-0) Prerequisite: MACOM 216, 316. (S)**  
Seminar emphasizing tactics and strategies of advertising planning, utilizing media techniques, marketing posture and creative media buying.
- 318 Retail Advertising 3(3-0) Prerequisite: MACOM 216, 316. (S)**  
The need, direction and potential of local advertising and the media associated with retail communication, with emphasis on retail campaign design, client services and problem solving.
- 319 Direct Advertising 3(3-0) Prerequisite: MACOM 216. (F)**  
Direct advertising is an advanced course stressing the philosophy, objectives, content and development of direct response advertising, particularly direct mail and computer-generated messages.
- 320 Broadcast Station Programming 3(3-0) Prerequisite: MACOM 222, 224, 226. (S)**  
Program types used on broadcast stations; analysis of network structure and local station programs; ethical requirements in programming.
- 326 Advanced Television Production 4(2-4) Prerequisite: MACOM 226. (S)**  
Television studio and control room operation; emphasis on video console equipment, cameras, microphones, stagecraft and lighting.
- 350 Advanced Media Laboratory (2-4 VAR) Prerequisite: junior or senior standing; permission of instructor. (F,S,SS)**  
An advanced laboratory course for students involved in university publications and campus broadcast operations. May be repeated for up to 10 credits.
- 377 Journalism in the Secondary School 3(3-0) Prerequisite: junior or senior standing; permission of instructor. (F,S)**  
Introduction to teaching journalism/communications in junior and senior high school; emphasis on organizing and supervising student publications.
- 401 Photographic Procedures 4(3-2) Prerequisite: permission of instructor. (S)**  
Practical course in pictorial reporting; emphasis on spot news features, picture stories and photographic essays.

- 402 Photojournalism 4(3-2) Prerequisite: MACOM 401. (S)**  
Practical course in pictorial reporting; emphasis on spot news features, picture stories and photographic essays.
- 411 Journalism Law and Ethics 5(5-0) Prerequisite: junior or senior standing. (F,S)**  
Ethical and legal factors of mass communications related to the structure and substance of laws at federal, state and local levels are studied including freedoms, restraints and contemporary issues.
- 415 Theories of Mass Communications 3(3-0) Prerequisite: MACOM senior standing or permission of instructor. (F)**  
Application of information theories to mass communication problems. Nature of the communication process in groups and between mass media and audiences. Contribution of theoretical concepts to solving specific problems.
- 421 Public Relations Case Problems 3(3-0) Prerequisite: MACOM 202, 222, 290. (F)**  
Continuation of MACOM 290; emphasis is to client-community problems, press relations, industrial publications, brochures and other specialized public relation tools.
- 422 Public Relations Campaigns 3(3-0) Prerequisite: MACOM 421. (S)**  
Simulated independent public relations agency approach to developing and implementing public relations campaigns; emphasis on practical application of agency-client relations and problem solving.
- 423 Writing for Public Relations 3(3-0) Prerequisite: MACOM 201,202. (F,S)**  
A specialized writing course for students planning careers in public and corporate relations, with emphasis on news releases, newsletters, product manuals, annual reports, brochures and multi-media presentations.
- 425 Audience Research Methodology 3(3-0). (F,S)**  
Generalized research methodology course. Effective and appropriate research tools to define and describe various publics contained within the mass audience. Emphasis on sampling practices, encoding and interpretation of results. Pragmatic task activities via Nielson, Arbitron, SRDS, content analysis and related data sources.
- 426 TV Documentary Production 3(3-0) Prerequisite: MACOM 226, 326; permission of instructor. (S)**  
Actual experience in planning, scripting and producing documentary video production on locations throughout southeastern Colorado for broadcast and public service agencies.
- 440 Magazine Writing 3(3-0) Prerequisite: MACOM 201, 202. (S)**  
Instruction and practice in writing nonfiction magazine articles, with emphasis on story research and market selection.
- 445 Reporting Public Affairs 5(4-3) Prerequisite: MACOM 201, 202. (S)**  
Instruction and practice in reporting public affairs, including crime and the courts, and news originating in city and county governments, state legislature, and school boards. Interpretive and investigative reporting skills. Attendance at public meetings required.
- 450 Film Criticism in the Media 3(3-0) Prerequisite: senior standing. (F,S)**  
The role and function of the film critic in television and print journalism, with emphasis on writing the critical review.
- 490 Special Projects 3(0-3) Prerequisite: junior or senior standing or permission of instructor. (F,S,SS)**  
Individualized instruction within a special interest area, under supervision of a member of the department. Repeatable once.
- 491 Special Topics (1-3 VAR) Prerequisite: junior or senior standing or permission of instructor. (F,S)**
- 493 Seminar 3(3-0) Prerequisite: senior standing. (F,S)**  
Seminar devoted to special problems in mass media; emphasis on interrelationships of media, understanding media, and the role of criticism.
- 494 Field Experience (3-10 VAR) Prerequisite: junior or senior standing, minimum of 30 hours in major, or permission of program chair. (F,S,SS)**  
A semester-long internship. Student performs the professional duties required by the cooperating commercial mass medium, business or public service agency. May be repeated for up to 15 hours credit.
- 495 Independent Study 2(0-2) Prerequisite: junior or senior standing or permission of instructor. (F,S)**

## GRADUATE COURSE

- 591 Special Topics (1-3 VAR) Prerequisite: graduate standing. (F,S,SS)**

## MATHEMATICS (MATH)

Professors Allen, Bronn, Derr, Gill, Li, Phillips, Withnell  
Associate Professors Johnson, Orr  
Assistant Professor Burgos, Nichols  
Instructor Bramlett

The mathematics major leads to the degrees of bachelor of arts (BA) and bachelor of science (BS). Each degree includes options in computer science and applied mathematics. Certification is also available for those who wish to teach secondary school mathematics.

Individually designed mathematics minors and teaching minors for secondary school mathematics are available. Service courses are provided for students in business, the sciences and the technologies, and general mathematics courses are open to all students. The department of mathematics also:

- provides tutorial services to all students through the mathematics learning center in PM 112. (Prospective secondary mathematics majors gain considerable "on-the-job" experience by assisting the tutorial staff);
- allows students the opportunity to test out of many mathematics courses. Copies of the test-out procedure may be obtained in the mathematics office;
- grants advanced placement standing to qualified incoming students; and
- offers an endorsement program in mathematics for those previously certified in secondary education.

Mathematics majors may tailor their major through choice of electives. Students may choose an emphasis in pure mathematics, applied mathematics, statistics or secondary school mathematics teacher preparation.

The core curriculum consists of MATH 126, 207, 224, 307, 320, 325, 327, 421, and either MATH 350 or 456. An additional nine semester hours of approved upper-division electives (excluding MATH 360 and 361) and three semester hours of a high-level computing language are required. To enhance each student's career goal potential, mathematics majors are required to:

- earn a C or better in each course in the major;

- maintain a grade-point average of 2.00 or better for all mathematics courses numbered above 239. (MATH 360 and 361 are not to be used in determining grade-point average);
- complete a minimum of 12 semester hours of upper-division mathematics courses; and
- complete an approved two-semester sequence in a laboratory science.

Mathematics majors must complete a minor or an approved area of concentration. Along with those presented in this bulletin, the mathematics department recognizes areas of concentration in engineering and the natural sciences. Further information may be obtained from the mathematics department office, PM 222.

Students interested in a mathematics major or minor must declare that intention at the earliest possible time. Then they are assigned a mathematics adviser who will assist them in planning and fulfilling university and program degree requirements.

The individually designed mathematics minor requires one year of calculus (MATH 126 and 224); three mathematics courses numbered above 300 (excluding 360, 377), at least two of which must be taken in residence; and a grade of C or better in each course in the minor.

The mathematics teaching minor requires MATH 126, 207, 224, 307, 320, 327, 330, and 377 (total 26 credits).

### UNDERGRADUATE COURSES

#### 109 Mathematics for Everyone 3(3-0)\*

General education course designed to broaden the student's problem-solving ability. GEN.ED.IIIE.

#### 120 Intermediate Algebra 4(4-0) Prerequisite: one year of high school algebra. (F,S,SS)

Development of problem-solving skills. Includes linear equations and inequalities, polynomials, roots and radicals, quadratic equations.

#### 121 College Algebra 4(4-0) Prerequisite: MATH 120 or three years of high school mathematics. (F,S,SS)

Functions, solutions of polynomial and radical equations, exponential and logarithmic functions, systems of equations, matrices, and determinants. GEN.ED.IIIE.

- 122 College Trigonometry 2(2-0) Prerequisite: MATH 121 or equivalent. (F,S,SS)**  
Trigonometric and circular functions, identities, inverse functions, vectors, complex numbers. GEN.ED.IIIE.
- 124 Precalculus Math 5(5-0) Prerequisite: MATH 120 or equivalent. (F,S,SS)**  
Polynomial, rational, exponential and logarithmic functions; solutions of systems of equations; trigonometric, circular and certain special functions. GEN.ED.IIIE.
- 126 Calculus and Analytic Geometry I 5(5-0) Prerequisite: MATH 124 or equivalent. (F,S)**  
Introduction to analytic geometry, functions, limits, continuity, differentiation and integration of algebraic functions, the theory of calculus and selected applications. GEN.ED.IIIE.
- 131 Algebra/Trigonometry for Engineering Technology I 4(4-0) Prerequisite: MATH 120 or equivalent. (F,S)**  
Integrated sequence (131-132) covering topics in algebra, trigonometry, and analytic geometry, with engineering applications. GEN.ED.IIIE.
- 132 Algebra/Trigonometry for Engineering Technology II 4(4-0) Prerequisite: MATH 131. (F,S)**  
Continuation of MATH 131. GEN.ED.IIIE.
- 156 Introduction to Statistics 3(3-0) Prerequisite: MATH 120 or equivalent. (F,S,SS)**  
Introduction to data analysis. Binomial and normal models. Sample statistics, confidence intervals, hypothesis tests, linear regression and correlation, and chi-square tests. GEN.ED.IIIE.
- 207 Matrix and Vector Algebras with Applications 2(2-0) Prerequisite: MATH 121, 124 or equivalent. (F,S,SS)**  
Systems of equations, matrix representation of systems, methods of solutions of systems, inverses, determinants, and Cramer's Rule. Vectors, scalar and cross products, applications to 2- and 3- dimensional geometry, spherical and cylindrical coordinates. GEN.ED.IIIE.
- 221 Applied Calculus: An Intuitive Approach 5(5-0) Prerequisite: MATH 121 or equivalent. (S)**  
Non-rigorous introduction to calculus with emphasis on applications and modeling in the life sciences, social and behavioral sciences and business. GEN.ED.IIIE.

- 224 Calculus and Analytic Geometry II 5(5-0) Prerequisite: MATH 126. (F,S)**  
Applications of differentiation and integration; operations on trigonometric, logarithmic and other transcendental functions; and infinite series.
- 231 Calculus for Engineering Technology I 3(3-0). (F,S)**  
Integrated sequence (231-232) covering topics in differential and integral calculus with emphasis on engineering applications. GEN.ED.IIIE.
- 232 Calculus for Engineering Technology II 3(3-0). (F,S)**  
Continuation of MATH 231. GEN.ED.IIIE.
- 245 Introduction to Discrete Mathematics 3(3-0) Prerequisite: MATH 121 or equivalent. (S)**  
Logic and algebra of sets, permutations, and combinations, relations and functions, graph theory, trees, recurrence relations and induction. GEN.ED.IIIE.
- 255 Non-parametric Methods 2(2-0) Prerequisite: MATH 126 or one semester of statistics. (#)**  
Topics include different tests for one sample case, two and K-related or independent samples case and their normal approximations.
- 291 Special Topics (1-3 VAR) Prerequisite: permission of instructor and approval of the department chair. (F,S)**
- 307 Introduction to Linear Algebra 3(3-0) Prerequisite: MATH 126, 201, 202 or equivalents. (F,SS)**  
Matrices, vectors, vector spaces, linear transformations, and change of basis. Application topics are included.
- 320 Introduction to Mathematical Thought 3(3-0) Prerequisite: MATH 224 or its equivalent. (F,S)**  
A rigorous development of the familiar number systems of mathematics (naturals, integers, rationals and reals, with related topics such as functions, equivalence relations, principles of finite induction, and number theory).
- 325 Intermediate Calculus 3(3-0) Prerequisite: MATH 202,224. (F,S)**  
Continuation of MATH 224: solid analytic geometry, vector operations in three dimensions, multivariable calculus.
- 327 Introduction to Algebraic Systems 3(3-0) Prerequisite: MATH 271 or permission of instructor. (S)**  
Introduction to various algebraic systems such as groups, rings, and fields and their elementary properties. Properties of the integers and other common number systems.



- 330 Introduction to Higher Geometry 4(4-0) Prerequisite: MATH 224 or permission of instructor. (F)**  
Euclidean, hyperbolic, finite, and transformation geometries, models, and constructions.
- 337 Differential Equations I 3(3-0) Prerequisite: MATH 224 or equivalent. (F,S)**  
First order differential equations, homogeneous and non-homogeneous linear differential equations, introduction to the Laplace transform, applications.
- 338 Differential Equations II 3(3-0) Prerequisite: MATH 325, 337. (#)**  
Linear systems, existence and uniqueness of solutions, non-linear equations, series solutions, orthogonal sets of functions. Fourier series, boundary value problems, partial differential equations and applications.
- 342 Introduction to Numerical Analysis 3(3-0) Prerequisite: MATH 307 and FORTRAN or program permission. (F)**  
Finding numerical solutions of polynomial, differential, integral, and other equations using the computer.
- 348 Numerical Methods 3(3-0) Prerequisite: MATH 224, 307 and a high-level programming language. (\*)**  
Discussion and development of programs to solve linear and non-linear systems of equations, to use eigenvalues and eigenvectors to solve systems of differential equations and boundary value problems. To apply iterative methods and rational function approximations and to use other related concepts and techniques.
- 350 Probability 3(3-0) Prerequisite: MATH 224. (F)**  
Introduction to elementary probability theory and stochastic processes. Probability spaces, random variables and their distributions, exponential and Poisson processes, limit theorems and applications.
- 353 Sampling and Survey Methods 2(2-0) Prerequisite: one semester of statistics. (\*)**  
Nature and rationale of basic sample survey designs, ratio estimation and sampling from wildlife populations.
- 360 Mathematics for Elementary Teachers I 3(3-0) Prerequisite: MATH 120. (F,S)**  
Sets, numeration systems, whole numbers, algorithms, number theory, integers and intuitive geometry.
- 361 Mathematics for Elementary Teachers II 3(3-0) Prerequisite: MATH 360. (F,S)**  
Metric geometry, rational numbers, real numbers, logic, mathematical systems, metric system, probability and statistics.
- 377 Materials and Techniques of Teaching Secondary School Mathematics 4(4-0). (S)**  
Instructional materials, methods, evaluation and other related topics.
- 411 Introduction to Topology 3(3-0) Prerequisite: MATH 271. (#)**  
Introduction to topological, compact, connected and metric spaces. Continuous functions and separation properties.
- 421 Advanced Calculus I 3(3-0) Prerequisite: MATH 325 and MATH 271. (F)**  
Rigorous development of concepts of elementary calculus, sequences and series, uniform convergence, partial derivatives, Stieltjes integral and metric spaces.
- 422 Advanced Calculus II 3(3-0) Prerequisite MATH 421. (S)**  
Continuation of MATH 421.
- 425 Complex Variables 3(3-0) Prerequisite: MATH 325. (\*)**  
Complex numbers, sequences and series, derivatives and integrals, analytic functions, conformal mappings.
- 443 Optimization Techniques 3(3-0) Prerequisite: MATH 307 and FORTRAN or departmental permission.**  
Linear programming and its derivatives, network optimization and their applications to practical problems.
- 445 Discrete Mathematics 3(3-0) Prerequisite: MATH 224, 307 and knowledge of a programming language, MATH 271 recommended. (\*)**  
Topics selected from mathematical reasoning, combinatorial techniques, set theory, binary relations, functions and sequences, algorithm analysis, and discrete analysis.
- 450 Design and Analysis of Experiments 4(4-0) Prerequisite: two semesters of statistics. (\*)**  
Design and analysis of experimental studies, including randomized block, Latin square and factorial experiments; general regression analysis of variance.
- 456 Applied Statistics I 3(3-0) Prerequisite: MATH 224. (S)**  
Probability space, discrete and continuous random variables; distributions; mathematical expectation; sampling; statistical inference; Bayesian rule; and linear regression.
- 463 History or Mathematics 2(2-0) Prerequisite: MATH 271. (F)**  
Survey of the origins of important mathematical concepts and of the mathematicians responsible for these discoveries.
- 491 Special Topics (1-3 VAR) Prerequisite: permission of instructor. (F,S)**

- 493 **Seminar (1-3 VAR) Prerequisite: senior standing, permission of instructor. (F,S)**
- 495 **Independent Study (1-3 VAR) Prerequisite: senior standing, permission of instructor. (F,S)**

## GRADUATE COURSES

- 501 **Foundations of Mathematics 3(3-0) Prerequisite: graduate standing. (\*)**  
Sets, logic, axiomatics, mappings and the various sub-systems of the reals for beginning graduate students.
- 507 **Linear Algebra 3(3-0) Prerequisite: graduate standing. (\*)**  
Vector spaces, matrices, eigenvalues, linear functionals and dual space and selected applications.
- 521 **Intermediate Analysis 3(3-0) Prerequisite: graduate standing. (\*)**  
Point set theory including the Heine Borel theorem, continuity, differentiation, sequences and series and the Riemann-Stieltjes integral.
- 527 **Abstract Algebra 3(3-0) Prerequisite: graduate standing. (\*)**  
Groups, rings, integral domains, quotient rings, ideals, fields, homomorphisms and related topics.
- 530 **Advanced Geometry 3(3-0) Prerequisite: graduate standing. (\*)**  
Foundations of geometry, transformations, types of geometry and selected Euclidean and non-Euclidean topics.
- 541 **Computers 3(3-0) Prerequisite: graduate standing. (\*)**  
Preparation for teachers in utilizing the computer to teach secondary school mathematics.
- 544 **Mathematical Methods of Applied Science 3(3-0) Prerequisite: graduate standing. (F)**  
Topics in applied mathematics for engineering and management; emphasis on the application of mathematical techniques to problems in business and industry. Topics include deterministic and stochastic models, programming, optimization, networks and simulation.
- 550 **Elementary Statistical Methods 3(3-0). (\*)**  
Sampling techniques, testing of hypotheses, experimental design and analysis of variance and regression as an aid to research in behavior, education and science.
- 560 **Concepts in Elementary School Mathematics (1-3 VAR). (SS)**  
Problems of the curriculum, methods of teaching and evaluation in the elementary school.

- 577 **Concepts in Elementary School Mathematics (1-3 VAR). (\*)**  
Problems of teaching secondary school mathematics; the slow learner, methods, gifted students, evaluation.
- 591 **Special Topics (1-3 VAR). (\*)**
- 595 **Independent Study (1-2 VAR). (\*)**

## MECHANICAL ENGINEERING TECHNOLOGY (MET)

*Professor Greet*  
*Associate Professor Chen, Cobaugh*  
*Assistant Professor Sweet*

The major in mechanical engineering technology leads to the degree of bachelor of science in mechanical engineering technology (BSMET). The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

The mechanical engineering technology degree prepares students to become effective members of an engineering team. It emphasizes the practical applications of scientific and engineering principles to develop industrially oriented personnel with competencies which are needed in technology, design, development and production.

The degree provides graduates with competency-based education in technology as well as in non-technical related areas. Mechanical engineering technologists are employed in most sectors of industry to participate in the growth and advancement of today's complex technology. They are responsible for the design, development and control of modern systems to benefit society.

The Society of Manufacturing Engineers Certification test may be taken before graduation. Satisfactory completion provides MET graduates provisional certification as a manufacturing engineering technologist.

BSMET candidates must complete the minimum program requirements of 134 semester credit hours with not less than a 2.00 cumulative grade-point average in the major area of study. Transfer students must have a minimum cumulative grade-point average of 2.5 for acceptance.

- 103 Machining Technology 3(1-4). (F)**  
Functions, applications, tooling and operation of basic machine tools, including basic layout work, cutting tool geometry, and machining sequences.
- 104 Welding Technology 3(1-4). (S)**  
Welding and cutting processes including arc welding techniques for shielded metal, gas tungsten and gas metal, and oxyacetylene welding, brazing and cutting. Electrode and gas selection, weldability of metals, joint design, welding defects, distortion control and weld testing.
- 105 Materials for Engineering Applications 3(3-0) Prerequisite: CHEM 111. (S)**  
Atomic structure, bonding and arrangement of atoms in materials; behavior and properties of engineering materials including ceramic, polymeric and composite materials. Phase diagrams, microstructure, deformation and recrystallization; transformations and properties-structure relationships.
- 105L Materials Lab 1(0-2) Corequisite: MET 105. (S)**  
Demonstrating material properties and characteristics through experimentation.
- 111 Introduction to Drafting 3(0-6). (F,S)**  
Professional drafting techniques, lettering, line quality, scales and measurements to include metric, geometric constructions, orthographic projections, technical sketching, sectioning, isometric and auxiliary views. GEN.ED.IIIC.
- 112 Computer Aided Drafting 3(1-4) Prerequisite: MET 111. (F,S)**  
A study of dimensioning and tolerancing practices, the completion of a working drawing and the completion of a CAD working drawing.
- 115 Nondestructive Testing I 2(2-0). (\*)**  
Determination of quality without change to the material by using liquid penetrant, magnetic particles, magnetic rubber and leak testing.
- 115L Nondestructive Testing Lab 1(0-2). Corequisite: MET 115. (\*)**  
Conducting nondestructive testing using eddy current, liquid penetrant, magnetic particle, and leak testing.
- 152 Applied Physical Metallurgy 2(2-0). (F)**  
Properties structure, testing of metals. Behavior of metal during heating, cooling and processing. Heat treatment of steel and surface treatment of metals.
- 152L Metallurgy Lab 1(0-2) Corequisite: MET 152. (F)**  
Conducting basic metallurgical experiments and examining metallurgical properties.

- 202 Statics 3(3-0) Prerequisite: MATH 132. Corequisite: PHYS 201. (F)**  
Basic concepts and application of static forces; couples, resultants, equilibrium, trusses, cables, friction, centroids and moments of inertia.
- 203 Manufacturing Processes I 3(3-0) Prerequisite: MET 105. (F)**  
Introduction to the processing of materials into useful products. The selection and processing of metal, plastic and ceramic materials in manufacturing operations.
- 203L Manufacturing Processes I Lab 1(0-2) Corequisite: MET 203. (F)**  
Demonstrating manufacturing processing technologies.
- 204 Manufacturing Processes II 2(2-0) Prerequisite: MET 203. (S)**  
A continuation of MET 203.
- 204L Manufacturing Processes II Lab 1(0-2) Corequisite: MET 204. (S)**  
Manufacturing processing experimentation.
- 206 Strength of Materials 2(2-0) Prerequisite: MET 105, 202. (S)**  
Stress-strain relationships, elastic and plastic; tension, compression, shear, torsion, bending and combined stresses, columns and photoelasticity.
- 206L Strength of Materials Lab 1(0-2) Corequisite : MET 206. (S)**  
Demonstrating the relationships that govern the strength properties of materials.
- 291 Special Topics (1-3 VAR). (\*)**
- 304 Industrial Radiography 2(2-0) Prerequisite: MET 105. (\*)**  
Principles and operations of X-ray and gamma ray sources for radiographic examinations. Development of radiographic techniques using a 250 KV X-ray unit.
- 304L Radiography Lab 1(0-2) Corequisite: MET 304. (\*)**  
Developing X-ray and gamma ray techniques for nondestructive testing.
- 305 Computer Programming and Algorithms 3(3-0) Prerequisite: MATH 132 or equivalent. (F)**  
Special treatment of scientific programming languages and techniques. Languages supported dependent on equipment on hand for topics in robotics, automated drafting, and digital process control machines. Emphasis on man-machine interface.
- 322 Dynamics of Machinery 3(3-0) Prerequisite: MET 202. (F)**  
Fundamentals of kinematics and kinetics of moving parts in machine elements and mechanisms using analytical and graphical techniques. Cam and gear, gear train design and analysis.

- 341 Thermal and Fluid Principles 3(3-0) Prerequisite: PHYS 202 and MATH 232. (S)**  
An introduction to the basic principles of thermal and fluid energy and flow relationships.
- 352 Design of Machine Elements 3(2-0) Prerequisite: MET 206. (F)**  
Fundamental concepts in the correct design of the separate elements which compose machines, application of properties and mechanics of materials modified by practical considerations.
- 352L Machine Elements Lab 1(0-2) Corequisite: MET 352. (F)**  
Completion of machine design projects.
- 356 Basic Design Principles 2(2-0) Prerequisite: junior standing. (S)**  
A study of the progressive stages of investigating, designing, developing, building and testing of a mechanical process or product.
- 361 Computer Integrated Manufacturing 2(2-0) Prerequisite: MET 204. (S)**  
A study of the systematic involvement of computer control in all phases of manufacturing.
- 361L Manufacturing Lab 1(0-2). Corequisite: MET 361. (S)**  
Demonstrating applications of computer technologies in manufacturing.
- 371 CNC Machine Tools 2(2-0) Prerequisite: MET 361. (\*)**  
Principles of numerical control (NC) and computerized numerical control (CNC) machine tool programming and operations.
- 371L CNC Machine Tools Lab 1(0-2) Corequisite: MET 371. (\*)**  
Fabricating parts using a CNC lathe and a CNC milling machine.
- 441 Thermal and Fluid Principles II 2(2-0) Prerequisite MET 341. (F)**  
A study of the controlling factors that influence the design of thermal and fluid systems.
- 441L Thermal and Fluid Principles II Lab 1(0-2) Corequisite: MET 441. (F)**  
Experimenting with thermal and fluid systems.
- 442 Design of Energy Systems 2(2-0) Prerequisite: MET 441. (S)**  
Applied technology topics in the conversion, storage and use of a variety of energy sources.
- 442L Energy Systems Lab 1(0-2) Corequisite: MET 442. (S)**  
Demonstrating a number of energy technology applications.
- 451 Industrial Robotics 2(2-0) Prerequisite: MET 361. (\*)**  
History, basic theory, kinematics, geometry, control and application.
- 451L Robotics Lab 1(0-2) Corequisite: MET 451. (\*)**  
Programming various types of robots to perform different types of tasks.
- 452 Refrigeration and Air-Conditioning 2(2-0) Prerequisite: MET 341. (\*)**  
Concepts and techniques in principles and applications of heating, ventilation and air-conditioning.
- 452L Refrigeration and Air-Conditioning Lab 1(0-2) Corequisite: MET 452. (\*)**  
Using a climate controlled room to measure and observe the various effects of heating, ventilating, and air-conditioning.
- 456 Senior Project 1(1-0) Prerequisite: MET 356. (F)**  
The completion of an individual mechanical engineering technology working project.
- 456L Project Lab 1(0-2) Corequisite: MET 456. (F)**  
Work on senior project involving mechanical, electronic and computer software components.
- 460 Instrumentation and Control Systems 2(2-0) Prerequisites: EET 250. (F)**  
Experimental transducers, methods of laboratory instrumentation, logic circuits and feedback control of experimental processes.
- 460L Instrumentation Lab 1(0-2) Corequisite: MET 460. (F)**  
Electronic experimentation.
- 461 Energy Technology 2(2-0) Prerequisite: junior standing. (\*)**  
Introduction to energy technology and alternative energy sources.
- 461L Energy Technology Lab 1(0-2) Corequisite: MET 461. (\*)**  
Evaluating and testing various alternate energy sources.
- 491 Special Topics (1-3 VAR) Prerequisite: senior standing in MET. (\*)**
- 493 Seminar (1-3 VAR) Prerequisite: senior standing in MET. (\*)**
- 495 Independent Study (1-3 VAR). (F,S,SS)**
- 496 Cooperative Education Placement (1-3 VAR) Prerequisite: permission of department head; junior or senior standing. (F,S,SS)**  
Work experience under the direction of field supervisor and faculty member.

**MILITARY SCIENCE (MILSC)**  
*(Reserves Officers' Training Corps Program)*

Professor Dillon  
 Assistant Professors Althaus, Edens, Mercurio, Wolf  
 Instructors Ellis, Cumberbatch

**The Army ROTC program.** The Army Reserves Officers' Training Corps exists to develop college-educated officers for the active U.S. Army and Reserve components. Producing 75 percent of the commissioned officers in the Army, ROTC prepares men and women for positions of leadership in military or civilian careers. It is specifically designed to provide leadership instruction, a knowledge of the national security structure and an opportunity to gain practical experience in leadership and management techniques. The course of instruction is open to all qualified students and may be taken with no military obligation.

ROTC may be integrated with any academic major and thus may lead to either a bachelor of arts (BA) or a bachelor of science (BS) degree in the major field. Graduates are commissioned as second lieutenants in the Regular Army, the Army Reserve or the National Guard. Completion of one course in each of the following categories is a requirement for commissioning: Military History, Written Communication Skills, Human Behavior, Computer Literacy, and Math Reasoning. Certification of completion of this requirement is at the discretion of the department chair.

The four-year program is divided into two phases—a two-year basic course and a two-year advanced course. The basic course, conducted for freshmen and sophomores, does not obligate students in any way and can be taken in the same manner as any other academic course. Only those cadets who have demonstrated a positive potential for becoming effective officers while successfully completing the basic course are selected for the advanced course. Advanced course cadets attend a six-week summer camp with pay, travel expenses, food and lodging provided.

The two-year program is designed for junior and community college transfer students or those students who have not participated in ROTC during their freshman and sophomore years. Veterans and students who have had the equivalent of the basic course may be granted constructive credit and be selected for the advanced course.

A six-week summer training period (basic camp) conducted after the sophomore year at Fort Knox, Kentucky, substitutes for the first two years of ROTC in the normal four-year program.

All courses are approved by the university and credits are applied as electives toward requirements for graduation. Instruction is designed to develop self-reliance, confidence, initiative, courtesy, and a strong sense of citizenship.

Regularly scheduled leadership labs provide students with actual leadership situations in drill and ceremony, physical, tactical and interpersonal training both on and off campus.

The Simultaneous Membership Program (SMP) is designed to allow students to combine Reserve Forces duty with Army ROTC officer training courses on campus and earn about \$5,000 in two years. To be eligible, a student must:

- 1) Be a member of the National Guard or Army Reserve.
- 2) Pass a qualifying physical examination.
- 3) Be a full-time student with at least two years left before graduation.
- 4) Be accepted by a Guard/Reserve unit into the SMP program.

Once accepted, students will be placed in the advanced course and continue to serve in a Reserve or Guard Unit at a minimum pay grade of E-5. The student will earn regular drill pay plus about \$2,000 in ROTC allowances during his/her two years in the program. SMP will not interfere with other college assistance (GI Bill, etc.) the student may be receiving. Check with the military science department on current Guard/Reserve tuition assistance programs.

The Army ROTC scholarship program is designed to provide financial assistance for the education and training of highly qualified, highly motivated men and women who desire to pursue careers as commissioned officers in the active Army after graduation from college. Scholarship cadets are furnished tuition, fees, books, and subsistence allowance of \$100/month. Two, three and four-year scholarships are available to qualified students.

A minor in military science requires a minimum of 23 hours, of which 19 must be 300/400 level courses. MILSC 101, 102, 201 and 202 are required for the minor, however, MILSC 204 can be substituted in lieu of the above courses.

**101 Adventure Training and Army Systems Introduction 1(1-0). (F)**  
 Adventure training in the form of rappelling; basic knowledge of the US Army, its organizational structure and how it interfaces with civilian governmental agencies.

- 102 Basic Survival Skills 1(1-0). (S)**  
Introduction to basic skills required in the Army environment, appropriate for some civilian endeavors. Includes leadership, rappelling, tactical aircraft control, and others.
- 201 Orienteering 1(1-0). (F)**  
Introduction to map reading skills and techniques. Incorporates training and planning, execution, and leadership skills.
- 202 Basic Mountaineering Techniques 1(1-0). (S)**  
Introduction to mountaineering skills and techniques. Includes planning, leadership and practical application. Skills required by both military and civilian leaders and managers, including survival, leadership, and managerial skills.
- 204 ROTC Basic Camp 4(0-4). (SS)**  
Six-week practical training session providing cadets experience and instruction in basic military subjects. Substitutes for first two ROTC years. Conducted at Fort Knox, Kentucky. Transportation, housing, meals and pay are provided.
- 211 (SPCOM 211) Public Speaking (2-3 VAR). (F,S)**  
Introduction to speaking groups, emphasizing organization, effective support, speaker credibility and audience analysis. Application made through classroom presentations and analysis of models. GEN.ED.IG.
- 301 Leadership and Basic Tactical Theory 3(3-0) Prerequisite: sophomore standing. (F)**  
Fundamentals of leadership and tactical theory are reinforced through practical application during weekly leadership laboratories; application of leadership knowledge and foundation of sound tactical principles in developing and evaluating courses of action in tactical situations.
- 301L Leadership and Basic Tactical Theory Laboratory 1(0-2) Corequisite: MILSC 301. (F)**
- 302 Leadership and Advanced Tactical Theory 3(3-0). (S)**  
Leadership theory and research; emphasis on applicability to the Army leadership phenomenon. Also, theory and practice in preparing and presenting instruction.
- 302L Leadership and Advanced Tactical Theory Laboratory 1(0-2) Prerequisite: MILSC 301. Corequisite: MILSC 302. (S)**
- 304 ROTC Advanced Camp 6(0-6). (SS)**  
Six-week practical training session supplementing on-campus instruction by providing cadets experience and instruction in tactical subjects; emphasis on leadership development. Course is conducted at Fort Lewis, WA. (S/U grades.)

- 310 Principles of Management 3(3-0). (F,S,SS)**  
Decision-making, communication and leadership principles in business and nonprofit organizations.
- 401 (HIST 401) The American Military Experience 3(3-0). (F)**  
Origins and development of the armed forces in American society; six themes: the democratic revolution, the industrial revolution, the managerial revolution, the mechanical revolution, the scientific revolution, and the social revolution. Themes developed in chronological sequence.
- 402 Ethics, Professionalism and Army Management Systems 3(3-0). (S)**  
Analysis and discussion of military leadership theory. Development of management knowledge in such subjects as military law, the Army personnel management system, and professionalism and ethics.
- 402L Ethics, Professionalism and Army Management Systems Laboratory 1(0-2). Corequisite: MILSC 402. (\*)**

### *MUSIC (MUS)*

*Professors Duncan, Strobel, Vorce'*  
*Associate Professors Beck, Kellogg, Muller*  
*Artists-in-Residence Cedrone, Markowski*

The degree in music leads to a bachelor of arts (BA) with emphasis in theory, performance, or music education (K-12). It is accredited by the National Association of Schools of Music.

The performance emphasis includes concentrations in voice, keyboard, string, woodwind, brasswind, guitar, and percussion instruments.

Selected courses and ensembles are open to all students by audition. Facilities include an excellent recital hall and suitably equipped studios and practice rooms.

All music majors must complete a minimum of eight semesters of applied major study, eight semesters of appropriate ensemble, eight semesters of symposium, and a piano proficiency requirement. Ordinarily a student will participate in a major ensemble each semester of residence. Exceptions require departmental approval. Additional rehearsals and performance activities may be required for all ensembles.

In addition to the core requirement, the theory and performance emphasis require MUS 301 and 304 (four hours). The music education emphasis requires additional courses in music and education for certification as required by the Colorado State Board of Education. The music education student must consult with the department chair or appropriate adviser.

Students enrolled in an applied music major must take a jury examination in their elected area at the end of each semester.

Students enrolled in an applied minor must take a jury examination at the discretion of the component instructors involved at the end of each semester.

Students desiring a minor in music are required to consult with the department chair. The minor in music does not lead to teacher certification. Courses required for the minor are MUS 101 and 102; 121 and 122; 244 or 245. In addition, the student must have a minimum of four semester of applied study, four semesters of appropriate ensemble and four semesters of symposium.

#### UNDERGRADUATE COURSES

- 101 Theory I 4(3-2). (F)**  
Fundamentals of musicianship correlating sight-singing, rhythmic reading, keyboard harmony and basic principles of part-writing. GEN.ED.IE.
- 102 Theory I 4(3-2). (S)**  
Continuation of 101.
- 118 Music Appreciation 3(3-0). (F,S,SS)**  
Terms related to music and specific music-listening skills to broaden understanding and appreciation of music as an art. GEN.ED.IE.
- 119 How to Read Music 3(3-0). (F,S)**  
Music notation in its various rhythmical and pitch patterns related to the treble and bass clefs. GEN.ED.IE.
- 120 Jazz and Folk Music 3(3-0). (S)**  
Beginning and development of jazz and folk music in the United States. GEN.ED.IE.
- 121 Survey of Music History I 2(2-0). (F)**  
Historical style periods in western culture from the Middle Ages to 1800. GEN.ED.IE.
- 122 Survey of Music History II 2(2-0). (S)**  
Continuation of MUS 121 from 1800 to present. GEN.ED.IE.
- 126 Introduction to Opera 3(3-0). (S)**  
A survey of operas performed by major opera companies today. GEN.ED.IE.
- 144 Woodwind Class 2(1-2.5). (F)**  
Techniques employed and problems confronted in teaching and playing woodwind instruments.
- 145 Brass Class 2(1-2.5). (S)**  
Techniques employed and the problems confronted in teaching and playing brass instruments.
- 147 Functional Piano Class 1(0-2). (F,S)**  
For students with little or no background in keyboard instruments. Explores the basic fundamentals of piano playing. Additional rehearsals and performance activities may be required.
- 161 Applied Music Major 2(1-6). (F)**  
In-depth study of the performance practices of keyboard, brass, woodwind, percussion or string instrument or voice.
- 162 Applied Music Major 2(1-6). (S)**  
Continuation of 161.
- 163 Applied Music Minor 1(0-5). (F)**  
One-half hour per week private lesson designed for music minors or music majors studying a secondary instrument.
- 164 Applied Music Minor 1(0-5). (S)**  
A continuation of MUS 163.
- 170 Band 1(0-5) Prerequisite: permission of instructor. (F,S)**
- 171 Choir 1(0-3) Prerequisite: permission of instructor. (F,S)**
- 172 Piano Ensemble 1(0-2) Prerequisite: permission of instructor. (F,S)**
- 173 Guitar Ensemble 1(0-2) Prerequisite: permission of instructor. (F,S)**  
Ensemble specializing in the performance of appropriate guitar literature. May be repeated for additional credit. Additional rehearsals and performance activities may be required.
- 174 Orchestra 1(0-2.5) Prerequisite: permission of instructor. (F,S)**  
Ensemble specializing in the performance of appropriate string chamber literature. Additional rehearsals and performance activities may be required.
- 175 Private Lesson 1(0-1). (F,S) Prerequisite: permission of instructor.**  
Applied music study for the non-music major.

- 176 Flute Choir 1(0-2) Prerequisite: permission of instructor. (F,S)**  
Ensemble specializing in the performance of appropriate flute literature. May be repeated for additional credit.
- 182 Lab Band 1(0-2). (S)**  
Required of all music education majors each spring semester of residence. Freshmen string, piano, and voice majors may be excused if they do not play a wind or percussion instrument.
- 185 Symposium 1(1-0). (F,S)**  
Required course for all music majors. Student performance, both solo and ensemble, guest lectures and clinics, faculty lectures and demonstrations and public performance preparation.
- 186 Beginning Guitar Class I 1(0-2) Prerequisite: permission of instructor. (F)**  
For the non-musician. Application of both melodic and chordal (rhythmic) mediums; introduction to the basic folk music of America.
- 187 Beginning Guitar Class II 1(0-2) Prerequisite: MUS 186 or permission of instructor. (S)**  
For the student with slight knowledge of the instrument. Finger-picking techniques and chordal harmonization; chords covering the entire spectrum of the instrument.
- 188 Stage Band 1(0-2) Prerequisite: permission of instructor. (F,S)**  
Open to all regularly enrolled university students by audition. May be repeated for additional credit.
- 189 Brass Choir 1(0-2) Prerequisite: permission of instructor. (F,S)**  
Explores special brass literature from all style periods. May be repeated for additional credit.
- 192 Percussion Ensemble 1(0-2) Prerequisite: permission of instructor. (F,S)**  
Explores unique percussion literature. May be repeated for additional credits.
- 193 Small Ensemble 1(0-2.5). (F,S)**  
For students desiring to perform in a small group other than the major ensemble.
- 201 Theory II 4(3-2) Prerequisite: MUS 102. (F)**  
Analytical techniques stressing style and ear-training.
- 202 Theory II 4(3-2) Prerequisite: MUS 201. (S)**  
Continuation of 201.
- 210 Electronic Music 3(3-0). (F,S)**  
Scientific and aesthetic practices employed in sound recording studio and electronic music. Intensive experience with the Arp and Korg synthesizers is acquired. Several computer music software programs are introduced.
- 241 String Class 2(1-2.5). (F)**  
Techniques employed and problems confronted by the string instrumental teacher.
- 242 Percussion Class 2(1-2.5). (S)**  
Techniques employed and problems confronted in teaching and playing percussion instruments, tuned and untuned.
- 244 Conducting I 2(2-1). (F)**  
Techniques and methods of conducting both vocal and instrumental ensembles.
- 245 Conducting II 2(2-1). (S)**  
Continuation of 244.
- 261 Applied Music Major 2(1-5) Prerequisite: MUS 162. (F)**  
In-depth study of performance practices of keyboard, brass, woodwind, percussion or string instruments.
- 262 Applied Music Major 2(1-5) Prerequisite: MUS 261. (S)**  
Continuation of MUS 261.
- 263 Applied Music Minor 1(0-5). (F)**  
One-half hour per week private lesson designed for music minors or music majors studying a secondary instrument.
- 264 Applied Music Minor 1(0-5). (S)**  
A continuation of MUS 263.
- 275 Beginning Jazz Improvisation 2(2-0). (F)**  
For students with little or no background in performing jazz. Explores the basic fundamentals of playing jazz. May be repeated for lower-division credit.
- 276 Jazz Improvisation I 2(2-0). (S)**  
Continuation of MUS 275. May be repeated for lower-division credit.
- 291 Special Topics (1-3 VAR). (\*)**
- 301 Counterpoint 2(2-0) Prerequisite: MUS 202. (F)**  
Direct approach to 16th Century composition. Writing in two, three, four and more voices.



- 304 Form and Analysis 2(2-0) Prerequisite: MUS 202. (S)**  
Analytical techniques in music from Gregorian Chant to contemporary music.
- 311 Arranging I 2(2-0) Prerequisite: MUS 202. (F)**  
Techniques of scoring for all instrumental combinations.
- 312 Arranging II 2(2-0) Prerequisite 311. (S)**  
Continuation of MUS 311.
- 321 Music from 1700 to 1850 3(3-0) Prerequisite: MUS 122. (F)**  
In-depth study of styles, forms and composers from the late baroque through the romantic era.
- 322 Music from 1850 to the Present 3(3-0) Prerequisite: MUS 321. (S)**  
Post-romanticism and contemporary composition.
- 351 Principles of Music in the Elementary School 1(1-0). (F,SS)**  
A lecture course dealing with the principles and methods of teaching music in the elementary school, for the elementary education major.
- 352 Music in the Elementary School 2(2-0). (S)**  
A course for music education majors in logical steps in developing music skills and music appreciation throughout the elementary grades.
- 361 Applied Music Major 2(1-5) Prerequisite: MUS 262. (F)**  
Continuation of MUS 262 for the junior music student.
- 362 Applied Music Major 2(1-5) Prerequisite: MUS 361. (S)**  
Continuation of 361.
- 363 Applied Music Minor 1(0-5). (F)**  
One-half hour per week private lesson designed for music minors or music majors studying a secondary instrument.
- 364 Applied Music Minor 1(0-5). (S)**  
A continuation of MUS 363.
- 370 Band 1(0-5) Prerequisite: MUS 170 or permission of instructor. (F,S)**  
May be repeated for credit. Upper-division continuation of MUS 170.
- 371 Choir 1(0-3) Prerequisite: MUS 171 or permission of instructor. (F,S)**  
May be repeated for credit. Upper-division continuation of MUS 171.
- 372 Piano Ensemble 1(0-2) Prerequisite: MUS 172 or permission of instructor. (F,S)**  
May be repeated for credit. Upper-division continuation of MUS 172.

- 373 Guitar Ensemble 1(0-2) Prerequisite: MUS 173 or permission of instructor. (F,S)**  
Continuation of MUS 173. May be repeated for additional credit.
- 374 Orchestra 1(0-2.5) Prerequisite: MUS 174 or permission of instructor. (F,S)**  
Ensemble specializing in performance of appropriate string chamber literature. May be repeated for additional credit. Upper division continuation of MUS 174.
- 376 Flute Choir 1(0-2) Prerequisite: MUS 176 or permission of instructor. (F,S)**  
Continuation of MUS 176. May be repeated for additional credit.
- 377 Materials and Techniques of Teaching Music in Public Schools I 3(3-0) Prerequisite MUS 144, 145, 241, 242, 245. (F)**  
Comprehensive study in materials, techniques, methods and problem solving necessary for the teacher of music in the public schools.
- 378 Materials and Techniques of Teaching Music in the Public Schools II 3(3-0). (S)**  
Continuation of MUS 377.
- 383 Percussion Ensemble 1(0-2) Prerequisite: MUS 192 or permission of instructor. (F,S)**  
Continuation of MUS 192. May be repeated for additional credit.
- 385 Symposium 1(1-0). (F,S)**  
Upper-division continuation of MUS 185. Required course for all music majors. Student performance, both solo and ensemble, guest lectures and clinic, faculty lectures and demonstrations and public performance preparation.
- 388 Stage Band 1(0-2) Prerequisite: MUS 188 or permission of instructor. (F,S)**  
Continuation of MUS 188. May be repeated for additional credit.
- 389 Brass Choir 1(0-2) Prerequisite: MUS 189 or permission of instructor. (F,S)**  
Continuation of MUS 189. May be repeated for additional credit.
- 393 Small Ensemble 1(0-5). (F,S)**  
For students desiring to perform in a small group other than the major ensemble.
- 430 Practicum in Music I 2(0-4). (\*)**  
For the advanced music student to practice the teaching of music by assisting in the teaching of applied music groups within the department.

- 431 Practicum in Music II 2(0-4). (\*)**  
Continuation of MUS 430.
- 461 Applied Music Major 2(1-5) Prerequisite: MUS 362. (F)**  
Continuation of MUS 362 for the senior music student.
- 462 Applied Music Major 2(1-5) Prerequisite: MUS 461. (S)**  
Continuation of MUS 461.
- 463 Applied Music Minor 1(0-5). (F)**  
One-half hour per week private lesson designed for music minors or music majors studying a secondary instrument.
- 464 Applied Music Minor 1(0-5). (S)**  
A continuation of MUS 463.
- 475 Symphonic Jazz Ensemble 1(0-3) Prerequisite: permission of instructor. (F,S)**  
Open to all regularly enrolled university students and members of the community by permission. May be repeated for additional credit. Additional rehearsals and performance activities may be required.
- 495 Independent Study (1-4 VAR). (\*)**

## GRADUATE COURSES

- 501 Special Methods in Music Education 2(2-0) Prerequisite: graduate standing. (\*)**  
Combination of lecture and lab appropriate to the project. For graduate students. In-depth study of techniques and materials for teaching music in the elementary and middle school. Involvement in research and practical application of approved methods.
- 593 Seminar 2(2-0) Prerequisite: graduate standing. (\*)**  
Practical application of current music techniques to secondary teaching.

## NURSING (NSG)

*Professor Mutzebaugh*

*Associate Professors Mettler, Sabo, Gilbert, King*

*Assistant Professors Atteberry, Beruman, Wahl*

The major in nursing leads to a bachelor of science in nursing (BSN) degree and prepares the graduate to write the state board licensing examination and to qualify for entry into professional nursing practice. Upon satisfactory completion of the examination, the graduate is prepared to function as a generalist in a variety of settings. The educational program is fully approved by the Colorado Board of Nursing and is accredited by the National League for Nursing.

The curriculum is designed with prerequisite foundation courses at the lower division. Requirements include specified courses in physical, biological and social sciences, humanities and electives. Learning experiences in nursing are conceptually based and include application of the nursing process in complex and diverse situations. Focus is on knowledge and understanding of theory, acquisition of practical skills, decision making and utilization of research in preparation for practice as a professional nurse. The first two nursing courses are offered at the sophomore level, the remaining courses must be completed in a specified sequence in the junior and senior years. All required courses in nursing, science support and academic minor or areas of concentration must be completed with a grade of C or above. Failure to maintain required grades will result in the student being ineligible to continue in the nursing program. Students who are not in continuous enrollment in nursing courses must reapply for admission. Courses in nursing must be repeated within one academic year from the date of unsatisfactory grades. Students have the option of completing either an academic minor or an approved area of concentration.

Admission to the university does not constitute acceptance to the nursing major. Applications for a major in nursing may be obtained in the Office of Admissions. Academic advising for majors must be provided by a nursing faculty member. Requests for advanced placement through transfer of equivalent credit must be submitted in writing to the Department of Nursing. Guidelines and application for obtaining credit through proficiency examination are available from the nursing department prior to date of enrollment.

- 115 Pharmacology in Nursing 3(3-0) Prerequisite: permission of instructor. (F,S)**  
Concepts related to drugs, their mechanism of action, potential dangers, and interaction with other drugs. Approach to broad classifications rather than specific drugs.
- 117 Women, Health and Society 2(2-0). (F,S)**  
Cultural, sociological and medical issues related to the role and status of women in society and the relationship between these norms and health status. Current health practices, sexism and racism in medicine and psychiatric approaches to women in therapy. GEN.ED.IIB.
- 202 Introduction to Health Careers 3(3-0). (F,S)**  
Provides an overview of careers in the health care field. Discusses education and licensing requirements and job opportunities. Focuses on health care as a societal system. Observation in selected careers available.
- 202L Introduction Health Careers Lab 1(0-2). (F,S)**  
Focuses on providing skills necessary for basic safe care of clients.
- 291 Special Topics (1-4 VAR) Prerequisite: permission of instructor. (\*)**  
Topics and/or nursing skills, for enrichment of required nursing courses, and which serve the interest of 10 or more students will be considered.
- 301 Core Concepts in Nursing I 3(3-0) Prerequisites or Corequisites: NSG 202, 202L. (F,S)**  
Provides basic concepts in mental health communications, nursing theories, research, teaching learning, legal, ethical, cultural and professional issues applicable in professional nursing. Major focus on nursing theories, mental health, and nursing process.
- 302 Health Assessment: Life Cycle 3(3-0) Prerequisite: NSG 202, 301. Corequisite: NSG 302L. (F,S)**  
Directs the systematic assessment of healthy individuals of all ages. Focus on health history, use of instruments used in physical examination and developmental screening.
- 302L Health Assessment: Life Cycle Lab 1(0-2). Corequisite: NSG 302. (F,S)**  
Focus on developing skill in doing physical examinations selecting and using the appropriate instruments and materials.
- 304 Core Interventions in Nursing I 2(2-0) Prerequisites: NSG 202, 202L, 301. (F) Corequisite: NSG 304L.**  
Primarily a laboratory course to provide the principles and practice for skills essential to implement nursing process. Includes personal hygiene, body mechanics, medical and surgical asepsis and insertion of tubes.
- 304L Core Interventions I Lab 4(0-8). Corequisite: NSG 304. (F)**  
Focus on development of skill to provide basic nursing care.
- 305 Ethical Issues in Health Care 3(3-0) Prerequisite: permission of instructor. (F,S,SS)**  
Selected theories which influence ethical choice in nursing. Areas of the law and legal systems which affect the public health. Current ethical issues related to nursing practice.
- 306 Introduction to Levels of Prevention 3(3-0) Prerequisite: NSG 202, 202L and 301. (FS)**  
Introduction to levels of prevention and role of the community nurse in the promotion of health. Effects of nutrition lifestyle, activity and habits of the healthy individual throughout the life span are examined.
- 307 Health and Disease Systems 3(3-0) Prerequisite: permission of instructor. (F,S)**  
A theory course enabling application of the life sciences to levels of disease prevention using a systems approach.
- 351 Core Concepts in Nursing II 3(3-0) Prerequisite: NSG 301. (S)**  
Expands on concepts introduced in Core Concepts I. Emphasis is on analysis and planning aspects of nursing process. Introduces beginning research methodology related to professional issues or to concurrent nursing courses.
- 352 Primary and Secondary Prevention in the Childbearing Family 3(3-0) Prerequisites: NSG 301, 302, 304, 306, 307. Corequisite: NSG 352L. (S)**  
Focus is on the application of primary and secondary levels of prevention to the childbearing family. Includes a study of internal and external forces that influence sexuality through the life cycles.
- 352L Primary and Secondary Prevention Lab 3(0-6) Corequisite: NSG 352. (S)**  
Focus on using the nursing process to plan care for the child bearing family and in teaching primary and secondary levels of prevention.

- 354 Core Interventions in Nursing II 2(2-0) Prerequisites: 301, 302, NSG 304/304L, 307. Corequisite: NSG 354L. (F,S)**  
Theory introduces pharmacology as one method of intervention when individual's flexible lines of defense have been penetrated by stressors. Drug classifications related to concurrent nursing courses are studied. Nursing skills include those requiring asepsis.
- 354L Core Interventions II Lab 1(0-2) Corequisite: NSG 354. (F,S)**  
Focus on pharmacology as one method of intervention in client treatment plan.
- 362 Nursing Process in Secondary Prevention 3(3-0). Prerequisites: NSG 301,302,304/304L,306,307. Corequisite: NSG 354/354L, 362L. (F,S)**  
Application of principles of secondary prevention for short-term acute conditions.
- 362L Nursing Process in Secondary Prevention Lab 2(0-4) Prerequisite: NSG 301, 302, 304, 306 and 307. Corequisite: NSG 362. (F,S)**  
Focus on application of nursing principles in planning and treatment of clients with acute or chronic conditions.
- 372 Clinical Practicum I 4(0-8) Prerequisite: NSG 352/352L, 354/354L, 362/362L. (SS)**  
Application of the nursing process in patient care settings. Focus is on assessment, planning and evaluation of care with clients of various ages. Not required of R.N.'s demonstrating proficiency in clinical nursing within the last 5 years.
- 391 Special Topics (1-5 VAR) Prerequisite: permission of instructor. (\*)**
- 401 Core Concepts in Nursing III 2(2-0) Prerequisite: NSG 351. (F)**  
Expands on concepts introduced in Core Concepts in Nursing II. Emphasis is on ethical, legal, and cultural issues in nursing.
- 404 Core Interventions in Nursing III 2(2-0) Prerequisite: NSG 301, 302, 307, 354. Corequisite: NSG 404L (F)**  
Focus on nursing skills utilized in maintaining or restoring the basic physiological structure of individuals. Builds on skills learned in Core Interventions I and II. Continuation of pharmacodynamics and dealing with monitors and machines.
- 404L Core Interventions III Lab 1(0-2). Corequisite: NSG 404. (F)**  
Focus is on care of ill clients, utilizing monitors and machines and pharmacologic interventions.
- 408 Nursing and Psychological Wellness 3(3-0) Prerequisite: NSG 352, 362. Pre- or corequisite: NSG 401, 404/404L. Corequisite NSG 408L. (F)**  
Focus on application of nursing process in maintaining or restoring the basic psychological structure of individuals, families and groups. Stressors that jeopardize the basic structure and the lines of defense as well as resistance that protects the psychological structure are examined.
- 408L Nursing and Psychological Wellness Lab 2(0-4). Corequisite: NSG 408. (F)**  
Focus on the care of the mental health and well-being of the client. The student utilizes the self as a therapeutic model for the client.
- 410 Nursing Process in Secondary and Tertiary Prevention 3(3-0) Prerequisite: NSG 352, 362. Corequisite: NSG 401, 404, 410L. (F)**  
Focus on application of nursing process in maintaining or restoring the basic physiological structure of individuals. Stressors that jeopardize the basic structure and the lines of defense as well as resistance that protects the physiological structure are examined.
- 410L Nursing Process in Secondary and Tertiary Prevention Lab 2(0-4). Prerequisite: NSG 352/352L and 362/362L. Corequisite: NSG 404/404L, 410. (F)**  
Focus on severely ill clients with multiple diagnosis.
- 451 Core Concepts in Nursing IV 3(3-0) Prerequisite: NSG 401. Corequisite: NSG 410/410L. (F)**  
Focus on understanding organization behavior with primary emphasis on developing strategies for leadership and management of health care systems. Included are concepts of leadership, management, collaborative interdisciplinary behaviors, and organizational theory in simple and complex settings.
- 452 Nursing Process in Primary, Secondary and Tertiary Prevention 3(3-0) Prerequisites: NSG 408/408L, 410. Corequisites: NSG 451, 452L (S)**  
Synthesis of nursing knowledge through the application of nursing process to all levels of prevention in complex acute care and rehabilitative settings. Focus is on evaluation of interventions which promote restoration of the integrity of the basic structure.
- 452L Nursing Process in Primary, Secondary and Tertiary Prevention Lab 3(0-6) Corequisite: NSG 452. (S)**  
Focus is on synthesis of nursing knowledge and application of the nursing process to all levels of prevention. Includes evaluation of nursing interventions which promote restoration of health.

**454 Promotion of Health in Individuals, Families, and Groups 2(2-0)**  
**Prerequisites: NSG 352/352L, 408/408L, 410/410L. Corequisite:**  
**NSG 454L. (\*)**

Focus on application of nursing process to complex client systems with a major emphasis on primary and tertiary levels of prevention. Includes concepts of community, large group behavior, health education, epidemiology, chronicity, and referral. Goal is to view members of the community across the life span to facilitate wellness.

**454L Promotion of Health in Individuals, Families, and Groups Lab 2(0-4)**  
**Corequisite: NSG 454 (\*)**

Community health settings where the student is able to focus on application of nursing process to complex family units. Emphasis is on primary tertiary levels of prevention.

**472 Clinical Practicum II 4(0-8) Prerequisite: all junior requirements.**  
**(F,S,SS)**

Intermediate application of the nursing process in patient care settings. Focus is on clients of various ages in complex care settings.

**492 Research 2(2-0) Prerequisite: NSG 351. (\*)**

Major nursing theories in terms of nursing functions they imply, kinds of hypotheses they would generate, and kinds of research they would stimulate. Aspects of the research process, design methods of collecting and analyzing data, and interpretation of data.

**495 Independent Study (1-6 VAR). (\*)**

*GRADUATE COURSES*

**501 Core Concepts V 3(3-0) Prerequisite: BSN or senior honors. (\*)**  
 Analysis of current nursing theories which guide nursing practice, education, administration and research.

**521 Advanced Health and Disease Systems 4(4-0) Prerequisite: BSN or senior honors. (\*)**  
 Examination of pathophysiology and accompanying data assessment of the adult which lead to differential nursing diagnosis and subsequent interventions.

**551 Health Systems Management 3(3-0) Prerequisite: BSN or senior honors. (\*)**  
 Examination of public policy and trends in management, budget and staffing within state and federal guidelines as it relates to nursing.

**PHILOSOPHY**

*Professors Driscoll, Lovin*  
*Associate Professor Aichele*  
*Assistant Professor Nicholl*

The philosophy major leads to the degree of bachelor of arts (BA) and is designed to help students understand and appreciate the great philosophical ideas and movements of the past and present, to see these ideas in relation to their cultural setting, to develop the ability to think, speak, and write in a clear analytical manner, and to begin to formulate a viable philosophy of life. The curriculum is designed to meet the needs of four types of students:

- 1) Those who have no professional interest in philosophy but who wish to make the study of philosophy a part of a general liberal education.
- 2) Those with primary interests in fields related to philosophy (such as politics, law, literature), who wish to use a major in philosophy as preparation for advanced professional or graduate study in schools which approve of philosophy as an undergraduate major field.
- 3) Those with a professional interest in philosophy who wish to do graduate work in the field. (Students wishing to become professional philosophers usually expect to teach in a university setting and should plan for graduate work leading to a doctorate.)
- 4) Those majoring in areas such as nursing, the technologies, business, the arts and sciences, who wish support courses to provide theoretical underpinning for, or to explore practical implications for everyday life of, their major area of study.

The major requires 30 hours of philosophy, including PHIL 100 or 101, 205, 220, 313, 314, 315, 401, 402, and six credits of upper-division electives. Students are encouraged (but not required) to enroll in six credits of history, six credits of literature, and six credits of psychology. In addition, work in the following fields is recommended: art, music, and speech communication/theatre; anthropology, economics, political science, sociology; biology, chemistry, physics and mathematics.

Only one philosophy course with a grade below C will be accepted as credit toward the major or minor.

The minor in philosophy requires 21 credit hours: PHIL 100 or 101; 205; 313, 314, or 315; 401 or 402, and three credits of upper-division electives.

**By action of the Colorado Commission on Higher Education this degree can not be awarded after the 1990-91 academic year.**

#### UNDERGRADUATE COURSES

- 100 Introduction to Plato 3(3-0). (F,S,SS)**  
Introduction to the realm of philosophical thinking through a study of select dialogues by Plato. Special emphasis on "The Republic."  
GEN.ED.IF.
- 101 Introduction to Problems in Philosophy 3(3-0). (F,S,SS)**  
Some of the crucial problems in philosophy, with solutions from the major philosophers. GEN.ED.IF.
- 103 Civilization 1(1-0). (\*)**  
Kenneth Clark's acclaimed film series "Civilization." Thirteen 50-minute films exploring the concept of civilization from the primary viewpoint of the arts and philosophy. GEN.ED.IF.
- 105 Critical Reasoning 3(3-0). (F,S,SS)**  
Survey of the general principles of correct reasoning with emphasis on the role of language in the reasoning process. Major concern with induction and fallacy detection. GEN.ED.IF.
- 108 Philosophy of Religion I 1(1-0). (F,S)**  
A philosophical scrutiny of some of the main concepts of the world's religious traditions through discussion on the thought of outstanding philosophers and theologians with respect to such topics as the existence of God and other supernatural entities, the problem of evil, theodicies, etc. GEN.ED.IF.
- 109 Philosophy of Religion II 1(1-0). (F,S)**  
A philosophical study of some of the main concepts of the world's religious traditions through discussions on the thought of outstanding philosophers and theologians with respect to such topics as life after death, metempsychosis, etc. GEN.ED.IF.
- 110 Philosophy of Religion III 1(1-0). (F,S)**  
A philosophical examination of some of the main concepts of the world's religious traditions through discussions on the thought of outstanding philosophers and theologians with respect to such topics as libertarianism, prescient persons, thaumaturges and thaumatology, etc. GEN.ED.IF.
- 121 Oriental Religions I, India: Hinduism and Buddhism 1(1-0). (F,S)**  
GEN.ED.IF.
- 122 Oriental Religions II, China and Japan: Taoism, Confucianism and Shinto 1(1-0). (F,S)**  
GEN.ED.IF.
- 123 Oriental Religions III, Lesser Asian Religions: Zoroastrianism, Jainism, Islam and Sikhism 1(1-0). (F,S)**  
GEN.ED.IF.
- 205 Deductive Logic 3(3-0). (F,S)**  
Study of the principle methods used to distinguish valid from invalid patterns of deductive reasoning. Especially useful for students in computer or mathematics and related fields. GEN.ED.IF.
- 220 Ethics and Values 3(3-0). (S)**  
Representative ethical theories, competing conceptions of value and obligations, encourage development of an evolving personal value system. GEN.ED.IF.
- 291 Special Topics (1-3 VAR). (F,S)**  
Students who have an area of special interest are encouraged to contact the department. Special topics and/or authors of philosophical interest. May be repeated for 12 credits maximum.
- 303 Philosophy of Science 3(3-0) Prerequisite: PHIL 205 or a strong background in experimental science. (#)**  
Study of the philosophical issues underlying scientific knowledge. Special consideration to the logical structure of scientific theory.
- 305 Medical Ethics 3(3-0). (\*)**  
Current problems of medical ethics such as experimentation on humans, genetic counseling, right to die, abortion, and allopathic medicine.
- 313 History of Philosophy Seminar I 3(3-0). (S)**  
Greek, Latin, and medieval philosophy.
- 314 History of Philosophy Seminar II 3(3-0). (S)**  
Early modern period (Renaissance) in Western philosophy from Hobbes to Hume. Emphasis on the continental rationalists and the British empiricists.
- 315 History of Philosophy Seminar III 3(3-0). (S)**  
Later modern period in philosophy beginning with Kant and continuing to the beginning of the 20th century.
- 401 Epistemology Seminar 3(3-0) Prerequisite: PHIL 205, 313 and 314. (#)**  
Study of the philosophical principles and issues relevant to various claims of knowledge.

**402 Metaphysics Seminar 3(3-0) Prerequisite: PHIL 313 and 314. (\*)**  
Ontology, cosmology, space, time, causality, change, freedom, and other topics of metaphysics.

**491 Special Topics (1-3 VAR). (F,S)**  
Special topics and or authors of philosophical interest. May be repeated for 12 credits maximum. More advanced than PHIL 291. Students who have an area of special interest are encouraged to contact the department.

#### GRADUATE COURSE

**505 Advanced Philosophical Psychology 3(3-0) Prerequisite: graduate standing. (\*)**  
Advanced philosophical study of the concept of mind, of human consciousness, of such mental phenomena as emotions, and of the dynamics of how people think.

### PHYSICS/PHYSICAL SCIENCE (PHYS)

Associate Professors Graham, Spenny  
Assistant Professor Wallin

The major in physics leads to a bachelor of science (BS) degree. In addition, supporting courses and general education courses in physics and physical science are available for students with a wide spectrum of interests, backgrounds and needs. Physics majors must consult with a departmental adviser as early as possible and must file a departmentally approved plan of study by the beginning of the junior year.

Students graduating with a BS in physics must have at least a 2.0 grade-point average in physics courses and no more than four credits in physics with grades of D. Students graduating with a minor in physics must have at least a 2.0 grade-point average in physics. A 2.5 grade-point average in the major area is required for admission to the teacher education program. At least 12 physics credits applied to the major (7 for minor) must be earned at USC with a "C" or better average.

Students must have earned a C or better grade in lower-division prerequisite courses before being admitted to upper-division courses in physics.

The bachelor of science degree in physics is offered with several options:

- I. **Physics/engineering option**  
For students planning to enter positions in industry upon graduation. Courses in engineering and technical electives enhance the utility of the graduate to potential employers. Requirements include 32 or 33 credits in physics (PHYS 221, 221L, 222, 222L, 301, 321, 322, 323, 323L, 341, 342, 431, 492), 32-33 credits in engineering and technical courses, plus supporting courses in mathematics and chemistry.
- II. **Physics option**  
Primarily for students planning graduate study toward a professional career in physics, astronomy or other related fields. Requirements include 39 credits in physics (PHYS 221, 221L, 222, 222L, 301, 321, 322, 323, 323L, 341, 342, 431, 432, 441, 480, 492, 493) plus supporting courses in mathematics (including MATH 338 and at least one course from among MATH 307, 425, 456) and chemistry.
- III. **Physics options in chemical physics, biophysics, geophysics or mathematical physics.**  
Designed to meet specific career objectives for an individual. Requirement include 32 credits in physics and 32 credits in chemistry, biology, geophysics or mathematics, as well as approval by the department.
- IV. **Physics/teaching option**  
Provides students with the knowledge and skills necessary to obtain Colorado Department of Education certification as science teachers. Requirements include 34 credits in physics (PHYS 110, 221, 221L, 222, 222L, 301, 321, 323, 323L, 341, 342, 431, 432, 493), supporting courses in mathematics, geology, biology and chemistry, plus education courses needed for teacher certification.

Under options I, II, III, and IV the recommended sequences of courses presume that the student is ready to begin MATH 126 in the first semester of the freshman year. If not, MATH 124 should be taken in the fall and MATH 126 in the spring of the freshman year concurrently with PHYS 221. Otherwise it may not be possible to complete the requirements for a physics degree within four years. Students, especially transfers, who do not strictly adhere to the plan of study may find that their term of attendance at USC will be extended beyond four years.

## V. Physics/physical science teaching option

Normally a teacher certification program. Requirements include 62 credits in physical science and supporting courses including PHYS 110, 201, 201L, 202, and 202L; GEOL 101, 123, 300 or 313 or 308; CHEM 121, 121L, 122, and 122L; BIOL 121, 162, 191 and 191L; MATH 126 (or 221) and a computer science course; 14 additional credits in one of the physical sciences, CHEM 377, and appropriate courses in education are required for students preparing to teach at the secondary level. Students preparing to teach at the elementary level may use their broad area subject matter preparation to meet this 14-hour requirement.

The physics minor requires 20 credits: PHYS 221/221L, 222, 222L, 323/323L, and at least five credits in physics courses numbered 301 or higher.

The physical science minor requires 24 credits selected from the following courses: PHYS 100, 110, 201/201L, 202/202L, 361; CHEM 111/111L, 112/112L; GEOL 101, 123; CST 102, 105. Other courses may be substituted with the approval of the minor adviser.

## UNDERGRADUATE COURSES

- 100 Physical Science 3(2-2). (F,S)**  
Hands-on approach to developing an understanding of the basic concepts of contemporary physical science. Integrated lecture, lab, discussion periods. GEN.ED.IIIF.
- 110 Elementary Descriptive Astronomy 3(3-0). (F,S)**  
Solar system, including motions of the planets, eclipses, and satellite exploration; classification and evolution of stars; clusters, nebulae, galaxies and the expanding universe. GEN.ED.IIIF.
- 130 Physics for Everybody I: Alternate Energy Sources 1(1-0). (F,S)**  
A five-week, single-topic mini-course designed for students not majoring in science. GEN.ED.IIIF.
- 131 Physics for Everybody II: Lasers 1(1-0). (F,S)**  
A five-week, single-topic mini-course designed for students not majoring in science. GEN.ED.IIIF.
- 132 Physics for Everybody III: Einstein 1(1-0). (F,S)**  
A five-week, single-topic mini-course designed for students not majoring in science. GEN.ED.IIIF.
- 133 Physics for Everybody IV: Nuclear Radiation 1(1-0). (F,S)**  
A minicourse designed for students not majoring in science. GEN.ED.IIIF.
- 134 Physics for Everybody V: Evolution of the Universe 1(1-0). (F,S)**  
A minicourse designed for students not majoring in science. GEN.ED.IIIF.
- 135 Physics for Everybody VI: The Quantum Revolution 1(1-0). (F,S)**  
A minicourse designed for students not majoring in science. GEN.ED.IIIF.
- 201 Principles of Physics I 3(3-0) Prerequisite: MATH 120 or equivalent. Corequisite: PHYS 201L. (F,S)**  
Motion, forces, conservation of energy and momentum, wave motion, sound and heat. For engineering technology, life sciences, and other interested students. GEN.ED.IIIF.
- 201L Principles of Physics I Lab 1(0-2) Corequisite: PHYS 201. (F,S)**  
GEN.ED.IIIF.
- 202 Principles of Physics II 3(3-0) Prerequisite: PHYS 201. Corequisite: PHYS 202L. (F,S)**  
Electrostatics, electromagnetism, light, atomic and nuclear physics. GEN.ED.IIIF.
- 202L Principles of Physics II Lab 1(0-2) Corequisite: PHYS 202. (F,S)**  
GEN.ED.IIIF.
- 221 General Physics I 4(4-0) Prerequisite or Corequisite: MATH 126. Corequisite: PHYS 221L. (S)**  
Newtonian mechanics, including linear and rotational dynamics, momentum, energy, gravitation, fluid mechanics, wave motion and thermodynamics. Uses the calculus and vector notation. For majors in physics, mathematics, geoscience, engineering and chemistry. GEN.ED.IIIF.
- 221L General Physics I Lab 1(0-2) Corequisite: PHYS 221. (S)**  
GEN.E.D.IIIF.
- 222 General Physics II 4(4-0) Prerequisite: PHYS 221. Corequisite: PHYS 221, 222L. (F)**  
Electrostatics, electromagnetism, elementary circuits, electrical oscillations, geometrical optics and the wave aspects of light. GEN.ED.IIIF.
- 222L General Physics II Lab 1(0-2) Corequisite: PHYS 222. (F)**  
GEN.ED.IIIF.
- 291 Special Topics (1-4 VAR). (\*)**



- 301 Theoretical Mechanics 4(4-0) Prerequisite: PHYS 221, MATH 325 and MATH 337. (F,#)**  
Statics and dynamics of particles and rigid bodies. Conservation principles, minimum principles, accelerated coordinate systems, Lagrangian and Hamiltonian methods, vector and matrix methods.
- 321 Thermodynamics 3(3-0) Prerequisite: PHYS 221. (F,#)**  
Introduction to thermodynamic laws and principles, entropy, kinetic theory and statistical mechanics.
- 322 Advanced Laboratory-Heat 1(0-2) Prerequisite or Corequisite: PHYS 321. (F,#)**  
Experiments in heat of combustion, heat transfer, thermal electromotive force, viscosity, and specific heat measurements.
- 323 General Physics III 4(4-0) Prerequisite: PHYS 222/222L and MATH 224. Corequisite: PHYS 323L. (S)**  
Introduction to special relativity, kinetic theory, quantization, wave mechanics, atomic structure, nuclear physics and spectroscopy.
- 323L General Physics III Lab 1(0-2) Corequisite: PHYS 323. (S)**
- 341 Optics 3(3-0) Prerequisite: PHYS 222/222L and MATH 325. (F,#)**  
Geometrical optics, interference, diffraction, polarization of light, optical properties of materials, optical sources including lasers, and holography.
- 342 Advanced Laboratory-Optics 1(0-2) Prerequisite or Corequisite: PHYS 341. (F,#)**  
Experiments in interference, diffraction, absorption, spectral characteristics and polarization of light.
- 361 Physics of Sound 3(3-0) Prerequisite: MATH 120 or equivalent. (F,#)**  
Sound waves, sources of sound, physics of hearing, acoustical measurements. For speech correction majors and other interested students.
- 431 Electricity and Magnetism 4(4-0) Prerequisite: PHYS 222/222L, MATH 325 and 337. (S,#)**  
Mathematical treatment of electrostatics, currents, magnetism, electromagnetic induction, Maxwell's equations and electrodynamics.
- 432 Advanced Laboratory-Electricity and Magnetism 1(0-2) Prerequisite or Corequisite: PHYS 431. (S,#)**  
Experiments in electrostatic constants, magnetic effects, capacitance, thermoelectric effects, magnetic properties, inductance, mutual inductance, and production, propagation and diffraction of microwaves.
- 441 Quantum Mechanics 4(4-0) Prerequisite: PHYS 323/323L, MATH 325 and 337. (S,#)**  
Wave packets, operators, the Schrodinger equation, eigenstates, angular momentum, spin, magnetic moments, Heisenberg formulation.
- 480 Practicum in Laboratory Instruction 1(0-2). (F,S)**  
Participation in laboratory instruction under the guidance of a staff member. May be repeated for a maximum of two credits.
- 491 Special Topics (1-4 VAR). (\*)**
- 492 Research 1(0-2) Prerequisite: eight credits in upper-division physics courses. (F,S)**
- 493 Seminar 1(1-0) Prerequisite: advanced standing with a major or minor in physics. (S,#)**  
Class members report on recently published work or on their own research in physics or applied physics. May be repeated for a maximum of two credits.
- 495 Independent Study (1-2 VAR) Prerequisite: junior or senior standing; permission of department chair. (\*)**

## GRADUATE COURSES

- 531 Electricity and Magnetism 4(4-0) Prerequisite: PHYS 222/222L, MATH 325,327 and graduate standing. (S,#)**  
Mathematical treatment of electrostatics, currents, magnetism, electromagnetic induction, Maxwell's equations and electrodynamics.
- 541 Quantum Mechanics 4(4-0) Prerequisite: PHYS 323/323L, MATH 325, 337 and graduate standing. (S,#)**  
Wave packets, operators, the Schrodinger equation, eigenstates, angular momentum, spin, magnetic moments, Heisenberg formulation.

**POLITICAL SCIENCE (POLSC)**

*Professor Love*  
*Assistant Professor Otis*

The major in political science leads to the bachelor of arts (BA) and bachelor of science (BS) degrees, which prepare undergraduates for careers in law, government and politics. Courses in political science also serve to complement the liberal arts core at USC and to prepare students for entry into graduate programs leading toward professional courses in law or administration or toward specialized academic degrees.

The political science major requires 36 hours approved by the adviser, including POLSC 101, 201 or 202, 210, 370 and 493.

Electives are selected in accordance with one of five basic course orientations in political science: 1) preparation for a career in public service, 2) legal assistant training, 3) political party and interest group activity, 4) graduate school preparation or 5) law school preparation.

The pre-law students and students wishing to receive certification as legal assistants are advised to consult Professor Love.

Depending on their interests and goals, students are encouraged to take one year of foreign language or courses in statistics.

The minor requires 21 hours in political science, including POLSC 101, 201 or 202.

- 100 The Study of Politics 3(3-0). (F,S)**  
Contemporary political-economic systems and the ideologies which support them. GEN.ED.IIC.
- 101 American National Politics 3(3-0). (F,S,SS)**  
Basic processes in American politics. Principles and structure of national government. GEN.ED.IIC.
- 102 State and Local Government and Politics 3(3-0). (S)**  
Behavioral aspects, government organization and interrelationships of state and local politics, relations with federal government and other states. Special attention to Colorado government. GEN.ED.IIC.
- 104 You and the Law 1(1-0). (F,S)**  
A mini-course intended for students who desire to understand the American legal system for purposes of personal utilization. GEN.ED.IIC.

- 150 The Human Experience 3(3-0). (F)**  
Human efforts to organize societal activity and relationships for group development and survival through political, economic, and social institutions. GEN.ED.IIC.
- 185 Research in History 2(2-0). (S)**  
Techniques and skills used in evaluating historical data. GEN.ED.IIC.
- 201 Comparative Politics 3(3-0). (F)**  
Introduction to comparative political analysis through study of selected political systems. Emphasis on basic political function and processes in developed countries. GEN.ED.IIC.
- 202 Politics of Developing Nations 3(3-0). (S)**  
Comparison of basic political features, problems of political development with political implications of socio-economic changes in transitional systems of the non-Western world. GEN.ED.IIC.
- 210 (ANTHR/SW 210) Techniques of Analysis 3(3-0). (F)**  
Introduction to the methods of scientific investigation in the social sciences.
- 250 International Relations 3(3-0). (S)**  
Analysis of international political behavior and organization. Comparison of national power, goals, and politics. GEN.ED.IIC.
- 291 Special Topics (1-3 VAR). (\*)**
- 301 Political Parties and Pressure Groups 3(3-0) Prerequisite: previous work in political science. (F)**  
History, organization and functions of party politics and pressure group activity with special emphasis on American political processes.
- 302 Public Opinion and Elections 3(3-0). (S)**  
Analysis of forces shaping socio-political attitudes. Basic techniques used to measure and manage these attitudes. Expression in voting behavior and patterns.
- 320 Legal Research Methods 2(2-0). (S)**  
Introduction to the basic reference materials of legal research. Use of law libraries, interpretation of statutes and judicial decisions and preparation of legal memoranda.
- 321 American Constitutional Development 3(3-0) Prerequisite: POLSC 101. (F)**  
Political context of the origin of the U.S. Constitution, Supreme Court procedures, court decisions defining uses and scope of the powers of the court, the Congress and the presidency.

- 322 American Constitutional Law 3(3-0) Prerequisite: POLSC 321 or permission of instructor. (S)**  
Survey of American constitutional law in the area of civil rights and liberties; Supreme Court decisions defining the relationship between governmental authority and the rights of liberties of individual citizens.
- 323 Criminal Law and Procedure 3(3-0) Prerequisite: POLSC 101. (S)**  
Content and characteristics of criminal law and procedures. Roles and functions of persons and agencies involved in judicial administration.
- 324 Family Law 3(3-0) Prerequisite: POLSC 101, 320. (S)**  
Survey of legal issues concerning domestic relations; Supreme Court decisions and legislative enactments.
- 330 Introduction to Public Service 3(3-0). (F)**  
Role of public bureaucracy in modern society. Principles and processes of public administration, personnel management and administrative responsibility.
- 340 Public Policy Evaluation 2(2-0) Prerequisite: POLSC 330. (#)**  
Problems of public policy analysis in decision-making processes. Techniques of assessing policy alternatives toward selection of effective governmental programs.
- 350 The American Presidency 3(3-0). (\*)**  
The office, powers and politics of the American presidency, the key institution in American government.
- 360 Urban Government and Politics 2(2-0). (#)**  
Growth of metropolitan areas and their legal status. Municipal politics and organizations as related to contemporary problems in personnel, finance and general welfare areas.
- 370 Political Thought 3(3-0) Prerequisite: previous work in political science or philosophy. (F)**  
Systematic survey of political thought from beginnings in Ancient Near East to present. Emphasis on contributions relevant to contemporary political theory.
- 411 Legislatures and Legislation 3(3-0). (S)**  
Organization, function, and process of American legislatures at national, state and local levels. Party organization, legislative procedures, lobbying and legislative reorganization.
- 421 Public Organization and Management 3(3-0). (#)**  
Functions of public administrators; theory and practical application of management and organization concepts; development skills in analyzing organizational and management systems in public agencies.

- 435 Micropolitics 2(2-0). (#)**  
Application of behavioral methodology to understanding of individual political behavior within government. Impact and modification of attitudes in relation to decision-making processes.
- 461 Political Geography 2(2-0). (\*)**  
Factors affecting the physical basis of national power, constituent elements of the state environment determiners of national policy and relations.
- 473 American Political Thought 2(2-0). (S)**  
Development of American segment of modern political thought from colonial times to present. Interrelationship of individuals, ideas and institutions shaping modern American political responses.
- 480 Practicum in Politics and Public Service (6-12 VAR). (F,S,SS)**  
For advanced students. Practical experience as interns in governmental agencies or political parties or interest groups. Research thesis program on an individual basis.
- 491 Special Topics (1-3 VAR) Prerequisite: junior or senior status with adequate preparation and approval of instructor. (F,S,SS)**  
Independent study involving seminars and research.
- 492 Research (1-3 VAR). (F,S)**
- 493 Seminar (1-3 VAR). (S)**  
Application of research methods and materials. Emphasis on in-depth study of specific political topics. Involves writing and discussion of research papers at advanced level.
- 496 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (F,S)**  
Arrangement between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study. Two placements must occur in academic semesters and one in a summer session for the equivalent of at least 12 months employment. Students must re-enroll each placement term. Twelve credits maximum allowed toward graduation.

## PSYCHOLOGY (PSYCH)

Professors Cameron, Gardner, R. Krinsky, Mo, Post-Gorden, Schnur  
Associate Professors S. Krinsky, Kulkosky, Madrid  
Assistant Professor Hearn

The major in psychology leads to the degrees of bachelor of arts (BA) and bachelor of science (BS). An extensive curriculum allows the student to emphasize a variety of specialties within the field. A modern facility with extensive teaching and research laboratories is available to psychology students. Psychology faculty are actively involved in a variety of research projects and interested students are invited to participate in the research process.

The Psychology building also houses the Student Development Center which offers a variety of psychological services to students. Psychology majors use the facility to gain experience in a wide variety of psychological techniques.

The bachelor's degree program in psychology is designed to prepare students either to enter the workplace or to continue their studies at the graduate level. Although employment opportunities exist with the bachelor's degree, students who seek careers as professional psychologists should seriously consider the appropriate terminal degree in psychology.

The psychology major consists of a minimum of 35 semester credit hours, of which 14 are required and 21 are electives.

A minimum grade of "C" is required for all courses counting toward the major.

Students are encouraged to individualize their psychology major by selecting one of three emphasis areas: educational psychology, mental health, or the biobehavioral emphasis. A faculty adviser will provide the list of courses for the required 14 credit hours. The completed emphasis area will appear on the student's transcript, if requested.

A maximum of six credit hours of PSYCH 295, 495 and/or PSYCH 494 can be applied toward the psychology major.

A minor in psychology requires a minimum of 20 semester credit hours, of which nine hours must be 300- or 400-level courses. PSYCH 101 is required for the minor. Credits in PSYCH 240, 440, 496 and 497 do not count toward the psychology minor. A maximum of three credits in PSYCH 295/495 may count toward the minor if the project undertaken is research-based.

Students wishing to minor in psychology must have a minor adviser.

### UNDERGRADUATE COURSES

- 101 General Psychology I 3(3-0). (F,S,SS)**  
Overview of the field of psychology including learning, perception, motivation, emotion, heredity, personality, development, abnormal and psychotherapy. GEN.ED.IIA.
- 101L General Psychology I Lab 1(0-2) Corequisite: PSYCH 101. (F,S)**  
Laboratory exercises utilizing active student involvement in the topics covered by General Psychology I. GEN.ED.IIA.
- 110 Improving Memory 2(2-0). (F,S,SS)**  
Practical guide to understanding and improving memory. Emphasis on the application of mnemonic techniques for memory improvement. Laboratory exercises designed to increase memory ability. GEN.ED.IIA.
- 120 Understanding Animal Behavior 2(2-0). (S)**  
Basic comparative and ethological perspectives regarding animal behavior. Scientific techniques for field observation of animal behavior are demonstrated on campus with residential wildlife. GEN.ED.IIIA.
- 130 Psychology of Everyday Life 2(2-0). (F,S)**  
Application of psychological principles to everyday experiences. GEN.ED.IIA.
- 151 Introduction to Human Development 3(3-0). (F,S)**  
Survey of human development through life span. GEN.ED.IIA.
- 201 Data Analysis 3(3-0) Prerequisite: PSYCH 101 and MATH 120 or equivalent. (F,S)**  
Descriptive and inferential statistics including t-tests, analysis of variance, regression analysis and chi square.
- 201L Data Analysis Lab 1(2-0) Corequisite: PSYCH 201. (F,S)**
- 205 Sports Psychology 2(2-0). (S)**  
How important psychological constructs such as learning, motivation, personality, arousal and cognition affect performance in sports and athletics.
- 211 Women and Society 3(3-0). (F)**  
Statistical overview of the current status of women, followed by examination of theories concerning equality of the sexes. GEN.ED.IIA.
- 212 Sexism and Racism in America 3(3-0). (S)**  
Dynamics of prejudice and discrimination in terms of sex and race; special attention to analysis of strategies for improving relations. GEN.ED.IIA.

- 220 Drugs and Behavior 2(2-0). (F,S)**  
Use and misuse of drugs; analysis of causes of drug abuse. Different treatment modalities used in cure of drug abuse. GEN.ED.IIA.
- 221 Psychology of Creativity 2(2-0). (\*)**  
Creative behavior from a variety of approaches. Criteria for identifying creative processes and methods for fostering and developing creative behaviors. GEN.ED.IIA.
- 231 Psychology of Family Behavior 2(2-0). (F)**  
A consideration of the unique features of the family at each of the developmental life cycle stages. Special attention will be given to the interaction between family behavior and individual characteristics of its members. GEN.ED.IIA.
- 241 Human Sexuality 2(2-0) Prerequisite: sophomore standing, permission of instructor. (F)**  
Psychological and biological aspects of human sexual behavior.
- 242 Applied Human Learning 2(2-0) Prerequisite: PSYCH 101. (S)**  
Contemporary learning theories including social, behavioral, cognitive, gestalt and hemispheric processing. Application to home, school, business and industry.
- 251 Psychology of Infancy and Childhood 3(3-0) Prerequisite: PSYCH 101, sophomore standing. (F,S)**  
Physical, cognitive, social and emotional growth of the individual from conception through childhood.
- 252 Pre-Adolescent and Adolescent Psychology 3(3-0) Prerequisite: PSYCH 101, sophomore standing. (F,S)**  
Physical, cognitive, social and emotional growth of the individual during transition from childhood to adulthood.
- 253 Psychology of Adulthood and Old Age 3(3-0) Prerequisite: PSYCH 101, sophomore standing. (F,S)**  
Physical, cognitive, social and emotional development, marriage, family and emerging changes in sex roles and special problems associated with old age.
- 291 Special Topics (1-3 VAR) Prerequisite: permission of instructor. (\*)**
- 295 Independent Study (1-3 VAR) Prerequisite: psychology major or minor, prior written permission of instructor of record. (F,S)**
- 296 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (F,S)**  
Arrangements between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study.
- 301 Experimental Psychology 3(3-0) Prerequisite: PSYCH 101, and 201. Corequisite: PSYCH 333L. (F,S)**  
Introduction to methods of data collection behavioral measurement method. Relation between theory and data research design, statistical analysis and experimental procedures.
- 301L Experimental Psychology Lab 1(0-2) Corequisite: PSYCH 301. (F,S)**
- 311 Theories of Personality 3(3-0) Prerequisite: PSYCH 101. (F,S)**  
Major theories of personality and the methods of personality investigation.
- 314 Environmental Psychology 3(3-0) Prerequisite: PSYCH 101. (#)**  
Environmental psychology focuses on the influence of the physical and social environment on the individual. Variables considered include architecture, city size, noise, pollution and allocation of resources.
- 315 Organizational and Administrative Psychology 3(3-0). (S) Prerequisite: PSYCH 101. (S)**  
Application of psychological principles and methods of selection, placement evaluation, and motivation of personnel to work and to problems of human relations in business and industry.
- 331 Physiological Psychology 3(3-0) Prerequisite: PSYCH 101, or BIOL 203, 204, or permission of instructor. Corequisite: PSYCH 331L. (F)**  
Structure and function of the brain, nervous and endocrine systems; biological basis of sensation, perception, sleep and arousal, motivation, learning and memory, and drug action.
- 331L Physiological Psychology Lab 1(0-2) Corequisite: PSYCH 331. (F)**
- 334 Perception 3(3-0) Prerequisite: PSYCH 101, or permission of instructor. Corequisite: PSYCH 334L. (S)**  
The senses and how they cooperate with the brain to provide awareness and knowledge of the world about us. Empirical findings and theoretical analysis of the processes of seeing, hearing, tasting, smelling and touching. Role of learning in normal and illusory perception is considered.

- 334L Perception Lab 1(0-2) Corequisite: PSYCH 334. (S)**  
Laboratory course to accompany PSYCH 334.
- 335 Motivation 3(3-0) Prerequisite: PSYCH 101. Corequisite: PSYCH 335L or permission of instructor. (S)**  
Goal-directed behavior, survey of biosocial approaches to motivation. Behavioral cognitive and biological perspectives applied to eating, sexual behavior, aggression, affection and affiliation, obedience, achievement and cooperation.
- 335L Motivation Lab 1(0-2) Corequisite: PSYCH 335. (S)**  
Laboratory course to accompany PSYCH 335.
- 336 Learning 3(3-0) Prerequisite: PSYCH 101. Corequisite: PSYCH 336L or permission of instructor. (#)**  
Principles of learning and memory. Empirical findings and theoretical analyses of diverse topics: including conditioning, reinforcement and punishment. Laboratory research and application.
- 336L Learning Lab I 1(0-2) Corequisite: PSYCH 336. (#)**
- 337 Memory and Cognition 3(3-0) Prerequisite: PSYCH 101. (F)**  
Theory and research on current topics in cognition, including attention, concept formation, imagery, memory, decision making, language acquisition, problem solving and text comprehension.
- 337L Memory and Cognition Lab 1(0-2). (F)**
- 350 The Disabled Minority Child 3(3-0) Prerequisite: PSYCH 101. (F)**  
Theory and research on current topics relating to the problems of the disabled-minority child.
- 351 Psychology of the Exceptional Individual 3(3-0) Prerequisite: PSYCH 101. (F,S,SS)**  
Survey of characteristics of those individuals considered significantly above or below the norm of the population. Emphasis on behavioral identification and modification of the home, school and social environment.
- 352 Social Psychology 3(3-0) Prerequisite: PSYCH 101, or permission of instructor. (F,S,SS)**  
General and applied psychological principles of the person's interaction with the group.
- 362 Introduction to Psychopathology 3(3-0). (F,S,SS)**  
Etiology, diagnosis and therapy of maladaptive or abnormal behaviors and mental functioning.
- 381 Principles of Psychological Testing I 4(4-0) Prerequisite: PSYCH 101,201. (F)**  
Theories and principles of psychological testing are applied to the selection, use and evaluation of available tests.
- 401 History and Systems of Psychology 3(3-0) Prerequisite: PSYCH 101. (S)**  
Influences that made contemporary psychology possible.
- 410 Advanced Data Analysis 3(3-0) Prerequisite: PSYCH 201/201L. (#)**  
Advanced techniques in data analysis, including analysis of variance/covariance, post-hoc tests, multiple regress and nonparametric tests. Use of computer software programs will be stressed.
- 463 Psychopathology of Childhood 3(3-0) Prerequisite: PSYCH 101, 362 or equivalent. (F)**  
A survey of the unique conceptual models of etiology, assessment and therapy appropriate to the study of the psychological disorders of childhood.
- 464 Systems of Counseling and Psychotherapy 3(3-0) Prerequisite: PSYCH 101,311. Corequisite: PSYCH 464L, or permission of instructor. (F)**  
Traditional and contemporary theories of counseling and psychotherapy through use of case studies and other selected materials.
- 464L Systems of Counseling and Psychotherapy Lab 1(0-2) Corequisite: PSYCH 464. (F)**
- 465 Behavior Modification 3(3-0) Prerequisite: PSYCH 101. (S)**  
Advanced methods and techniques of behavior modification in clinical psychology as practiced in various agencies and institutions.
- 466 Psychology of Biofeedback 3(3-0) Prerequisite: PSYCH 101. (F)**  
Psychophysiological aspects in biofeedback. Theoretical and applied instrumentation and clinical use. Project and field work required.
- 471 Clinical Psychology 3(3-0) Prerequisite: PSYCH 101,311,331,362,381,464. (F)**  
Survey of clinical psychology as a profession. Training requirements, opportunities, future directions, current research and ethical problems.
- 475 Group Process 3(3-0) Prerequisite: PSYCH 464/464L. (S)**  
Study and practice of basic group theory and approaches as they are applied in a mental health setting. Basic group therapeutic techniques and procedures will be demonstrated in an experiential setting.

- 484 Diagnosis and Assessment 3(3-0) Prerequisite: PSYCH 101, 381, permission of instructor. (#)**  
Continuation of PSYCH 381. A survey of major psychological assessment and diagnostic techniques including interviewing strategies. Intelligence and personality tests as well as clinical instruments and procedures will be utilized in a case study approach.
- 491 Special Topics (1-3 VAR) Prerequisite: permission of instructor. (SS)**
- 493 Seminar (1-3 VAR) Prerequisite: PSYCH 101, senior standing, psychology major or permission of instructor. (\*)**  
Discussion and synthesis of psychological issues important to psychology majors including graduate education and cross-discipline.
- 494 Field Experience (4-12 VAR) Prerequisite: PSYCH 101, prior written permission of instructor of record. (F,S)**  
In depth, on-the-job experience in psychology, individually designed. Ability to use psychological tests recommended.
- 495 Independent Study (1-3 VAR) Prerequisite: PSYCH 101, psychology major, prior written permission of instructor of record. (F,S)**
- 496 Cooperative Education Placement (1-4 VAR) Prerequisite: PSYCH 101, permission of instructor. (F,S)**  
Arrangement between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study. Two placements must occur in academic semesters and one in a summer session for the equivalent of at least 12 months employment. The student must re-enroll each placement term. 12 credits maximum allowed toward graduation.

*GRADUATE COURSES*

- 515 Psychology of Minorities 3(3-0). (F,S)**  
Designed to provide a systematic analysis of the forces that shape the behavior of minorities and consequent counseling methods with this population.
- 524 Philosophy and Theories of Counseling 3(3-0). (#)**  
Designed to acquaint students with the range of theories currently directing the work of the counselor and to facilitate the development of a personal model of counseling. Personal professional ethics emerge as a major course focus.
- 525 Tools and Techniques of Guidance Services 3(3-0). (F,S)**  
Open to graduate students in the secondary school counseling program. A study of materials and methods used in secondary schools and of the counselor as a consultant and coordinator. The importance and role of the secondary school counselor will be the focus of this class.
- 526 Organizational Development 3(3-0). (F,S)**  
Designed to provide the graduate student with experience and skills necessary to improve programs and organization.
- 527 Group Counseling 3(3-0). (F,S)**  
Leads to an understanding of the function of group methods in the guidance program and assists the student in developing group facilitation skills.
- 528 Career Development 3(3-0). (F,S)**  
Designed to help students gain insight and understanding of the development process of occupational decision. Explores career counseling provided by counselors for clients in the areas of future education and in the world of work.
- 532 Child and Adolescent Psychology 3(3-0). (#)**  
Leads to a broad understanding of the impact of external influences on a person from conception through adolescence. Format includes exploration of topics of interest, discussion of research and active class participation.
- 535 Behavior Therapy 3(3-0). (F,S)**  
A study of the various factors precipitating disruptive behavior in the classroom both from the standpoint of individual psychological patterns and conditions extrinsic to the individual student.
- 536 Practicum 3(3-0). (F,S)**  
Designed to provide the beginning counseling student with basic interpersonal training experience. Individual and group contact focuses on personal growth and skill development.
- 538 Elementary Counseling 3(3-0). (F,S)**  
Designed to provide methods and techniques for elementary school counselors.
- 563 Psychopathology of Childhood 3(3-0) Prerequisite: graduate standing, permission of instructor and PSYCH 362 or equivalent. (#)**  
Unique conceptual models of etiology, assessment, and therapy appropriate to psychological disorders of childhood. Graduate students complete an independent project and consider treatment and management techniques.

**592 Research 2(2-0). (F)**

Designed to assist students with the knowledge and skills necessary as a consumer of research. The fundamentals of research procedure and analysis of statistics stressed.

**598 Internship 3(0-3). (F)**

Designed to provide the student with actual field work experience in counseling and guidance.

**READING (RDG)**

The minor in reading is available for students pursuing teacher certification in elementary or secondary education.

**UNDERGRADUATE COURSES****301 Reading and Language Arts in the Elementary School 3(3-0). (F,S)**

Foundations of reading and language arts including psychology of reading, oral language development, reading readiness, word attack, comprehension strategies, vocabulary handwriting, spelling, written and oral language skills.

**310 Current Approaches to Reading and Writing Instruction 3(3-0) Prerequisite: RDG 301 or 425. (SS)**

Various approaches in teaching reading including research finding and classroom application, basal readers, phonics, centers, psycholinguistics, and technology.

**360 Practicum (1-3 VAR) Prerequisite: RDG 301 or 425 and initial testing in basic competencies. (F,S)**

Work under a reading teacher in the public school preparing materials, lessons and working with small groups and individual pupils. Applies to both elementary and secondary schools depending upon the instructor's assignment.

**425 Teaching Reading in Content Areas 2(2-0). (F,S)**

Reading skills, strategies and activities to improve comprehension of textual material in mathematics, science, literature, social sciences, industrial arts and other subjects.

**431 Developing Creative Centers 1(1-0) Prerequisite: RDG 301 or 425. (SS)**

Involves planning, developing and implementing the use of creative learning centers in the classroom. In addition to presentations on uses of centers to individualize instruction; students will develop centers, record-keeping and scheduling systems.

**436 New Directions in Reading Comprehension 2(2-0) Prerequisite: RDG 301 or 425. (F,SS)**

Exploration of and simulations of research-based strategies to increase students comprehension of reading in elementary and secondary classes.

**437 Newspapers as a Teaching Resource 1(1-0). (S,SS)**

Strategies and procedures for using the newspaper as a supplementary resource in content area classrooms at all grade levels (K-12).

**442 Reading Across Cultures 2(2-0) Prerequisite: RDG 301. (S)**

Techniques of adapting reading instruction for the linguistically and culturally different child. Problems of many minority groups are analyzed.

**450 Diagnosis and Remediation of Reading Problems 3(2-3). Prerequisite: RDG 301 or 425. (F,S)**

Diagnostic and evaluation procedures used in reading techniques for remediation of problems and individualized instruction. Appropriate for elementary and secondary teachers. Field experience required.

**491 Special Topics (1-2 VAR). (\*)****495 Independent Study (1-2 VAR). (F,S)**

Individual projects and problem-solving experiences designed to meet students' special needs. With instructor's permission, certain program requirements may be completed through independent study.

**GRADUATE COURSES****510 Foundations of Reading Instruction 3(3-0) Prerequisite: graduate standing. (\*)**

Basic course for other graduate reading courses, including reading skills, sequence, materials, psychology of reading and relationship to other language arts.

**525 Teaching Reading in the Content Area 2(2-0) Prerequisite: graduate standing. (F,S)**

Reading skills specifically used in mathematics, science, social studies and literature, including specific techniques for teaching.



- 531 Developing Creative Centers 1(1-0) Prerequisite: graduate standing. (SS)**  
Students will investigate various types of learning centers and means of successful implementation in the classroom. Development of materials, lesson plans and record-keeping systems which will result in a complete reading center. Investigation into research on effectiveness of learning centers.
- 536 New Directions in Reading Comprehension 2(2-0) Prerequisite: graduate standing. (F,SS)**  
Current research-based theory and practical classroom strategies and procedures for increasing comprehension of reading in elementary and secondary content area. Emphasis on open-ended higher order thinking skills.
- 537 Newspapers as a Teaching Resource 1(1-0) Prerequisite: graduate standing. (S,SS)**  
Strategies and procedures for using the newspaper as a supplementary resource in content area classrooms at all grade levels (K-12).
- 542 Reading Across Cultures 2(2-0) Prerequisite: graduate standing. (F,S)**  
Problems and solutions in reading instruction for the linguistically or culturally different child.
- 550 Diagnosis and Remediation of Reading Problems 3(2-3) Prerequisite: a beginning reading course, graduate standing, and teacher certification or initial testing in basic competencies. (F,S)**  
Formal and informal diagnostic procedures for the classroom teacher including standardized testing, informal inventories, cloze, criterion-referenced testing and Reading Miscue Inventory. Prescriptions based on diagnosis; remediation strategies applied by students.
- 552 Psycholinguistic Views of Reading: Process to Practice 2(1-3) Prerequisite: beginning course in reading, graduate standing, and teacher certification or initial testing in basic competencies. (\*)**  
Introduction to psycholinguistic perspectives through analysis of oral reading errors. Reading Miscue Manual as an instrument for investigating reader's strengths and weaknesses. Strategies for remediating poor quality miscues.

- 560 Practicum 2(0-6) Prerequisite: RDG 301 or 425, graduate standing, and teacher certification or initial testing in basic competencies. (F,S)**

Work under a reading teacher in public schools preparing materials, lessons and working with small groups and individual pupils. Applies to both elementary and secondary schools depending on the instructor's assignment.

- 591 Special Topics (1-2 VAR) Prerequisite: graduate standing. (\*)**  
**595 Independent Study 1(0-2) Prerequisite: graduate standing. (F,S)**

## RECREATION (REC)

*Professor Aguilar*  
*Assistant Professors Banks, McIntosh*

The major in recreation leads to the bachelor of science (BS) degree and prepares students for positions of leadership in a variety of service agencies. Prospective employers include parks and recreation departments at the city, county, district and state levels as well as voluntary youth agencies such as the YWCA, boys' and girls' clubs and scouting. Additional areas of employment include military recreation (formerly Special Services); hospital recreation; commercial, industrial or employee recreation or outdoor recreation and camping.

Many recreation majors use extensive interdisciplinary studies to prepare for work in specialty areas such as human services and recreation for the physically or mentally disabled youth adolescents and the elderly. Others prepare for program areas such as sports and athletics, social and cultural recreation programming, arts and crafts or other emphases.

A minimum of 54 credits is required for the BS in recreation, 32 of which are included in the recreation core. In addition to the core, each student must select a minimum of six credits from allied courses and credits from the methods courses. These courses are used to direct the student toward the area of specialization selected, and may be taken only upon approval of the department chair.

Allied courses (six credits) must be chosen from:  
ACCTG 201, 202; BIOL 101, 121; MACOM 201; MGMT 310, 318; POLSC 330; PSYCH 251, 252, 253, 351, 352; SOC 154, 155; SPCOM 211, 221.

Methods Courses (16 credits) must be chosen from: ART 118; HP 116L, 117L, 232, 243, 244, 245, 246, 247, 248, 322, 471-483; IST 202; MUS 118, 119; SPCOM 111, 131, 312.

A recreation minor requires 21 credit hours; HP 461; REC 340, 350, 389, 481 and 493. The other six hours are emphasis courses which must be approved by the adviser.

- 340 Principles of Community Recreation Programming 2(2-0). (S)**  
Rationale supporting and methods of conducting recreation programs in a wide variety of public, private, voluntary and commercial recreation agencies.
- 350 Leadership and Supervision in Recreation 2(2-0). (S)**  
Leadership and supervisory functions in professional recreation service, including program leadership techniques, facility use, safety and maintenance, in-service training, staffing, publicity and other considerations relating to various populations and agencies.
- 389 Practicum in Recreation 3(0-3) Prerequisite: permission of director of recreation program. (F,S,SS)**  
Minimum of 150 hours of practical experience in a selected recreation agency.
- 480 Recreation for Special Populations 3(3-0). (F)**  
Community recreation and leisure services for the physical or mentally disabled and the elderly.
- 481 Outdoor Recreation 3(2-1). (F)**  
Lecture and practical outdoor experience relating to problems, trends in outdoor recreation and camping.
- 482 Recreation Management 3(3-0). (F)**  
Administration and management considerations in public and voluntary recreation and leisure-oriented agencies. Contemporary issues in budget and personnel management, employee relations, management style and theory, public relations and government legislation impacting on the leisure field.
- 493 Seminar 1(1-0). (S)**  
Student-led discussions on contemporary problems and issues in leisure/recreation. Preparation for entry into the profession; interview preparation and resume construction.
- 498 Internship 9(0-9) Prerequisite: permission of department chair. (F,S,SS)**  
400 hours of supervised, full-time experience in a selected recreation agency. Management/supervision level experience expected. (S/U grades.)

### RUSSIAN (RUS)

- 101 Introduction to Russian I 3(3-0). (F)**  
Pronunciation, conversation, grammar. Alphabet, easy reading and writing.  
GEN.ED.IB.
- 102 Introduction to Russian II 3(3-0) Prerequisite: RUS 101 or equivalent. (S)**  
GEN.ED.IB.
- 201 Intermediate Russian I 5(5-0) Prerequisite: RUS 102 or equivalent. (\*)**  
Grammar and vocabulary. Reading of short stories, oral and written reports.
- 202 Intermediate Russian II 5(5-0) Prerequisite: RUS 201 or equivalent. (\*)**
- 211 Russian Conversation 2(2-0) Prerequisite: RUS 102 or equivalent. (\*)**  
Intensive practice.
- 311 Advanced Russian Conversation 2(2-0) Prerequisite: RUS 211 or permission of instructor. (\*)**  
Intensive practice.
- 341 Russian Short Story 2(2-0) Prerequisite: RUS 202 or permission of instructor. (\*)**  
Selected short stories. Discussion of ideas, art and authors. Stress on both oral and written work.

### SOCIAL SCIENCE (SOCSC)

#### Professor Eagan

The interdisciplinary major in social science leads to a bachelor of arts (BA) or a bachelor of science (BS) degree.

Social scientists study people and social institutions, especially the relationships and impacts they have with and on each other. Their research provides insights that help in understanding the ways in which individuals and groups make decisions, exercise power or respond to change. Social scientists gather and analyze data, interpret it and make it meaningful and useful for application in dealing with human problems.

Employment has traditionally been in the academic area; however, as the economy changes to a service (from an industrial) oriented system, a greater need for "people-oriented" specialists is developing. Job opportunities in applied fields include areas such as program administration, and evaluation and research in both the public and private sectors. Related careers are teaching, planning, law, archives, museology and mass communications.

The major in social science requires 50 semester credits. The student has a choice of five optional tracks within the major: general major; international relations; public administration; or elementary, middle-secondary teaching. Within each track the requirements differ, making close consultation with the adviser necessary.

Each track in the major has a social science core which is supplemented by a specialty core. These cores vary in course and credit-hour requirements within each track. Subject areas within the major include: anthropology, economics, geography, history, political science, psychology, social science and sociology.

The student must contact the adviser to determine the most suitable track within the major. No grade below C is acceptable; either the course must be repeated or the student must take additional hours assigned by the faculty adviser after consultation.

A 2.50 grade-point average in the major is required for student teaching. The faculty adviser will provide program guidance in the selection of general education courses.

The minor consists of work in four of the subject disciplines listed in the major and requires 25 semester hours.

#### UNDERGRADUATE COURSES

- 111 Career Orientation 1(1-0). (F,S)**  
Current trends and developments in professional career fields. Provides students with a knowledge of job opportunities in modern occupational categories.
- 151 Society and Technology 3(3-0). (F,S)**  
Role of technology as prime factor in changing social and political institutions. Addresses technology as the systematic application of organized knowledge and material tools to the extension of human faculties. GEN.ED.IIB.
- 208 Afro-American Heritage 3(3-0). (F)**  
Analysis of black cultural experiences from African origins and civilization to the present. GEN.ED.IIB.

- 209 Blacks in America Today 2(2-0). (S)**  
Analysis of blacks in today's milieu including problem areas and contemporary issues. GEN.ED.IIB.
- 231 Contemporary Affairs 2(2-0). (#)**  
Current problems in world and national affairs for the purpose of developing habits in, and perspectives on current events. GEN.ED.IIB.
- 377 Teaching Social Studies in Secondary Schools 2(2-0). (F)**  
Curriculum, materials, and techniques for teaching social studies in junior and senior high schools.
- 416 Revolutions 2(2-0). (#)**  
General historic development of revolutions; emphasis on one major revolutionary movement in world history.
- 493 Seminar 2(2-0). (\*)**  
Various problems within the realm of social science utilizing an integrated approach. For majors in broad area social science disciplines.

#### GRADUATE COURSES

- 501 Technology Assessment 3(3-0) Prerequisite: graduate standing. (\*)**  
An evaluation of the impact of technology on society and the implications of technological development on individuals, groups, societies, countries and governments.
- 502 Technology Forecasting 3(3-0) Prerequisite: graduate standing. (\*)**  
Study of processes involved with forecasting technological growth and need. Quantitative and qualitative procedures and processes. Assumptive reasoning and logical pitfalls. Study of case histories. Term project.
- 516 Revolutions 2(2-0) Prerequisite: graduate standing. (\*)**  
General historic development of revolutions; emphasis on one major revolutionary movement in world history.
- 593 Seminar 2(2-0) Prerequisite: graduate standing. (\*)**  
Various problems within the realm of social science, utilizing an integrated approach. For majors in broad area social science disciplines.

**SOCIAL WORK (SW)***Associate Professors Baca, Means, Solis*

The major in social work leads to the bachelor of social work (BSW) degree. The degree program is accredited by the Accreditation Commission of the Council on Social Work Education.

The primary educational objective of this major is the preparation for beginning professional social work practice with a generalists perspective. In addition, the major serves broad educational purposes based on an understanding of contemporary social welfare programs and prepares students for professional social work education at the graduate level. The major prepares for immediate employment in those social work positions which do not require professional social work education at the graduate level.

Social work students are required to meet with a faculty adviser in the social work program every semester. Social work courses have prerequisites and must be taken in the sequence indicated unless specifically approved by the adviser; permission of the faculty is required prior to enrollment in 300- or 400-level courses.

The social work major consists of 55 credit hours of social work courses and 18 hours of non-social work course requirements. The required major courses include SW 100, 201, 202, 205, 210, 222, 320, 322, 350, 323, 324, 420, 460, 481, 482, 488, and 489. Required non-social work courses include CS 101; SOC 101; PSYCH 101; SOC or PSYCH 352, PSYCH 211 or another approved women's study course approved by the adviser, and BIOL 221 or another human biology course approved by the adviser.

The field placement courses (SW 488, 489), taken in the senior year, consist of 16 hours per week for two semesters of practicum experience in a community social welfare agency working under the direct supervision of an MSW social worker. This field experience can be in such areas as child welfare, mental health, health, corrections, aged, alcoholism, and others.

Students must earn a grade of C or better in all required social work courses.

**100 Introduction to Social Welfare 3(3-0). (F,S)**

Exploration to social welfare as a basic institution in contemporary society. Introduction to the field of social work, the roles, professional skills and philosophy of practice. GEN.ED.IIC.

**201 Human Behavior and Social Environment I 3(3-0). Prerequisite: SOC 101; PSYCH 101 and an approved human biology course. (F,S)**

Focus on the person in the environment, with an examination of the interrelationship of the psychological biological, socialcultural systems and their impact on social functioning. Introduction to system theory as an organizing framework. GEN. ED. IIC.

**202 Human Behavior and Social Environment II 3(3-0). Prerequisite: SW 201. (S)**

Focus on an understanding and analysis of larger social systems which include the family, groups, communities and organizations. Emphasis on social systems approach as an organizing theoretical framework for understanding social functioning and change.

**205 Social Welfare in the United States 3(3-0). Prerequisite: SW 100. (S)**

Examines the historical development of social welfare and social work. Emphasis on social values and structures as they affect inequity and economic security in America.

**210 (ANTHR/POLSC/SOC 210) Techniques of Analysis 3(3-0). (F,S)**

Introduction to the methods of scientific investigation in the social sciences.

**222 Social Work Practice 3(3-0). (S)**

Foundation course for the social work major; presentation of basic elements of generic professional practice. Specific attention is given to professional values, interviewing skills, relationship building, and communication skill development

**290 Special Projects (1-5 VAR). Prerequisite: permission of instructor. (F,S)****320 Emergence and Counseling of Minorities 3(3-0). Prerequisite: SW 100, 201, 202. (F)**

Process of emergence of ethnic and minority groups in the United States. Identification of the needs of ethnic minority clients and the particular skills required of social work practitioners.

**322 Social Work Intervention I 3(3-0). Prerequisite: SW 100, 201, 202. (F)**

Elements of generalist social work practice with a focus on individuals. Assessment, intervention, and evaluation skill development, and practice is emphasized.

**323 Social Work Intervention II 3(3-0). Prerequisite: SW 322. (S)**

Practice methods of social group work in various fields and settings, relationship to small group structures and processes, leadership functions, interpersonal relationships.

- 324 Social Work Intervention III 3(3-0). Prerequisite: SW 322. (S)**  
Nature and scope of social work intervention at the community level; distinctive characteristics of the community as a social system and implications for practice.
- 350 Social Welfare Policy and Program Evaluation 3(3-0). Prerequisite: SW 100, 205. (F)**  
Nature of social policy; process of policy formulation; factors influencing choice of social objectives within goals and values of social work profession.
- 420 Social Work Theory 3(3-0). Prerequisite: program permission. (S)**  
An interdisciplinary, comparative, and critical approach to explanatory theories of human behavior, especially as they relate to the helping process in social work practice.
- 460 Social Work Seminar 3(3-0). Prerequisite: program permission. (F)**  
An examination of selected fields of social work practice. Focus on knowledge and skills needed to effectively practice in these settings.
- 481 Field Seminar I 3(3-0). Corequisite: SW 488. (F)**  
Taken in conjunction with agency field placement to integrate practice and theory.
- 482 Field Seminar II 3(3-0). Corequisite: SW 489. (S,SS)**  
Taken in conjunction with agency field placement to integrate practice and theory.
- 488 Field Placement I 5(0-16). Corequisite: SW 481. (F)**  
Students spend 16 hours per week in practice field assignments in selected social work agencies or settings under the direct supervision of a professional social worker.
- 489 Field Placement II 5(0-16). Corequisite: SW 482. (S,SS)**  
Students spend 16 hours per week in practice field assignments in selected social work agencies or settings under the direct supervision of a professional social worker.
- 490 Special Projects (1-5 VAR). Prerequisite: SW 101, 102; social work major, prior written permission of instructor of record. (F,S)**
- 491 Special Topics (1-3 VAR). (F,S)**
- 495 Independent Study (1-3 VAR). Prerequisite: permission of instructor. (F,S)**

**SOCIOLOGY (SOC)**

*Professor Keller*  
*Associate Professors Hughes, Wright*  
*Assistant Professor Green*

The major in sociology leads to the bachelor of arts (BA) or bachelor of science (BS) degrees. The BA is for students pursuing a broad, general education in sociology. The BS is for those pursuing a more applied, career-oriented program. Both degrees prepare students for graduate studies.

Sociology is the study of human social behavior, concerned with conditions such as crime and delinquency, family problems, social inequality, and organizations in contemporary, industrial society. Sociologists are interested not only in understanding social problems, but in resolving them.

The major in sociology prepares students to work in a wide variety of occupations, including education, government, business, industry and private research agencies. Although most sociologists work in universities and colleges, sociologists are increasingly employed in such areas as health care, youth services, drug rehabilitation, law enforcement, probation, corrections and counseling. The baccalaureate degree can lead to a career in law, higher education, or in supervisory levels of civil service.

The major in sociology requires 42 semester hours, regardless of track selected. No grades below C are accepted toward the major.

All students must complete the following core courses: SOC 101, 102, 210, 310, and 492.

The sociology emphasis includes three tracks:

**General track.** Students are prepared for human service work requiring a knowledge of different cultures, or for graduate school to pursue an advanced sociology degree.

**Criminology track.** Through courses which focus on sociological and theoretical skills and issues, students are prepared for graduate education or for careers in juvenile justice, probation/parole, corrections/community corrections, or law enforcement. An optional internship program also is available to those qualified. BS degree.

**Medical track.** Students are prepared for graduate school, or for careers in agencies or institutions that deal with the aged, or with the mentally or physically ill. Students in this track become familiar with policy issues, current findings, bureaucratic processes, and major theories of sexuality, aggression, gender, deviance, and psychopathology.

A minor in sociology requires a minimum of 21 semester hours, of which six hours must be 300/400 level courses. SOC 101 and 102 are required for the minor. The remaining courses must be selected by the student in consultation with the minor adviser. No grades below C are accepted toward the minor.

- 101 General Sociology I 3(3-0). (F,S,SS)**  
Introduction to the field of sociology; emphasis on basic principles and concepts. GEN.ED.IIB.
- 102 General Sociology II 3(3-0). (S)**  
Continuation of 101; emphasis on social institutions. GEN.ED.IIB.
- 152 Marriage and Family 3(3-0). (F,S)**  
Historical, cross cultural and intra-cultural comparisons of family formation, interaction and dissolution. GEN.ED.IIB.
- 153 Introduction to Criminology 3(3-0). (F)**  
Nature and extent of crime in American society. GEN.ED.IIB.
- 154 Juvenile Delinquency 3(3-0). (S)**  
Nature and extent of juvenile delinquency in American society.
- 155 Minority and Ethnic Relations 3(3-0). (\*)**  
Sociological theories, studies, and findings concerning group maintenance and interaction in contemporary society.
- 201 Social Problems 3(3-0). (S)**  
Sociological interpretation of contemporary social problems. GEN.ED.IIB.
- 202 Introduction to Population Study 3(3-0). (\*)**  
Analysis of population distribution, composition, and change as they relate to other social factors. GEN.ED.IIB.
- 203 The Criminal Justice System 3(3-0). (F)**  
Organizational features of police, courts, and corrections as subsystems of the American criminal justice system. GEN.ED.IIB.
- 204 Community Corrections 3(3-0). (F)**  
Examination of correctional alternatives to incarceration.
- 206 Sociology of Gender 3(3-0). (F)**  
Examination and evolution of relationships between sex roles, culture, and societal institutions and processes. Includes an analysis of sexual stratification.
- 210 (ANTHR/POLSC/SW 210) Techniques of Analysis 3(3-0). (F,S)**  
Introduction to the methods of scientific investigation in the social sciences.
- 291 Special Topics (1-3 VAR). (\*)**
- 305 Crime and Women 3(3-0). (S)**  
Exploration of social, cultural and political variables that create both women victims and women criminals.
- 308 Popular Culture 3(3-0). (#)**  
Advertising, television, music, novels, and the news are among the topics to be investigated for their social significance.
- 310 (ANTHR 310) Social and Cultural Theory 3(3-0). (F)**  
From classical to contemporary theory in sociology and anthropology.
- 351 Social Deviance 3(3-0). (S)**  
Sociological perspective on behavior defined as deviant, abnormal or socially unacceptable.
- 352 Social Psychology 3(3-0) Prerequisite: PSYCH 101, or permission of instructor. (F,S,SS)**  
General and applied psychological principles of the person's interaction with the group.
- 353 Penology 3(3-0). (S)**  
Prisons in historical perspective, treatment models as they affect the incarcerated individual.
- 354 Urban Sociology 3(3-0). (\*)**  
Development of urban places; analysis of socio-economic organization, urban social forces and the consequences for individuals, groups and social institutions.
- 355 Political Sociology 3(3-0). (\*)**  
Analysis of the major sociological variables associated with political decision making and other political processes.
- 356 Social Stratification 3(3-0). (S)**  
Inquire into inequalities of wealth, power, and the consequence for individuals and society.

- 357 Sociology of Community Development 3(3-0). (\*)**  
Current issues and concerns of the community; leadership, conflict, change, neighboring community organization, planning and service.
- 358 Film and Society 3(3-0). (\*)**  
An in-depth look at the images of social life and social relationships contained in popular movies.
- 391 Special Topics (2-4 VAR). (F,S)**
- 401 (ANTHR 401) Health, Culture and Society 3(3-0). (F)**  
Analysis of how social, cultural, and psychological factors influence health and health care.
- 402 (ANTHR 402) Aging, Culture and Society 3(3-0). (S)**  
Cultural, sociological and psychological dimensions of aging.
- 403 Human Sexuality and Social Behavior 3(3-0). (S)**  
Sexuality and sexual conduct from a sociological and developmental perspective.
- 404 Poverty 3(3-0). (F)**  
Poverty in the United States, its measurement and extent, perpetuating conditions, lifestyle and anti-poverty programs.
- 405 Sociology of Law 3(3-0). (F)**  
Laws in Western society and criminological theory are examined.
- 406 Sociology of Small Groups 3(3-0). (SS)**  
Microsociological analysis of group structure, interaction and dynamics in institutional settings in modern society.
- 407 Family Violence 3(3-0). (S)**  
The extent, seriousness, and impact of the major forms of domestic violence.
- 408 Science, Technology, and the Future 3(3-0). (F)**  
Social reverberations of science and technology as they impact on society.
- 430 Industrial Organizations 3(3-0). (\*)**  
Modern industrial society, emphasis on industry as a type of social organization including roles of management and labor.
- 431 Working in Modern America 3(3-0). (\*)**  
Exploration of the changing patterns, structure, and attitudes toward work in the United States today.

- 432 Organization Theory 3(3-0). (\*)**  
Prevailing theoretical model of large organizations and suggested alternatives.
- 491 Special Topics (1-3 VAR). (F,S)**  
Topic identifies by subtitles taught. Students may enroll as often as new topics are introduced.
- 492 Research 3(3-0). (S)**
- 493 Seminar (2-4 VAR). (\*)**
- 494 Field Experience (3-12 VAR) Prerequisite: permission of instructor. (F,S)**  
Practical on-the-job experience in an agency setting.
- 495 Independent Study (1-10 VAR) Prerequisite: previous work in sociology and permission of instructor. (F,S)**

### SPANISH (SPN)

*Professor Bright*  
*Associate Professor Milne*  
*Assistant Professor Morales*

The major in Spanish leads to a bachelor of arts (BA) degree in foreign languages and prepares students for public school teaching and certification, for admission to graduate school, for careers in international organizations, government and businesses.

The requirements for the regular Spanish major consists of a minimum of 46 credit hours, 16 hours of which must be upper-division courses, plus one year's college study of a second foreign language.

The combination of 40 hours of Spanish with an academic program other than Spanish may constitute a possible major.

Advanced placement may reduce the number of credit hours required for majors and minors.

All majors in Spanish must complete the core curriculum:

ENG	130, 131, 132	.....3
HIST	101 OR 102	.....5
SPN	101, 102	.....10
SPN	201, 202	.....6
SPN	211, 212	.....4
SPN	281, 282	.....6
		34

The Spanish major with bilingual emphasis for elementary teachers requires:

FL	100, 388	.....5
ENG	222, 304, 340, 342, 351,377	.....16
SPCOM	370	.....2
SPN	101, 102	.....10 (or waivers)
SPN	201, 202	.....6
SPN	211, 212	.....4
SPN	281, 282	.....6
SPN	301	.....3
SPN	451	.....1
		43-53

The minor in Spanish requires the satisfactory completion of 26 credit hours, including SPN 101, 102, 201, 202, 211, 212, 281, and 282. (Courses may be waived through advanced placement by the department.) An endorsement to teach Spanish requires satisfactory completion of a minimum of 32 credit hours, as approved by the adviser.

- 101 Beginning Spoken Spanish I 5(5-0). (F,S)**  
Oral-aural training, also some reading and writing; introduction to Hispanic culture. GEN.ED.IB.
- 102 Beginning Spoken Spanish II 5(5-0) Prerequisite: SPN 101 or equivalent. (F,S)**  
Students are placed by the department. Practice in oral, aural, reading and writing experiences. GEN.ED.IB.
- 201 Spanish Grammar and Composition I 3(3-0) Prerequisite: one year of college Spanish or equivalent. (F)**  
Intermediate review of grammar plus practice in writing compositions.

- 202 Spanish Grammar and Composition II 3(3-0) Prerequisite: SPN 201 or consent of instructor. (S)**  
Further study of grammar, increased emphasis on composition.
- 211 Intermediate Spanish Conversation I 2(1-2) Prerequisite: one year of college Spanish or equivalent. (F)**  
Conversation in small groups divided according to student's fluency.
- 212 Intermediate Spanish Conversation II 2(1-2) Prerequisite: one year of college Spanish or equivalent. (S)**  
Conversation in small groups divided according to student's fluency.
- 281 Readings in Hispanic Civilizations I 3(3-0) Prerequisite: one year of college Spanish or equivalent. (F)**  
Reading and discussion based on cultures of Spain. GEN.ED.IB.
- 282 Readings in Hispanic Civilizations II 3(3-0) Prerequisite: one year of college Spanish or equivalent. (S)**  
Reading and discussion based on Hispanic America. GEN.ED.IB.
- 301 Advanced Spanish Grammar and Conversation 3(3-0). Prerequisite: SPN 202. (F)**  
Required of all Spanish majors.
- 302 Advanced Spanish Composition and Conversation 3(3-0). Prerequisite: SPN 301. (S)**  
Required of all Spanish majors.
- 331 Masterpieces of Spanish Literature 3(3-0) Prerequisite: two years of college Spanish or equivalent. (#)**  
Major literary works of Spanish literature from its beginnings to 1680. Essential techniques of literary criticism using a cultural approach.
- 332 19th Century Spanish Literature 3(3-0) Prerequisite: two years of college Spanish or equivalent. (\*)**  
Emergence of romanticism in Spain and its gradual development toward costumbrismo and realism.
- 341 Masterpieces of Spanish American Literature 3(3-0) Prerequisite: two years of college Spanish or equivalent. (#)**  
Major works of Spanish America with emphasis on cultural aspects of 20th century literature.
- 342 Spanish American Novel 2(2-0) Prerequisite: two years of college Spanish or equivalent. (F)**  
Outstanding Spanish American novels, concentrating on their artistic and social significance.



- 381 Contemporary Hispanic America 3(3-0) Prerequisite: two years of college Spanish or equivalent. (S)**  
Sociology, geography, internal and external politics, economics, and the role of the United States in Spanish America and Brazil.
- 383 The Spanish American Short Story 2(2-0) Prerequisite: two years of college Spanish or equivalent. (\*)**  
Major works of Spanish Americans with emphasis on cultural aspects of 20th century literature.
- 431 Studies in Spanish Literature 1(1-0) Prerequisite: two years of college Spanish or equivalent. (\*)**  
Reading, analysis and discussion of contemporary Spanish literature. May be repeated for credit as content changes.
- 441 Mexican Literature 2(2-0) Prerequisite: two years of Spanish or equivalent. (S)**  
Main currents of Mexican literature, primarily of the 20th century.
- 442 Cervantes: Don Quixote 2(2-0) Prerequisite: two years of college Spanish except no prerequisite when class is conducted in English. (\*)**  
Primarily the novel Don Quixote, literary and cultural analysis of the characters Don Quixote and Sancho Panza and their environment.
- 450 Problems in Teaching Foreign Language 3(3-0) Prerequisite: five semesters' study of FL or equivalent. (\*)**  
Analysis of Spanish phonology, morphology and syntax related to cultural patterns for effective teaching of Spanish.
- 451 Studies in Spanish Linguistics I 1(1-0) Prerequisite: two years of college Spanish or equivalent. (F)**  
Sound patterns of Spanish contrasted and compared with English sound patterns.
- 452 Studies in Spanish Linguistics II 1(1-0) Prerequisite: two years of college Spanish or equivalent. (\*)**  
Review of the most recent research in linguistics.
- 481 Hispanic Thought 3(3-0) Prerequisite: two years of college Spanish or equivalent. (S)**  
Essays in Spanish.
- 485 Studies in Latin American Literature 1(1-0) Prerequisite: two years of college Spanish or equivalent. (\*)**  
Reading, analysis and discussion of contemporary Latin American literature. May be repeated for credit as content changes.

- 494 Field Experience (1-7 VAR) Prerequisite: two years of college Spanish. (F,S)**  
Communication, lectures by writers, artists, political leaders and specialists. Visits to museums, attendance at movies, theatres and excursions.
- 495 Independent Study (1-3 VAR) Prerequisite: two years of college Spanish. (F,S)**  
Specific themes which address particular problems of literature or civilization. May be repeated for credit with approval of major advisor.

### SPEECH COMMUNICATION (SPCOM)

*Professors Benton, Sherman  
Associate Professor O'Leary  
Instructor Podgurski*

The major in speech communication leads to the degrees of bachelor of arts (BA) or bachelor of science (BS). Students completing an emphasis in communication disorders will receive the BS degree. Students completing the emphasis areas in general speech communication, speech communication education, and theatre will receive the BA degree.

Students in speech communication participate actively in extracurricular activities closely integrated with the academic curriculum. Open to all students, regardless of their majors, SPCOM 115 and 315 provide experience both in inter-collegiate competition and in community service. In the forensic program, students may participate in debate, dramatic reading, interpretation of literature and other individual and group events. Theatre productions seek to provide public performances of the highest quality to the university, the community and the region. Performances include one-act plays, major dramatic productions, musical comedies and children's plays, providing experience in both technical theatre, production and performance.

To receive the BA degree with an emphasis in general speech communication, students are required to complete 32 hours: core courses (SPCOM 211, 231, 261, 493), plus an additional 20 elective SPCOM hours of which a minimum of eight must be upper-level. The majority of these

elective hours must be in general speech or theatre. No grade below C is accepted toward a major or minor. A maximum of two credits in SPCOM 115 and one credit in SPCOM 315 may be included in credit toward a major or minor. SPCOM 101 or its equivalent is a prerequisite for all courses above the 100-level.

For the BA degree with emphasis in theatre, students must complete 39 hours: core courses (12 hours), plus an additional 21 elective TH hours of which a minimum of eight hours must be upper division. The majority of these elective hours must be in theatre. A maximum of eight company class credits may be counted toward a major and four toward a minor; a maximum of 12 credits may be credited toward graduation.

For the BA degree in speech communication education, students must complete 36 hours: core courses (12 hours), plus SPCOM 100, 115, 212, 221, 241, 242, 312, 315, 360, 376 and 377. A coordinate course, MACOM 101 (three hours) is required. In addition, the full teacher education program for certification is required, which includes BBE 283 (two hours).

For the BS degree with an emphasis in communication disorders students must complete 48 hours: core courses (12 hours), plus six elective SPCOM hours, plus 250, 324, 351, 352, 353, 360, 361, 365, 451, 452, 462, 463, and 469. In addition, coordinate required courses (25 hours) are: PSYCH 101, 102, 251, 252, 351, and 362 as well as BIOL 221 and PHYS 361.

The minor in speech communication and theatre consists of a minimum of 20 semester hours from curriculum offerings, six of which must be upper division. A minor is designed to meet the specific needs of the student. A minor must be planned with the assistance of an adviser and approved by the department chair.

#### UNDERGRADUATE COURSES

##### 100 **Introduction to Speech Communication 1(1-0). (F,S,SS)**

Five-week course scheduled prior to SPCOM 101. Builds self-confidence and introduces communication principles. GEN.ED.IG.

##### 101 **Expository Speaking 2(2-0). (F,S,SS)**

Basic principles of exposition and their application to public speaking.

##### 102 **Basic Speech Communication 3(3-0). (\*)**

Integrated combination of SPCOM 100 and 101. Available only through extended studies.

##### 115 **Speech Activity I 1(0-4). (F,S)**

On- and off-campus activities including intercollegiate forensic competition, programs for students and public. Communication skill and experience development. May repeat twice for credit.

##### 201 **Beginning Sign Language 2(2-0). (F)**

Introduction to the fundamentals of communicative interaction with and among the deaf by means of hand symbolization.

##### 211 **(MILSC 211) Public Speaking (2-3 VAR). (F,S)**

Emphasis is placed upon audience analysis, proof, and speaker credibility in order to persuade audiences. Application made through classroom presentations and analysis of models. GEN.ED.IG.

##### 212 **Argumentation 2(2-0). (F)**

Argumentation focuses on the methods an advocate employs to make rational decisions and to win assent to his statements. Particular emphasis on the nature and skills of reasoned discourse. GEN.ED.IG.

##### 221 **Interpersonal Communication 3(3-0). (S)**

The principles and skills of speaking applied to informal speaking situations. Topics covered included openness, genuineness, and talking appropriately to people. GEN.ED.IG.

##### 224 **(MACOM 224) Broadcast Announcing 3(3-0) Prerequisite: MACOM 102. (F)**

Study and application of the principles of oral communication to radio and television announcing.

##### 231 **Oral Interpretation (2-3 VAR). (F,S)**

Basic principles and techniques of oral reading, designed to aid the student in discovering and sharing with an audience the meaning and feeling in literature. GEN.ED.IG.

##### 241 **Organizational Communication 3(3-0). (F)**

Study of the dynamics of communication within the context of complex human organizational systems. Understanding how theories of organization, leadership, information flow, and interpersonal communication contribute to solving communication problems in the organization. GEN.ED.IG.

##### 242 **Interview and Conference Techniques 3(3-0). (S)**

Principles and techniques of interviewing in a variety of situations and concepts of participation and leadership in task-oriented groups. GEN.ED.IG.

##### 250 **Introduction to Communication Disorders 2(2-0). (S)**

Survey course about major communicating disorders. Emphasis on classification and descriptions. Treats certification requirements, licensure and professional opportunities.

##### 261 **Voice and Diction 3(3-0). (F)**

Voice improvement course for teachers, actors, broadcasters, professional speakers. Emphasis on breath support, phonation, resonance, articulation and pronunciation. Individual attention stressed.

- 291 **Special Topics (1-3 VAR). (\*)**
- 295 **Independent Study (1-3 VAR) Prerequisite: permission of instructor. (\*)**
- 301 **Intermediate Sign Language 3(3-0) Prerequisite: SPCOM 201 or permission of instructor. (S)**  
Study and application of the American Sign Language, including conversational skills, gestures and Deaf Cultures.
- 304 **(ENG 304) Language Awareness and Human Behaviors I 3(3-0). (F,S)**  
Uses incidents and patterns of personal language in participants' lives to explore humans as semantic reactors who can deceive, coerce or nurture with the forms of language.
- 312 **Persuasion (2-3 VAR) Prerequisite: SPCOM 211, 212 or permission of instructor. (S)**  
Examination of the principles and theories of persuasion and their application to persuasive settings. Emphasis on using language to secure belief and action.
- 315 **Speech Activity II 1(0-4). (F,S)**  
On- and off-campus activities including intercollegiate forensic competition, programs for students and public. Continuation of SPCOM 115. May be repeated twice for credit.
- 322 **Group Discussion 3(3-0) Prerequisite: permission of instructor. (F)**  
Performance course emphasizing the principles and skills of dialectical discourse. Practices the cooperative production and utilization of discourse in human affairs.
- 324 **(BIOL 324) Anatomy of the Head, Neck and Chest 2(2-0) Prerequisite: BIOL 221 or BIOL 321. Corequisite: SPCOM 324L. (F)**  
Anatomical structures of the head, neck and chest with analysis of development and function.
- 324L **(BIOL 324L) Anatomy of the Head, Neck and Chest, Dissection 1(0-2) Corequisite: SPCOM 324. (F)**  
Dissection and examination of the anatomical structure of the head, neck and chest.
- 351 **Articulation Disorders 2(2-0) Prerequisite: SPCOM 250 or permission of instructor. (F)**  
Causation, diagnosis and clinical management of articulation disorders.

- 352 **Voice Disorders 2(2-0) Prerequisite: SPCOM 250 or permission of instructor. (F)**  
Causation, diagnosis and clinical management of voice disorders.
- 353 **Stuttering 2(2-0) Prerequisite: SPCOM 250 or permission of instructor. (F)**  
Nature and theories of stuttering with an introduction to therapeutic and counseling procedures utilized in clinical management.
- 360 **Language Acquisition and Linguistics 3(3-0). (F)**  
Normal processes of development of language in children, growth of language, including structure, comprehension, use of oral and written language, other symbolic behavior.
- 361 **Phonetics 2(2-0). Prerequisite: SPCOM 261 or permission of instructor. (S)**  
Designed to teach the student to identify speech sounds and to transcribe them according to the International Phonetic Alphabet (IPA).
- 365 **Basic Audiology 3(3-0) Prerequisite: SPCOM 250 or permission of instructor. (F)**  
Introduction to the field of audiology: the ears and hearing. Emphasis on initial battery testing and interpretation of test results. Overview of selected clinical diagnostic tests. Practice in hearing testing is required.
- 376 **Directing Speech Activities 2(2-0) Prerequisite: junior or senior standing. (\*)**  
Methods of coaching competitive and non-competitive speech activities, management of speech tournaments, administration of secondary school forensic programs and recreational speech activities program.
- 377 **Speech Education Methods 2(2-0) Prerequisite: junior standing and permission of instructor. (\*)**  
Provides instruction and practice in the principles of teaching speech. Geared to foster a thoroughly professional teacher.
- 401 **The Nature of Discourse 3(3-0) Prerequisite: SPCOM 323. (\*)**  
Theory course; stresses the process of articulate sequential thought, verbally manifested in human life. Focuses on man, the being capable of replying in kind.
- 443 **Conflict Management 3(3-0) Prerequisite: SPCOM 241 or permission of instructor. (S)**  
The nature of conflict and its resolution in organizations. The communication attitudes, strategies and tactics that are useful in managing conflict and the principles of bargaining and negotiation.

- 451 Aural Rehabilitation 3(3-0) Prerequisite: SPCOM 365 or permission of instructor. (S)**  
Detailed study of auditory training procedures and speech reading methods. Discussion of hearing aids included.
- 452 Diagnosis and Methods in Speech Pathology 2(2-0) Prerequisite: six semester hours in speech pathology or permission of instructor. (S)**  
Clinical principles and methods with emphasis on diagnosis and evaluation. Discussion of Federal Law PL 94-142 and the Individualized Education Program (IEP) for the communicatively handicapped in the public schools. Experience with clinical tests, therapy materials and diagnostic equipment.
- 462 Organic Disorders of Speech 3(3-0) Prerequisite: six semester hours in speech pathology or permission of instructor. (S)**  
Nature and causes of aphasia, cerebral palsy, cleft palate, and neurological disabilities. Introduction to clinical management of these disorders.
- 463 Language Disorders in Children 2(2-0) Prerequisite: SPCOM 360 or permission of instructor. (S)**  
Study of the cause, nature, diagnosis of language disorders in children. Introduction to clinical management.
- 469 Clinical Experience in Communication Disorders 1(0-1) Prerequisite: permission of instructor. (S)**  
Supervised clinical practice. Fifty clock hours must be completed to earn one semester hour of credit. May be repeated three times for credit. (S/U grades).
- 491 Special Topics (1-3 VAR) (When appropriate) Prerequisite: permission of instructor. (\*)**
- 493 Seminar (1-3 VAR) Prerequisite: junior or senior standing and permission of instructor. (S)**  
Class activity supervised by the department, centering around an advanced level of some aspect of discourse. Credit value assigned according to course objectives.
- 495 Independent Study (1-3 VAR) Prerequisite: permission of instructor. (\*)**

- 496 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor. (\*)**  
Arrangement between employers and faculty members to provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study. Two placements must occur in academic semesters and one in a summer session for the equivalent of at least 12 months employment. The student must re-enroll each placement term. Twelve credits maximum allowed toward graduation.

*GRADUATE COURSES*

- 576 Directing Speech Activity 2(2-0) Prerequisite: graduate standing, permission of instructor. (\*)**  
Identical in content with SPCOM 376 but higher quality of work and greater understanding of course objectives must be attained. Research report is required.
- 591 Special Topics (1-3 VAR) Prerequisite: graduate standing. (\*)**
- 595 Independent Study (1-3 VAR) Prerequisite: graduate standing. (\*)**

*THEATRE (TH)**Professor Plonkey*

Information on the theatre emphasis is contained in the speech communication prefix area of this catalog.

*UNDERGRADUATE COURSES*

- 111 Theatre Appreciation 3(3-0). (F,S)**  
A course for non-majors emphasizing understanding and appreciation of the theatre. GEN.ED.IH.
- 131 Introduction to Theatre Technology 3(3-0).(S)**  
Beginning techniques of stagecraft. GEN.ED.IH.
- 135 Beginning Acting 3(3-0). (F)**  
Beginning techniques of acting.GEN.ED.IH.

- 168 Company Class (1-6 VAR). (F,S)**  
Theatre production laboratory for the beginning student. Credit is given for rehearsal and performance in production, and/or participation in technical theatre crews. May be repeated for credit.
- 216 Theatre Survey I 3(3-0). (F)**  
Survey of theatre history from primitive origins to 1800. GEN.ED.IH.
- 217 Theatre Survey II 3(3-0). (S)**  
Survey of theatre history from 1800 to present. GEN.ED.IH.
- 232 Intermediate Theatre Technology 3(3-0) Prerequisite: SPCOM 131. (\*)**  
Intermediate principles of scenic and lighting design and theatre technology.
- 235 Film and TV Acting 3(3-0). (S)**  
A beginning course in acting before the camera. Principles of dramatic and commercial acting are introduced. Monologues, scenes and commercials are prepared and then recorded on video tape for evaluation.
- 236 Character Workshop 3(3-0). (S)**  
Instruction in characterization techniques for actors and directors. Emphasis on dialects.
- 331 Direction 3(3-0) Prerequisite: SPCOM 131, 135 or permission of instructor. (S)**  
Directing theory and practice. Students choose and analyze scripts and direct one-act plays.
- 332 Advanced theatre Technology 3(1-2) Prerequisite: SPCOM 131. (\*)**  
Advanced techniques of scenic design and stage lighting.
- 335 Advanced Acting 3(3-0). (\*)**  
Instruction in acting for verse plays. Emphasis on Shakespeare.
- 368 Company Class (1-6 VAR). (F,S)**  
Theatre production laboratory for advanced students. Credit is offered in the areas of rehearsal, performance and technical crews. May be repeated for credit.
- 370 Creative Dramatics 1(1-0). (F)**  
Classroom techniques in dramatics for the teacher.
- 431 Advanced Directing 3(3-0) Prerequisite: junior or senior standing or permission of instructor. (\*)**  
Techniques of script analysis, creating style and preparing a production planbook are covered.

## GRADUATE COURSE

- 568 Company Class (1-6 VAR) Prerequisite: graduate standing. (\*)**  
Theatre production for graduate students. Credit is offered for directing, design, rehearsal, performance and technical crews. May be repeated for credit.
- 570 Creative Dramatics 1(1-0) Prerequisite: graduate standing. (F)**  
Graduate-level creative dramatics for the classroom teacher.



## GRADUATE STUDIES

### *POLICIES AND PROCEDURES*

#### **DEGREE PROGRAMS**

The University of Southern Colorado offers selected graduate courses and programs for degree-seeking and non-degree students. Graduate degrees are offered in business administration (MBA), applied natural science (MS), and systems engineering (MS). The university also participates in a consortial arrangement with Adams State College for a graduate degree in elementary education (MA) and guidance and counseling (MA). Although the latter programs are offered on the USC campus, the degrees are awarded by Adams State College and graduate regulations pertaining to the degrees follow the policies of that institution.

#### **GRADUATE ADMISSIONS**

A student who has received a baccalaureate degree from an accredited institution and who wishes to begin graduate courses must submit:

- 1) A completed application for admission to graduate studies and a \$15 application fee. The fee is non-refundable and is not applicable toward tuition. A fee is not required for students previously enrolled as undergraduate students at USC. Students in the consortium programs must complete the application process for Adams State College.

- 2) An official transcript of all college and university work to be sent directly to the Office of Admissions by the student's previous institution(s). Records received directly from students cannot be accepted except for advisement purposes. The records of students who previously attended USC will be obtained from the records office and do not require a student request;
- 3) The score for the aptitude portion of the Graduate Record Examination (GRE) or the score from the Graduate Management Admission Test (GMAT) for those students in business. Note: The GRE should be taken early in the semester prior to the one in which the students intend to enroll. Contact the Office of Admissions for testing locations and dates;
- 4) The score from an English language proficiency test (TOEFL or Michigan Test of English Language Proficiency) for those students whose native language is not English. A minimum score of 500 (TOEFL) or 80 (Michigan) is required for admission. Level 5 from the American Language Academy also is accepted.

All application materials should be submitted to the Office of Admissions.

The student is admitted according to one of the three categories below:

*Regular status* will be given to degree-seeking students who meet all of the published requirements of their selected graduate program department.

The university provides a *conditional status* for students whose undergraduate grade point average is below minimum or who fails to meet fully all of the published admissions requirements.

Students requesting courses for professional development only or students ordinarily ineligible for regular or conditional admission may be admitted to *non-degree status*. More specific information on admission categories is available from the Office of Admissions.

Students who are ineligible for graduate admission will not be permitted to enroll in graduate courses.

**Graduate work taken by seniors.** USC students who are in their last semester of undergraduate work, and who have at least a 2.5 undergraduate grade-point average, may take graduate courses for graduate credit with the approval of the respective department chair and dean. Up to 12 graduate hours may be taken but the combined undergraduate and graduate enrollment normally may not exceed 16 hours for that semester. Graduate level courses (500 level) cannot be used to satisfy baccalaureate degree requirements.

**Change of status.** When conditions of admission are met, the Director of Admissions and Records will notify students that they have achieved regular degree seeking status. Students in conditional status may count toward the degree a maximum of 12 hours of graduate course work taken in the degree program.

### GRADUATION REQUIREMENTS

Each graduate program at the university has specific graduation requirements which must be met prior to graduation. In addition, students must fulfill the following requirements for a graduate degree:

- Complete requirements for admission to candidacy.
- Complete the minimum number of 30 semester hours of approved coursework. The MBA and MS in systems engineering degrees require a minimum of 36 semester hours; the MSANS requires 34 semester hours.
- Submit a graduation planning sheet signed by the Advisory Committee prior to the semester in which graduation is to occur. The deadline for submission is published in the semester schedule of courses.
- Pass a final comprehensive and/or oral examination in the major area of study.
- Earn a cumulative GPA of 3.0 or better on all graduate courses. A maximum of six semester hours of coursework at the grade of C may apply toward graduation. A minimum of 25 semester hours of credit in an approved degree plan must be earned at USC.

### OTHER POLICIES

Specific information on acceptance of transfer credit, advising, course loads, time limits, grading standards, and degree planning is available from the Office of Admissions.

All graduate programs require a final comprehensive and/or oral examination; some require thesis or directed research projects. Guidelines on examinations and research requirements are available from the respective department chair and dean.

**PROGRAMS OF STUDY****MASTER OF BUSINESS ADMINISTRATION (MBA)**

Professor H. Richard Eisenbeis, adviser

The goal of the University of Southern Colorado's MBA Program is to prepare students for high-level general management careers in business and other organizations. To this end, students acquire knowledge of management operations, an appreciation of the interrelationships involved, an understanding of the economic, political and social environment in which businesses function, and behavioral skills that are essential in the manager's role in the implementation of business decisions. The MBA Program endeavors to provide an atmosphere conducive to the development of each student's ability to think in a creative and effective manner. The program makes extensive use of lectures, seminars, group projects, case studies, and independent research.

The program is open to all applicants with a bachelor's degree, regardless of the undergraduate field of study, who can demonstrate, through academic or experiential preparation, an appropriate background in the key areas of accounting, economics, finance quantitative methods, business law, the principles of management, and the principles of marketing. Students without this background may be required to complete some undergraduate leveling requirements.

All MBA students are required to take the Graduate Management Admissions Test (GMAT). An admission formula of 200 times the undergraduate GPA (4.0 system) plus the GMAT score will constitute a scaled admission score for each applicant. Regular admission will be given to those students who satisfy the university's general admission requirements for graduate study, have a scaled admission score of at least 950 and have satisfactory preparation in the key areas. Conditional admission may be given to students with GPA's between 2.50 and 2.70. Undergraduate leveling requirements may be required of students in either regular or conditional status. Graduate students are required to take all leveling course requirements before finishing 12 hours of graduate work.

The MBA degree will be conferred upon students who successfully complete a minimum of 36 hours of approved coursework. The curriculum is composed of three categories of courses: 1) 24 semester hours of required core courses which are taken by all candidates; 2) six semester hours of approved graduate electives in the School of Business; and 3) six semester hours of directed research under the supervision of a faculty member in the School of Business.

**Core Courses:**

<i>Courses</i>	<i>Credits</i>
ACCTG 510 .....	3
BUSAD 550 .....	3
ECON 501 .....	3
FIN 530 .....	3
MGMT 520 .....	3
MGMT 560 .....	3
MGMT 585 .....	3
MKTG 540 .....	3
Approved Electives .....	6
Directed Research .....	6
	36

All graduate courses for the MBA are listed in the Courses of Instruction section of this catalog in the prefix areas of Accounting (ACCTG), Business Administration (BUSAD), Economics (ECON), Finance (FIN), Management (MGMT), and Marketing (MKTG).

**ELEMENTARY EDUCATION (MA)**

Professor Margaret Miller, Adviser

*Adams State College/University of Southern Colorado Consortium Program.*

The University of Southern Colorado cooperates with Adams State College in the delivery of a master of arts in elementary education degree. The continuation of the program is dependent upon student need, and the cooperating institutions reserve the right to cancel courses or the program due to insufficient enrollment.

The program is offered over a 24-month cycle. The current cycle will begin in fall 1989. To accommodate working students, the program is offered entirely on the USC campus in the evenings and summers.

Applicants for this program must have a valid teaching certificate with an elementary education endorsement, a cumulative GPA of 2.75 or higher for all college and university work, and a baccalaureate degree. Students whose grade-point average falls between 2.25 and 2.74 may be admitted conditionally. Those interested should apply to the department of education at USC.



The MA in elementary education will be conferred upon those students who complete the prescribed curriculum with a minimum of 30 semester hours of approved coursework. Students must maintain a graduate GPA of at least 3.0, submit scores from the aptitude section of the GRE during the first semester of the program, pass the graduate English Usage Exam, and pass a final comprehensive examination. A written plan for the degree must be filed with the adviser. A maximum of six semester hours of graduate work will be accepted in transfer if the transfer credits correspond to courses in the program. Requests to take the comprehensive exam must be filed one semester ahead.

#### **GUIDANCE AND COUNSELING (MA)** Professor James Cameron, Adviser

Through a consortial arrangement with Adams State College, the University of Southern Colorado provides students the opportunity to earn the master of arts degree in either School Counseling or Community Counseling. All courses are offered in the evenings on the USC campus. Courses are taught by instructors from the USC and Adams State psychology departments. Two calendar years, including 36 credit hours of courses, are required for completion of the program. Those interested should apply to Adams State College.

#### **APPLIED NATURAL SCIENCE (MS)** Professor Scott Herrmann, adviser

The graduate program leading to the degree of Master of Science in Applied Natural Science (MSANS) is designed to prepare students for the application of the basic scientific disciplines to the practical problems encountered in business, industry, government, and education. Individuals graduating from the program will be able to apply the techniques of scientific research to practical problems. Course work emphasizes a number of important areas of applied natural science, including molecular genetics, polymer chemistry, industrial chemistry, mathematical techniques in applied research, environmental concerns, scientific information systems, and instrumentation.

The Master of Science in Applied Natural Science degree requires successful completion of a minimum of 34 semester hours of approved graduate credits (including a research thesis) with an overall cumulative grade-point average of 3.0 or higher. No more than six semester hours of graduate coursework with a grade of C may be applied toward graduation requirements. Grades of D, F, and incomplete do not fulfill graduation requirements.

The course of study requires seven semester credits of work common to all students. Each student must select an emphasis area with a core of 13 semester credits, including thesis research. Fourteen credits in elective courses also are required. The program of study for each student must be approved by a college committee.

#### **REQUIRED COURSES FOR MSANS DEGREE**

<b>Course</b>	<b>Credits</b>
ANS 510 .....	1
ANS 520 .....	1
ANS 593 .....	2
MATH 544 .....	3
	<hr/> 7

#### **REQUIRED COURSES FOR EACH MSANS EMPHASIS**

##### **Biological Sciences Emphasis Core**

<b>Course</b>	<b>Credits</b>
BIOL 540/540L .....	3
BIOL 552/552L .....	4
BIOL 596 .....	6
	<hr/> 13

##### **Chemical Sciences Emphasis Core**

CHEM 503 .....	3
CHEM 529 .....	2
CHEM 550 .....	2
CHEM 596 .....	6
	<hr/> 13

##### **Biochemical Sciences Emphasis Core**

BIOL 540/540L .....	3
CHEM 512/512L .....	4
BIOL 596 or	
CHEM 596 .....	6
	<hr/> 13

## ELECTIVE COURSES FOR EACH MSANS EMPHASIS

Biological Sciences Emphasis Electives (A minimum of 14 credit hours must be selected from courses listed below.)

Course	Credits
BIOL 526/526L	3
BIOL 532/532L	4
BIOL 541/541L	4
BIOL 543/543L	4
BIOL 572/572L	4
BIOL 579/579L	3
BIOL 581/581L	3
BIOL 582/582L	3
BIOL 585/585L	4
BIOL 591	1-4
	33-36

Chemical Sciences Emphasis Electives (A minimum of 12 credit hours must be selected from courses listed below.)

Course	Credits
CHEM 501	3
CHEM 512/512L	4
CHEM 525	3
CHEM 531	2
CHEM 591	1-4
CHEM 531	4
PHYS 531	4
PHYS 541	4
	21-24

Biochemical Sciences Emphasis Electives (A minimum of 14 credit hours must be selected from courses listed below.)

Course	Credits
BIOL 543/543L	4
BIOL 552/552L	4
BIOL 572/572L	4
BIOL 591 or	
CHEM 591	1-4
CHEM 501	3
CHEM 503	3
CHEM 519/519L	4
CHEM 525	3
CHEM 531	2
CHEM 550	2
PHYS 531	4
PHYS 541	4
	38-41

## SYSTEMS ENGINEERING (MS)

Professor Walter Giffin, adviser

Systems Engineering deals with the design and analysis of large scale, complex, human/machine/software systems. It employs methods and techniques from the engineering disciplines, mathematics, behavioral and physical sciences. **It is not necessary to have an undergraduate degree in engineering to be successful in this program.**

Students do need a strong foundation in math, a sense of intellectual curiosity and a desire to apply those skills to combine physical, human and monetary resources for the production of quality products or services at competitive prices. Systems engineers bridge the gap between management and operations, dealing with and motivating people as well as determining what materials and tools should be used and how they should be used. Systems engineering techniques can be applied in commercial, governmental and non-profit organizations.

**Admission requirements.** The program is open to applicants with a bachelor's degree from a regionally accredited college or university, regardless of undergraduate major. Students, however, will be required to demonstrate educational proficiency in engineering by completing prerequisite background courses or providing evidence that equivalent coursework was taken prior to admission.

**PREREQUISITE BACKGROUND:**

<b>Acceptable USC Courses:</b>	<b>Credits</b>
EN or CST 205 .....	3
ECON 202 or EN 343 .....	3
EN or MATH 456 .....	3
MATH 337 .....	3
MATH 350 .....	3

Students will be expected to demonstrate prerequisite preparation for certain graduate electives that may become part of the student's program. Students who do not possess the specified prerequisite background may be admitted conditionally, but will be required to complete prescribed prerequisites. Graduate courses used as prerequisites for other graduate courses must be taken for credit.

*Regular status* admission will be given to those students who have a baccalaureate degree from an accredited university or college, an undergraduate GPA of at least 2.80 who show promise of success in graduate study, and an adequate preparation in the prerequisite areas listed above. A grade point of 3.0 must be maintained to retain regular status.

*Conditional status* admission may be given to those students whose undergraduate GPA is above 2.50 yet below 2.80 provided that the recommendations and GRE scores indicate that the applicant has the potential to satisfactorily complete graduate work. Students granted conditional status must complete all prescribed prerequisites as determined by the graduate adviser prior to having completed nine semester hours of graduate coursework.

*Non-degree-seeking status* may be granted to students desiring graduate coursework for career enhancement or other purposes. Students with non-degree-seeking status must document prerequisite background for graduate courses in which they register for professional purposes. Students who later seek admission to the degree program may claim a maximum of nine semester hours of graduate course work earned while in non-degree-seeking status.

International students whose native language is not English are required to demonstrate English proficiency prior to admission. This can be done by achieving a score of 500 or more on the Test of English as a Foreign Language (TOEFL) or by achieving a score of 80 or more on the Michigan Test for English Language Proficiency, or by completing Level 5 competency of the American Language Academy.

**Transfer credits.** A maximum of nine semester hours earned with grades of B or better may be accepted from another recognized institution if approved by the student's adviser and department chair.

**Probation.** A student whose cumulative GPA falls below 3.0 will be placed on probation for the subsequent semester. If the student does not achieve the cumulative 3.0 grade-point average by the end of the probationary semester, further enrollment as degree-seeking student may be denied.

**Degree requirements.** The Master of Science in Systems Engineering degree will require the candidate to complete successfully a minimum of 36 semester hours of approved graduate credit (including a thesis) with an overall cumulative average of 3.0 or better. No more than six semester hours of graduate coursework with a C may be applied toward graduation requirements. Grades of D, F, and Incomplete do not fulfill graduation requirements.

The course of study will consist of 27 semester hours of required courses, including six semester hours of thesis credit and a minimum of nine semester hours of approved elective courses.

**REQUIRED COURSES - MAJOR**

<b>Course</b>	<b>Credits</b>
EN 503 .....	3
EN 540 .....	3
EN 571 .....	3
EN 575 .....	3
EN 593 .....	3
EN 596 .....	6
	21

**REQUIRED COURSES - NON-MAJOR**

<b>Course</b>	<b>Credits</b>
ECON 501 .....	3
MGMT 567 .....	3
	6

APPROVED ELECTIVES

Course	Credits
ACCTG 510 .....	3
EN 500 .....	3
EN 501 .....	3
EN 504 .....	3
EN 510 .....	3
EN 530 .....	3
EN 577 .....	(1-3 VAR)
EN 590 .....	(1-3 VAR)
EN 591 .....	3
MATH 544 .....	3

All graduate engineering courses for the MS in systems engineering are listed in the Courses of Instruction section of this catalog in the prefix area Engineering (EN).

# UNIVERSITY PERSONNEL 1988-89

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<sup>1</sup> Representatives from Fort Lewis College

<sup>2</sup> Representatives from Colorado State University

<sup>3</sup> Representatives from the University of Southern Colorado

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**Richard Hill**, dean, Student Services  
**Beverly Moore**, director of the University Library  
**Greg Sinn**, general manager, KTSC-TV  
**Ray Sisson**, dean, College of Applied Science and Engineering Technology  
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**Martha G. Wade**, director, Admissions and Records  
**Jack A. Seilheimer**, interim dean, College of Science and Mathematics

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**Gary Partridge**, controller  
**James Quinlan**, director, Physical Plant  
**Thomas (Tod) Quirk**, coordinator, Safety and Environment  
**Everett E. Stastney**, director, Purchasing  
**Bruce Zimmerman**, director, Auxiliary Services

**ADMINISTRATIVE FACULTY**

**Abebe, Teshome** (1983) professor of finance, and dean, School of Business; BA, MA, Illinois State University; Ph.D., Northern Illinois University

**Bronn, Stephen D.** (1971) professor of mathematics, and executive director, Planning and Budget; BS, University of Nebraska; MSIA, Purdue University; MS, Ph.D., Northwestern University

**Lovin, Keith H.** (1986) professor of philosophy, and provost and vice president for Academic and Student Affairs; BA, Baylor University; Ph.D., Rice University

**Moore, Beverly A.** (1970) professor of library services, and director, the University Library; AA, Hutchinson Junior College; BA, University of Northern Colorado; MA, University of Denver

**Pence, James L.** (1986) assistant professor of English, and associate vice president for academic and student affairs; BA, MA, Colorado State University; Ph.D., The University of Arizona

**Seilheimer, Jack A.** (1963) professor of biology and interim dean, College of Science and Mathematics; BS, Western Michigan University; Ph.D., University of Louisville

**Shirley, Robert C.** (1984) professor of business administration, and president; BBA, MBA, University of Houston; Ph.D., Northwestern University

**Sisson, Ray L.** (1960) professor of engineering, and dean, College of Applied Science and Engineering Technology; AA, Pueblo College; BSEE, University of Colorado; MS, Colorado State University; Ed.D., University of Northern Colorado

**Valerio, Luis G.** (1975) associate professor of education, and dean, Community Programs and Services; BA, University of Southern Colorado; MA, New Mexico Highlands University; Ph.D., University of Northern Colorado

**PROFESSIONAL STAFF**

- Alexander, John** (1988) Master Control Operator, KTSC-TV
- Amella, Gary** (1980) assistant director, Upward Bound; BA, MA, Colorado State University
- Anglum, Sean P.** (1986) promotions manager, KTSC-TV; BA, University of Northern Colorado
- Arguello, Richard F.** (1986) head coach, women's basketball, volleyball; BA, University of Colorado; MA, New Mexico Highlands University
- Aube, Thomas R.** (1980) chief engineer, KTSC-TV
- Breen, Patricia** (1988) conference director; BS, University of Southern Colorado
- Brandon, Billie J.** (1988) vice president, Business Services; BA, Slippery Rock State College; JD, Northern Kentucky University
- Burkholder, Jeffrey** (1988) master control operator, KTSC-TV
- Clay, Samuel O., Jr.** (1971) assistant director, Counseling and Health Services; BA, University of Southern Colorado; MA, University of Denver
- Cornelius, Andrew** (1987) affirmative action director; BS, Metropolitan State College
- DeBlasi, Joachim** (1988) director, development, KTSC-TV; BA, Rutgers The State University of New Jersey
- DeFore, Richard A.** (1981) learning resources specialist, University Library; BA, University of Wisconsin; MA, University of Northern Colorado
- Dehn, Ronald E.** (1970) manager, systems and operations, Computer Center, BS, University of Southern Colorado
- DeNiro, Jean** (1986) coordinator/counselor, Educational Opportunity Center; BSW, University of Southern Colorado
- DiPrince, Linda S.** (1970) assistant director, Financial Aid; BS, University of Southern Colorado
- Folda, Joseph** (1987) head coach, men's basketball; BS, University of Northern Colorado; M.Ed., Eastern Washington University
- Genty, Don A.** (1970) manager of sponsored programs, Office of Accounting; BSBA, Carroll College; MBA, University of Denver
- Genty, Don A.** (1970) manager of sponsored programs, Office of Accounting; BSBA, Carroll College; MBA, University of Denver
- Haering, Charles L.** (1971) head coach, men's and women's cross country/track; BA, The Colorado College; MA, Western State College
- Hernandez, Carl** (1984) master control operator, KTSC-TV
- Herrera, Veronica** (1989) financial aid, veterans and job locator, Financial Aid; BSW, University of Southern Colorado
- Hill, Richard H.** (1982) dean, Student Services; BA, University of Northern Colorado; M.Ed., Colorado State University; Ph.D., University of Wyoming
- Jones, Scott A.** (1984) master control operator supervisor, KTSC-TV; BS, University of Southern Colorado
- Kendall, Anita L.** (1981) director, Personnel; BA, MA, Western State College
- King, Karel S.** (1989) director, Counseling and Career Services; BS, M.Ed., Bowling Green State University
- Leyba, Theodore** (1973) chief, University Police
- Lovell, Catherine M.** (1976) counselor, Financial Aid; BA, St. Joseph's College; BSN, Columbia Presbyterian Medical College; M.Ed., Pepperdine University
- Lund, Carol** (1988) auction coordinator, KTSC-TV; BS, Boise State University
- Lundahl, Sandra L.** (1985) assistant to general manager, KTSC-TV; AAS, University of Southern Colorado
- Martin, Sara J.** (1987) director, Residence Life and Housing; BS, University of Southern Colorado
- Martinez, Deborah A.** (1985) assistant director of admissions, and coordinator, Recruitment of Minorities and Women; BA, University of Southern Colorado
- Mason, Robert** (1981) director, University Computing; BS, MS, Ph.D., Southern Illinois University
- McGill-Eagan, Mary L.** (1974) director, Communication Services; BS, University of Southern Colorado
- Medina, Mike** (1988) counselor, Upward Bound; AA, Trinidad State Junior College; BA, MA, Adams State College
- Medina, Nancy** (1988) counselor, Upward Bound; AAS, BS, University of Southern Colorado

- Melin, Carl** (1985) admissions counselor; BA, Adams State College; MS, University of Southern California
- Mestas, Gina T.** (1979) director, Financial Aid; AA, Trinidad State Junior College; BA, Adams State College
- Moses, Douglas J.** (1985) head coach, wrestling; BA, Adams State College; MA, Colorado State University
- Nichol, Elizabeth A.** (1985) director, Development and Alumni Relations; BA, Swarthmore College
- Padilla, Jose A. (Rudy)** (1973) director, Admissions and School Relations; BA, BS, University of Southern Colorado; Ed.S., University of Northern Colorado
- Partridge, Gary** (1986) controller; BS, MBA, University of Nebraska
- Passanante, Jack, Jr.** (1986) production assistant, KTSC-TV; BA, University of Southern Colorado
- Payne, John F., Jr.** (1956) director, Instructional Media Services, BA, MSE, Drake University; Ed.D., University of Northern Colorado
- Perez, Cynthia M.** (1977) assistant director, Student Support Services; BA, University of Southern Colorado
- Pineda, Juan N.** (1974) director, Educational Opportunity Programs; BS, University of Albuquerque; MA, University of Northern Colorado
- Quinlan, James** (1974) director, Physical Plant; BS, New Mexico State; M.Ed., Colorado State University
- Quirk, Thomas J.** (1983) coordinator, Safety/Environmental Health; BS, University of Hartford
- Sinn, Gregory B.** (1985) general manager, KTSC-TV; BA, University of Arizona
- Skehan, Patricia** (1986) admissions counselor; BA, University of Colorado
- Stastney, Everett E.** (1988) director of purchasing; BA, University of Colorado
- Stubenrouch, Roger E.** (1983) director, Continuing Education; BS, Troy State University; MS, University of Northern Colorado
- Wade, Martha** (1986) director, Admissions and Records; AB, University of Tennessee; M.Ed., Indiana University

- Weekes, Ronald C.** (1984) production supervisor, KTSC-TV; BA, Brigham Young University
- Wells, Elmer E.** (1974) director, International Student Services; BA, Iowa Wesleyan College; M.Ed., University of Alaska; Ph.D., University of New Mexico
- Whitley, Nancy** (1988) program assistant, Educational Opportunity Center
- Whitley, Belinda** (1988) coordinator of academic computing; BS, MS, Arkansas State University
- Zimmer, Cathy A.** (1988) promotions assistant, KTSC-TV; BA, University of Southern Colorado
- Zimmerman, Bruce** (1986) director, Auxiliary Services; BS, Rhode Island College; MS, Indiana University



## EMERITUS FACULTY

- Anderson, Norris D.** (1965-1984); BA, MA, Ed.D., professor emeritus of education
- Bard, Eugene D.** (1965-1987); BS, MS, Ed.D., professor emeritus of physics
- Baldauf, Boyd J.** (1964-1988); BS, MA, Ed.D., professor emeritus of computer science technology
- Bartlett, Thomas J.** (1967-1977); BS, MA, professor emeritus of mathematics
- Blandford, Robert D.** (1965-1989); BS, MA, DA, professor emeritus of mathematics
- Blake, Marvin** (1949-1978); BE, professor emeritus of manufacturing engineering technology
- Blasing, James A.** (1956-1984); AA, BS, MS, professor emeritus of physical education
- Bond, John A.** (1967-1984); BS, MA, Ph.D., professor emeritus of political science
- Boss, Marion L.** (1964-1984); BSBA, MSBE, Ed.D., professor emeritus of business administration
- Brassill, Joann A.** (1967-1987); BA, MA, MFA, professor emeritus of art
- Caduff, Gerald F.** (1947-1978); BSEE, ME, Ph.D., professor emeritus of electronics
- Cotner, Jane** (1960-1976); AB, BSLS, professor emeritus of library sciences
- Davison, Earle** (1950-1975); BS, professor emeritus of industrial technology
- Dudley, Lloyd P.** (1956-1972); BA, MA, professor emeritus of speech communication
- Ervin, Dwain T.** (1964-1984); BA, MA, Ph.D., professor emeritus of history
- Farwell, Hermon W.** (1966-1984); AB, MA, professor emeritus of speech communication
- Fouts, Kenneth B.** (1962-1985); AA, BFA, MA, Ph.D., professor emeritus of speech communication
- Griffith, Gerald V.** (1947-1967); BS, MA, professor emeritus of agriculture
- Hammond, William A.** (1957-1987); BSBA, MBA, professor emeritus of accounting
- Hobbs, Harold C.** (1966-1984); BA, MA, Ph.D., professor emeritus of psychology
- Hobson, Henry** (1948-1978); BE, professor emeritus of air conditioning/refrigeration
- Hostetler, Charles E.** (1964-1988); BA, MA, Ed.D., professor emeritus of education
- Howard, John R.** (1967-1986); BA, MA, professor emeritus of geography.
- Howard, Maurice L.** (1962-1979); Th.B., AB, MA, Ed.D., professor emeritus of psychology
- Ihrig, Paul R.** (1946-1971); BS, MA, professor emeritus of fine arts
- Jurie, Carl A.** (1956-1980); BA, MA, professor emeritus of geology
- Kent, (Kahn) Theodore C.** (1965-1978); BA, MA, Ph.D., Sc.D., professor emeritus of behavioral science
- Kenyon, Gordon R.** (1960-1980); BA, MA, Ph.D., professor emeritus of history
- Kurtin, Alfred D.** (1945-1969); BA, MA, emeritus registrar
- Levy, Ralph W.** (1957-1981); BA, MA, professor emeritus of music
- Lund, Carl** (1957-1978); professor emeritus of welding
- Middleton, Donald S.** (1948-1980); BA, M.Ed.D., professor emeritus of electronics
- Mikkelsen, Harry E.** (1958-1977); BA, M.Basic Science, professor emeritus of physics
- Miller, Robert E.** (1952-1983); BS, MS, professor emeritus of chemistry
- Miller, Wilbur C.** (1967-1988); BA, MBS, Ph.D., professor emeritus of mathematics
- Orman, Leonard M.** (1970-1982); BS, MA, professor emeritus of mathematics
- Prater, Joseph C., Jr.** (1956-1988); BS, MS, professor emeritus of mathematics
- Redman, Ralph J.** (1965-1989); BA, MA, MAT, professor emeritus of mathematics
- Reiff, Glenn A.** (1978-1989); BS, MS, professor emeritus of electronics engineering technology
- Reinier, Edward R.** (1964-1987); BS, MA, professor emeritus of management
- Roach, George R.** (1966-1989); AB, MM, professor emeritus of music
- Rudd, John P.** (1965-1982); BA, MA, Ed.D. professor emeritus of psychology
- Sadler, George** (1965-1987); BS, MS, Ph.D., professor emeritus of economics
- Sanderson, James M.** (1947-1976); BS, MA, professor emeritus of history
- Senatore, John J.** (1958-1986); BA, MA, Ed.D., professor emeritus of English
- Shih, Tsang Yu (Tom)** (1964-1984); BSM, professor emeritus of metallurgical engineering technology
- Simmons, Harry H.** (1946-1980); BABE, M.Ed., professor emeritus of physical education
- Simms, Houston C.** (1947-1975); BA, MA, professor emeritus of biology
- Smith, John E.** (1962-1989); AA, BA, Ph.D., professor emeritus of chemistry
- Socha, Frances J.** (1967-1982); BSN, MA; professor emeritus of nursing
- Taussig, Anna** (1960-1977); AB, MA, professor emeritus of foreign language
- Threlkeld, Budge** (1964-1987); AA, BA, MA, Ph.D., professor emeritus of speech communication/theatre
- Tilley, Lewis L.** (1965-1983); BFA, MFA, professor emeritus of art
- Townley, Rodney D.** (1945-1978); M.Mus.Ed., professor emeritus of music



- Vunovich, Bogdan (Bob)** (1967-1988); AB, MA, professor emeritus of mathematics
- Wack, Dunstan J.** (1969-1982); BS, MA, Ph.D., professor emeritus of psychology
- Watkins, Sallie A.** (1966-1988); BS, MS, Ph.D., professor of physics
- Whitmer, Jean E.** (1970-1987); BA, MA, Ph.D., professor emeritus of education
- Whitsitt, Ronald G.** (1959-1989) BA, MA, professor emeritus of English

### RANKED FACULTY

The following individuals were ranked faculty members in the 1988-89 academic year. The date in parenthesis indicates the initial year of regular appointment to the ranked faculty.

- Abrahamson, Gayle** (1985) instructor of library services; AA, Golden Valley Lutheran College; BA, Concordia College; MAR, Iliff School of Theology; MA, University of Denver
- Aguilar, M. Kay** (1964) professor of human performance and leisure studies; BS, Lock Haven State College; MA, Adams State College; Ed.D., University of Northern Colorado
- Ahmadian, Ahmad** (1986) assistant professor of management; BA, Tehran University; MBA, Ph.D., North Texas State
- Aichele, Ronald G.** (1972) associate professor of philosophy; BA, MA, Ph.D., University of Missouri
- Allen, Ernest E.** (1963) professor of mathematics; BS, Wayne State University; BS, MA, Michigan State University; MATM, University of Detroit; Ed.D., University of Northern Colorado
- Anderson, Deyrol E.** (1983) professor of mass communications; BA, Washington State University; MA, San Francisco State University; Ph.D., University of Denver
- Askwig, William J.** (1962) professor of economics; BSBA, MBA, University of Denver; Ph.D., Texas Tech University
- Atteberry, Sarah** (1975) assistant professor of nursing; BS, University of Southern Colorado; MS, University of Northern Colorado; MSN, University of Southern California at Los Angeles
- Baca, Judy M.** (1981) associate professor of social work; BS, University of Southern Colorado; MSW, Arizona State University
- Banks, Jessie F.** (1966) assistant professor of human performance and leisure studies; BS, Central State University; MA, Adams State College

- Bassein, Beth Ann** (1966) professor of English; BA, Tarkio College; MA, Ph.D., University of Missouri
- Beck, J. Michael** (1970) associate professor of music; BA, University of Southern Colorado, MA, Western State College; DA, University of Northern Colorado
- Benton, Johnny** (1968) professor of speech communication; BA, Panhandle A&M; MA, University of Arkansas; Ph.D., University of Oklahoma
- Beruman, Kathleen** (1987) assistant professor of nursing; BSN, University of Southern Colorado; MSN, University of Texas at Austin
- Binkly, Gail N.** (1986) assistant professor of mass communications; BS, University of Southern Colorado; MA, The Ohio State University
- Borton, John M.** (1983) assistant professor of computer science technology; BA, Purdue University; MS, University of Northern Colorado
- Bottini, Patrick W.** (1968) associate professor of industrial science and technology; BS, Southern Colorado State College; MA, Adams State College
- Bramlett, Lindsey, L.** (1982) instructor of mathematics; BA, University of California; MA, California State University
- Bridges, Gary** (1986) assistant professor of accounting; BA, Baylor University; MBA, University of Texas; CPA
- Bright, A. Leon** (1963) professor of foreign language; BS, Central Missouri State College; MA, University of Kansas; Ph.D., University of New Mexico
- Browne, Nancy** (1988) assistant professor of life science; BS, Western Illinois University; MS, Ph.D., University of Illinois
- Burgos, Fernando** (1988) assistant professor of mathematics; BS, Universidad De Yucatan; MS, Instituto Politenico Nacional De Mexico
- Burton, Peter** (1988) assistant professor of electrical engineering; BSEE, University of London; MSEE, Southern Methodist University
- Buckles, William G.** (1965) professor of anthropology; BA, MA, Ph.D., University of Colorado
- Cain, Robert L.** (1970) associate professor of library services; BA, Baylor University; MLS, Louisiana State University
- Cameron, James T.** (1970) professor of psychology; BA, The Colorado College; MA, Ph.D., University of Colorado
- Chandler, William D.** (1982) assistant professor of management; BS, Massachusetts Institute of Technology; MBA, University of San Francisco

- Chen, Frank T.** (1982) associate professor of mechanical engineering technology; BSME, Chung Cheng College of Science and Engineering, Taiwan; MSME, Clemson University; Ph.D., North Carolina State University
- Cheng, Joseph K.** (1973) professor of engineering; BS, Taiwan Christian College; MS, University of Massachusetts; Ph.D., University of Oklahoma
- Cobaugh, Robert** (1986) associate professor of mechanical engineering technology; BS, University of Pittsburgh; MS, Colorado State University
- Connelly, Jerald J.** (1979) professor of chemistry; BS, Ph.D., University of Rochester
- Cook, Robert N.** (1981) professor of computer science technology; BEE, General Motors Institute; MSE, University of Michigan; M.Sc., Ph.D., University of Western Ontario
- Covi, Silvio** (1986) assistant professor of foreign language; B.Th., Universitas Urbaniana, Rome, Italy; MA, Ph.D., State University of New York at Buffalo
- Croxton, Carol I.** (1978) associate professor of English; BA, MA, Pd.D., Ball State University
- Dawson, Roseanne** (1984) associate professor of library services; BA, Drake University; MA, University of Iowa; MLS, University of Denver
- Daxton, Lawrence E.** (1966) professor of history; BA, MA, University of Northern Colorado Ph.D., University of Colorado
- Derr, James B.** (1984) professor of mathematics; BA, College of St. Thomas; Ph.D., Michigan State University
- Dhatt, Yashwant S.** (1983) associate professor of finance; B.Com., MA, University of Delhi; MBA, McGill University; Ph.D., Georgia State University
- Dille, Ralph G.** (1976) professor of English; BA, BS, MA, Bowling Green State University; Ph.D., Ball State University
- Dorsch, John A.** (1965) professor of biology; BA, Willamette University; MS, Ph.D., Oregon State University
- Driscoll, Donald J.** (1965) professor of philosophy; BA, Sophia University; MA, Ph.D., New School for Social Research
- Druelinger, Melvin L.** (1985) professor of chemistry, and director, Research and Sponsored Programs; BS, Indiana University; Ph.D., University of Wisconsin
- Duncan, James L.** (1958) professor of music; BM, Central College; MM, Eastman School of Music
- Eagan, William T.** (1962) professor of history, and director, Academic Advising; BA, University of Denver; MA, Claremont Graduate School
- Eisenbeis, H. Richard** (1988) associate professor of management; BA, Lafayette College; MS, University of Montana; MS, Ph.D., the University of Arizona
- Farris, Gerald C.** (1967) professor of biology; BA, Dakota Wesleyan University; MS, University of Utah; MS, Ph.D., Colorado State University
- Forsyth, Dan W.** (1984) associate professor of anthropology; BA, University of California; MA, University of Chicago; Ph.D., University of California
- Gardner, Rick M.** (1969) professor of psychology; BA, Humboldt State University; MA, Ph.D., University of Nevada
- Giffin, Walter C.** (1987) professor of engineering; BIE, MSc, Ph.D., The Ohio State University
- Gilbert, Gail L.** (1980) associate professor of nursing; BS, Texas Women's University; ADN, Texarkana Community College; BSN, Metropolitan State College; MSN, University of Texas at Arlington
- Gill, John P., Jr.** (1971) professor of mathematics; BS, University of Georgia; MA, University of Alabama; Ph.D., Colorado State University
- Graham, Robert E.** (1980) associate professor of physics; BS, University of Tulsa; MS, Ph.D., University of Arkansas
- Grate, Jon** (1986) instructor of library services; BA, Western Illinois University; MLS, Louisiana State University
- Green, Pearl (Penny)** (1982) assistant professor of sociology; BA, City College of New York; MA, Ph.D., Southern Illinois University
- Greet, Richard J.** (1983) professor of mechanical engineering technology; BEE, Rensselaer Polytechnic Institute; MS, Ph.D., Harvard University
- Griffin, John R.** (1963) professor of English; BS, MS, Xavier University; Ph.D., Ottawa University; Ph.D., Trinity College, Dublin
- Gutierrez, James M.** (1978) assistant professor of education; BA, University of Southern Colorado; MA, New Mexico Highlands University
- Hammer, Charles R.** (1964) associate professor of chemistry; BA, Ph.D., University of Utah
- Hearn, June L.** (1967) assistant professor of psychology; BA Rice University; MS, Iowa State University

- Hench, Robert W.** (1965) associate professor of art; BFA, University of Denver; MA, The Colorado College
- Herrmann, Scott J.** (1968) professor of biology; BS, Northern Illinois University; Ph.D., University of Colorado
- Hill, Warren R.** (1981) professor of electronics engineering technology; BSEE, University of Nebraska; MSEE, Wayne State University; Dr. Engr., University of Detroit
- Hirth, Alan** (1976) assistant professor of civil engineering technology; BA, University of Colorado
- Holderness, Ward L.** (1969) assistant professor of civil engineering technology; AAS, BS, Southern Colorado State College
- Hughes, Cornelius G.** (1976) associate professor of sociology; BA, Belmont College; MA, California State University at Northridge; Ph.D., The Pennsylvania State University
- Illick, Peter M.** (1971) assistant professor of English; BA, University of Vermont; MA, University of Wyoming
- Janes, Donald W.** (1963) professor of biology; BA, Baker University; MA, University of Kansas, Ph.D., Kansas State University
- Jenkins, Robert B.** (1972) professor of electronics engineering technology; BS, University of Washington; ME, The Pennsylvania State University
- Jensen, Carl G.** (1970) professor of art; BS, Indiana Central College; MAT, Indiana University; MFA, University of New Mexico
- Johnson, Roger W.** (1977) associate professor of mathematics; BS, Fort Lewis College; MS, DA, Idaho State University
- Keller Robert L.** (1974) professor of sociology; BA, University of Colorado; MS, Colorado State University; Ph.D., University of Montana
- Kellogg, William L.** (1969) associate professor of music; BA, MS, Omaha University; MM, University of Nebraska
- King, Karmyn M.** (1979) associate professor of nursing; ADN, Community College of Denver; BS, MS, University of Colorado
- Knight, Douglas W.** (1980) associate professor of computer science technology; BS, MS, Ph.D., Arizona State University
- Kondas, Patricia** (1988) instructor of mass communications; BA, MA, University of Wyoming
- Kochenberger, Gary A.** (1986) professor of management; BSEE, MBA, DBA, University of Colorado
- Krinsky, Richard** (1968) professor of psychology; BA, MA, Michigan State University; Ph.D., University of Washington
- Krinsky, Suzanne G.** (1968) associate professor of psychology; BA, Wayne State University; MA, Michigan State University; Ph.D., University of Washington
- Kulkosky, Paul J.** (1984) associate professor of psychology; BA, Columbia College; MA, Columbia University; Ph.D., University of Washington
- Lamb, Therese** (1987) professor of library services; BA, Stanford University; MA, University of Washington; MA, University of Denver
- Latka, Nicholas** (1987) assistant professor of art; BS, University of Southern Colorado; MFA, University of Colorado
- Li, Hung Chiang** (1969) professor of mathematics; BA, University of Chekiang; MS, Michigan State University; Ph.D., Purdue University
- Linam, Jay H.** (1965) professor of biology; BS, University of Idaho; MS, Ph.D., University of Utah
- Love, Alan P.** (1961) professor of political science; BA, University of Colorado; doctor rerum politicarum, University of Vienna, Austria
- Madrid, L. Dennis** (1976) associate professor of psychology; BA, University of Southern Colorado; MS, New Mexico Highlands University; Ph.D., University of California at Santa Barbara
- Mahan, Kent I.** (1969) professor of chemistry; BS, Southwest Missouri State University; Ph.D., University of Missouri
- Marino, Charles J.** (1966) associate professor of art; BA, St. John's College; BFA, Pratt Institute; MA, Columbia Teacher's College
- Martinet, Anthony** (1969) associate professor of automotive parts and service management; BS, University of Southern Colorado; M.Ed., Colorado State University
- Massey, Frank A. Jr.** (1963) associate professor of engineering; BIE, BBA, MS, University of Minnesota; Ph.D., University of Wisconsin
- May, Alan M.** (1984) associate professor of computer science technology; BS, Wilmington College; Ph.D., University of Cincinnati
- McCanne, Roy** (1974) professor of education, and director, Instructional Development; BA, Oberlin College; MA, Ed.D., University of Denver

- Means, Gary** (1987) associate professor of social work; BA, MA, San Diego State University; Ph.D., University of Denver
- Mettler, Marilynn V.** (1980) associate professor of nursing; BSN, University of Missouri; MS, University of Colorado
- Miller, Glenn W.** (1974) assistant professor of mass communications; BA, University of Southern Colorado; MA, University of Denver
- Miller, Margaret G.** (1976) associate professor of education; BA, Indiana University; MS, Butler University; Ph.D., Purdue University
- Mills, Nancy** (1988) assistant professor of industrial and manufacturing engineering; BSE, MSE, Arizona State University; MBA, Ph.D., Oregon State University
- Milne, Donald C.** (1965) associate professor of foreign language; BA, MA, University of Utah; Ph.D., Brigham Young University
- Mo, Suchoon S.** (1973) professor of psychology; BS, Idaho State College; MA, Indiana University; Ph.D., University of Pennsylvania
- Moffeit, Tony A.** (1976) associate professor of library services, BS Oklahoma State University; MLS, University of Oklahoma
- Morales, Herberto** (1987) assistant professor of foreign language; Seminars in Las Casas, Montezuma, and Puebla, Mexico; Ph.D., Gregorian University in Rome
- Muller, Doyle K.** (1963) associate professor of music; BM, BA, Huron College; MM, University of Colorado
- Murray, Hal** (1969) associate professor of biology; BA, MS, University of Arizona, Ph.D., Purdue University
- Mutzebaugh, Carole A.** (1981) professor of nursing; BS, MS, Ed.D., University of Colorado
- Nicholl, Larimore R.** (1968) assistant professor of philosophy; BA, The Colorado College; MA, Claremont Graduate School
- Nichols, Janet E.** (1977) assistant professor of mathematics; BA, Adelphi University; MS, Lehigh University
- Noreiko, Gary** (1984) associate professor of finance; BA, MA, California State University at Los Angeles; Ph.D., University of Southern California

- O'Leary, Emmett L.** (1972) associate professor of speech communication; BA, Adams State College; MA, Central Michigan University; Ph.D., University of Nebraska
- Olin, Carol M.** (1971) assistant professor of English; BA, MA, University of Colorado
- Orman, Patricia** (1978) associate professor of mass communications; BA, University of New Hampshire; MA, University of Northern Colorado
- Orr, Gilbert F.** (1977) associate professor of mathematics; BA, St. Johns University; MS, Ph.D., University of Miami
- Osborn, Neal L.** (1965) professor of biology; BA, Baldwin-Wallace College; BA, University of Southern Colorado; MS, Ph.D., University of New Mexico
- Otis, Pauletta** (1988) assistant professor of political science; BA, MA, University of Northern Colorado; MA, Ph.D., University of Denver
- Padgett, John H.** (1969) associate professor of computer science technology; BS, University of Southern Colorado; MBA, University of Colorado
- Pavlik, Richard E.** (1963) professor of mass communications; BS, MA, The Ohio State University
- Perkins, David M.** (1978) professor of electronics engineering technology; BSEE, The Pennsylvania State University; MSEE, Princeton University
- Peterlin, Edward L.** (1963) associate professor of accounting; BS, University of Colorado; MA, University of Northern Colorado, CPA
- Phillips, David L.** (1971) professor of mathematics; BS, Ball State University; MS, Ph.D., Purdue University
- Plonkey, Kenneth D.** (1968) professor of theatre; BA, University of Northern Colorado; MA, Ph.D., Southern Illinois University
- Podgurski, Dwight T.** (1985) instructor of speech communication; BS, University of Wyoming; MA, California State University at Northridge
- Post-Gorden, Joan C.** (1970) professor of psychology, and director, Scholarly and Creative Activities; BS, Manchester College; MS, Ph.D., University of Georgia
- Rader, H. Freeman** (1987) assistant professor of business administration; BA, MA, Ph.D., University of Colorado

- Ribal, John L.** (1988) assistant professor of economics; BA, Adams State College; MS, New Mexico State University; Ph.D., University of Notre Dame
- Ryan, John E.** (1980) associate professor of interdisciplinary studies, and director, Special Academic Programs; BA, University of California at Los Angeles; MA, California State University at Northridge; MA, Ph.D., Claremont Graduate School
- Sabo, Barbara J.** (1974) associate professor of nursing; RN, St. Mary Corwin Hospital School of Nursing; AA, Pueblo College; BS, MS, University of Colorado
- Sajbel, Edward R.** (1955) professor of art; AA, Pueblo College; BA, MA, University of Northern Colorado
- Sandoval, David A.** (1980) professor of Chicano studies and history; BS, Eastern New Mexico University; MA, Southern Methodist University; Ph.D., University of Utah
- Sarper, Huseyin** (1988) assistant professor of industrial engineering; BS, The Pennsylvania State University; MS, Ph.D., Virginia Polytechnic Institute
- Sarver, P. Merle** (1965) professor of economics; AA, Lamar State College; BA, MA, University of Texas; Ph.D., University of Nebraska
- Sathi, Harbans L.** (1984) professor of computer science technology; DIC, Imperial College of Science and Technology, (University of London); MA, Punjab University; Ph.D., Indian Institute of Technology
- Saul, Roger E.** (1983) associate professor of chemistry; BS, MS, Michigan Technological University; DA, University of Northern Colorado
- Schaeffer, Frederick** (1963) professor of geology; BSGE, AM, Washington University; Ph.D., University of Utah
- Schnur, Paul** (1978) professor of psychology; BA, Queens College; MA, North Carolina State University; Ph.D., Indiana University
- Senatore, Margaret L.** (1964) assistant professor of English; BA, The Colorado College; MA, University of Colorado
- Shah, Abhay** (1988) assistant professor of marketing; BA, St. Xavier's College (Calcutta University); MBA, University of Evansville
- Sherman, John R.** (1971) professor of speech communication; BA, Hunter College; MA, Ph.D., Southern Illinois University

- Smith, Robert L.** (1974) assistant professor of computer science technology; BS, University of Southern Colorado
- Solis, Jose J.** (1973) associate professor of social work; BS, University of Southern Colorado; MSW, University of Denver
- Spenny, David L.** (1980) associate professor of physics; BS, Wittenberg University; Ph.D., University of Colorado
- Stjernholm, Kirstine** (1967) associate professor of library services; BA, Augustana College; MA, University of Denver
- Strader, Robert L.** (1969) professor of education; AA, Pueblo College; BA, MA, University of Northern Colorado; Ed.D., University of Idaho
- Strobel, John D.** (1960) professor of music; BME, Fort Hays State College; MM, DMA, University of Michigan
- Stutters, Donald G.** (1960) professor of human performance and leisure studies; BA, MA, Southwestern Oklahoma State College; Ed.D., University of Colorado
- Sublette, James E.** (1984) professor of biology; BS, MS, University of Arkansas; Ph.D., University of Oklahoma
- Sullivan, Daniel R.** (1970) associate professor of library services; BA, University of Kentucky; MLS, University of Oregon
- Sweet, Jerry L.** (1976) associate professor of mechanical engineering technology; AAS, Pueblo College; BS, University of Southern Colorado; MS, Colorado State University
- Tappen, John B.** (1982) associate professor of computer science technology; BA, Wesleyan University; BS, University of Utah; MS, the University of Arizona; Ph.D., University of Tennessee
- Taylor, Kenneth B.** (1969) assistant professor of English; BA, University of Southern Colorado; MA, University of Texas at El Paso
- Tedrow, Charles E.** (1968) associate professor of industrial science and technology; AB, MA, University of Northern Colorado
- Thomas, Larry G.** (1968) associate professor of agriculture, and athletic director; BS, Oklahoma State University; M.Ed., Ph.D., Colorado State University
- Trujillo, Henry E.** (1972) assistant professor of education; AA, Santa Monica City College; BA, MA, Adams State College; Ed.D., University of Northern Colorado

- Vincent, Gary L.** (1968) associate professor of English; BA, MAT, Northwestern Oklahoma State College; Ed.D., University of Northern Colorado
- Vorce, Armand E.** (1977) professor of music; BS, Ithaca College; MA, University of Iowa; Ed.D., Boston University School of Education
- Wade, Robert A.** (1970) associate professor of automotive parts and service management; AA, Treasure Valley Community College; BS, M.Ed., Colorado State University
- Wahl, E. Frances** (1987) assistant professor of nursing; BSN, University of Illinois; MS, University of Colorado
- Wallin, Marta J.** (1987) assistant professor of physics; MS, Jagiellonian University, Cracow, Poland; Ph.D., University of Wyoming
- Wands, Robert J.** (1963) associate professor of art; BFA, MA, University of Denver
- Warfield, Dale E.** (1971) professor of electronics engineering technology; AA, Austin Junior College; BEE, University of Minnesota; MSEE, Southern Methodist University
- Watkins, Donna M.** (1988) associate professor of management; BBA, Sul Ross State University; MAT, Angelo State University; Ph.D., New Mexico State University
- Whitesell, Diane** (1988) assistant professor of accounting; BSBA, MBA, University of Colorado at Colorado Springs
- Wilkes, Linda M.** (1983) associate professor of chemistry; BA, California State University; Ph.D., University of Nevada at Reno
- Withnell, Melvin C.** (1967) professor of mathematics; BS, Valley City State College; MS, University of North Dakota; MA, University of Illinois; Ph.D., University of Michigan
- Womack, Larry O.** (1972) associate professor of civil engineering technology; AA, University of Southern Colorado; BSCE, Colorado State University; MSCE, University of Missouri
- Wright, Will** (1986) associate professor of sociology; BA, University of Oregon; MA, University of Rochester; Ph.D., University of California
- Zeis, Charles** (1987) assistant professor of business administration; BA, University of St. Thomas; MS, Ph.D., Texas A & M University

**MILITARY SCIENCE FACULTY**

- Althause, Kevin** Captain, U.S. Army (1987) assistant professor of military science; BA, Texas A & M University
- Cumberbatch, Andrew** Sergeant First Class, U.S. Army (1988) instructor of military science
- Dillon, Robert D.** Lieutenant Colonel, U.S. Army (1989) professor of military science; BS, Troy State University; MA, Farleigh Dickinson University
- Edens, Fred R.** Captain, U.S. Army (1988) assistant professor of military science; BS, MS, East Tennessee State University
- Ellis, Stanley** Master Sergeant, U.S. Army (1988) instructor of military science
- Mercurio, Sally B.** Major, U.S. Army (1985) assistant professor military science; BA, University of Colorado
- Wolf, Percival D.** Captain, U.S. Army (1985) assistant professor of military science; BA, Kearney State College

### ARTISTS-IN-RESIDENCE

**Cedrone, Frank J.** (1969) artist-in-residence; artist diploma in piano, Boston Conservatory

**Markowski, Victoria** (1969) artist-in-residence; BM, Boston Conservatory



## ACADEMIC CALENDARS 1989-92

### FALL AND SPRING SEMESTERS

Regular academic semesters consist of 15-week terms, including official holidays and the final examination period. Specific information about each academic semester is available in the bulletins published prior to the beginning of each term.

### SUMMER COLLEGE

Summer College consists of two five-week sessions and one ten-week session. Specific information about Summer College is available in the bulletin published prior to the beginning of the first five-week term, from the Office of the Director of Continuing Education or from the Office of the Provost.

**Summer Session 1989**

June 3.....	Registration
June 5.....	Summer semester begins
July 4.....	Independence Day - holiday
August 11.....	Summer semester ends

**1989-90****Fall Semester 1989**

April 3-14.....	Advisement
April 17-21.....	Early Registration
August 22,23.....	Orientation
August 24,25.....	Registration
August 28.....	First day of classes
September 12.....	End of drop/add period
November 22-24.....	Thanksgiving
December 8.....	Classes End
December 11-14.....	Final Exams
December 14.....	Finals End

**Spring Semester 1990**

October 30-November 10	Advisement
November 13-17.....	Early Registration
January 15,16,17.....	Orientation
January 18, 19.....	Registration
January 22.....	Classes Begin
February 5.....	End Drop/Add
March 26-30.....	Spring Break
May 4.....	Classes End
May 7-11.....	Final Exams
May 11.....	Finals End
May 12.....	Commencement

**Summer Semester 1990**

April 30-May 4.....	Early Registration
June 1.....	Registration
June 4.....	5 & 10 Week Classes Begin
July 4.....	Independence Day
July 6.....	5-week Classes End
August 10.....	10-week Classes End

\*Based upon School District 60's schedule.

**(These calendars are planned in advance and are subject to change.)**

**1990-91****Fall Semester 1990**

April 9-20.....	Advisement
April 23-27.....	Early Registration
August 20,21,22.....	Orientation
August 23,24.....	Registration
August 27.....	Classes Begin
September 3.....	Labor Day (NOT A SCHOOL HOLIDAY)
September 10.....	End Drop/Add
November 19-23.....	Thanksgiving
December 7.....	Classes End
December 10-14.....	Final Exams
December 14.....	Finals End

**Spring Semester 1991**

October 29-November 9...	Advisement
November 12-16.....	Early Registration
January 14,15,16.....	Orientation
January 17,18.....	Registration
January 21.....	Classes Begin
February 4.....	End Drop/Add
March 18-22.....	Spring Break (*)
May 3.....	Classes End
May 6-10.....	Final Exams
May 10.....	Finals End
May 11.....	Commencement

**Summer Semester 1991**

April 29-May 3.....	Advisement
May 31.....	Registration
June 3.....	5 & 10 Week Classes Begin
July 4.....	Independence Day
July 5.....	5-Week Classes End
August 9.....	10-Week Classes End

\*To be announced, based upon School District 60's schedule.

**(These calendars are planned in advance and are subject to change.)**



1991-92

Fall Semester 1991

April 8-19..... Advisement  
 April 22-26..... Early Registration  
 August 19,20,21..... Orientation  
 August 22,23..... Registration  
 August 26..... Classes Begin  
 September 2..... Labor Day (NOT A SCHOOL HOLIDAY)  
 September 9..... End Drop/Add  
 November 25-29..... Thanksgiving  
 December 6..... Classes End  
 December 9-13..... Final Exams  
 December 13..... Finals End

Spring Semester 1992

November 4-15..... Advisement  
 November 18-22..... Early Registration  
 January 20,21,22..... Orientation  
 January 23,24..... Registration  
 January 27..... Classes Begin  
 February 10..... End Drop/Add  
 March 23-27..... Spring Break (\*)  
 May 8..... Classes End  
 May 11-15..... Final Exams  
 May 15..... Finals End  
 May 16..... Commencement

Summer Semester 1992

April 27-May 1..... Early Registration  
 June 5..... Registration  
 June 8..... 5 & 10 Week Classes Begin  
 July 3..... Independence Day  
 July 10..... 5-Week Classes End  
 August 14..... 10-Week Classes End

\*To be announced, based upon School District 60's schedule.  
 (These calendars are planned in advance and are subject to change.)

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