BULLETIN

catalog issue

1987-88

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Pueblo, Colorado
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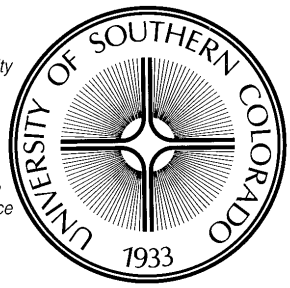
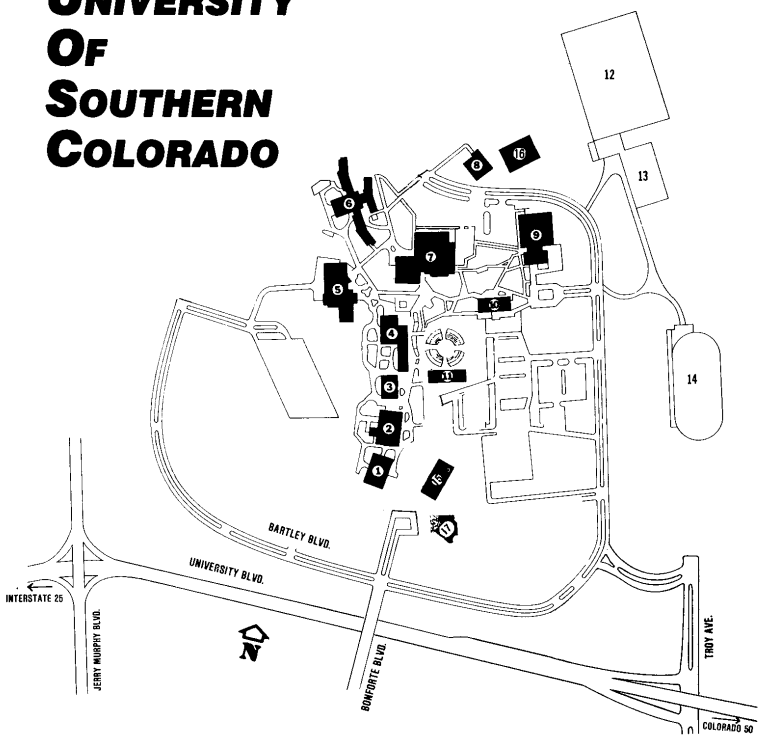
An Invitation

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
2. Life Sciences Building
3. Chemistry/Geology Building
4. Library Building
5. Art/Music Building
6. Residence Hall
7. University Center
8. Heating Plant
9. Health, P.E. and Recreation Building
10. Administration Building
11. Psychology Building
12. Field - Baseball
13. Tennis Courts
14. Field - Football and Track
15. Occupational Technology Facility
16. Physical Plant Building
17. Buell Communications Center

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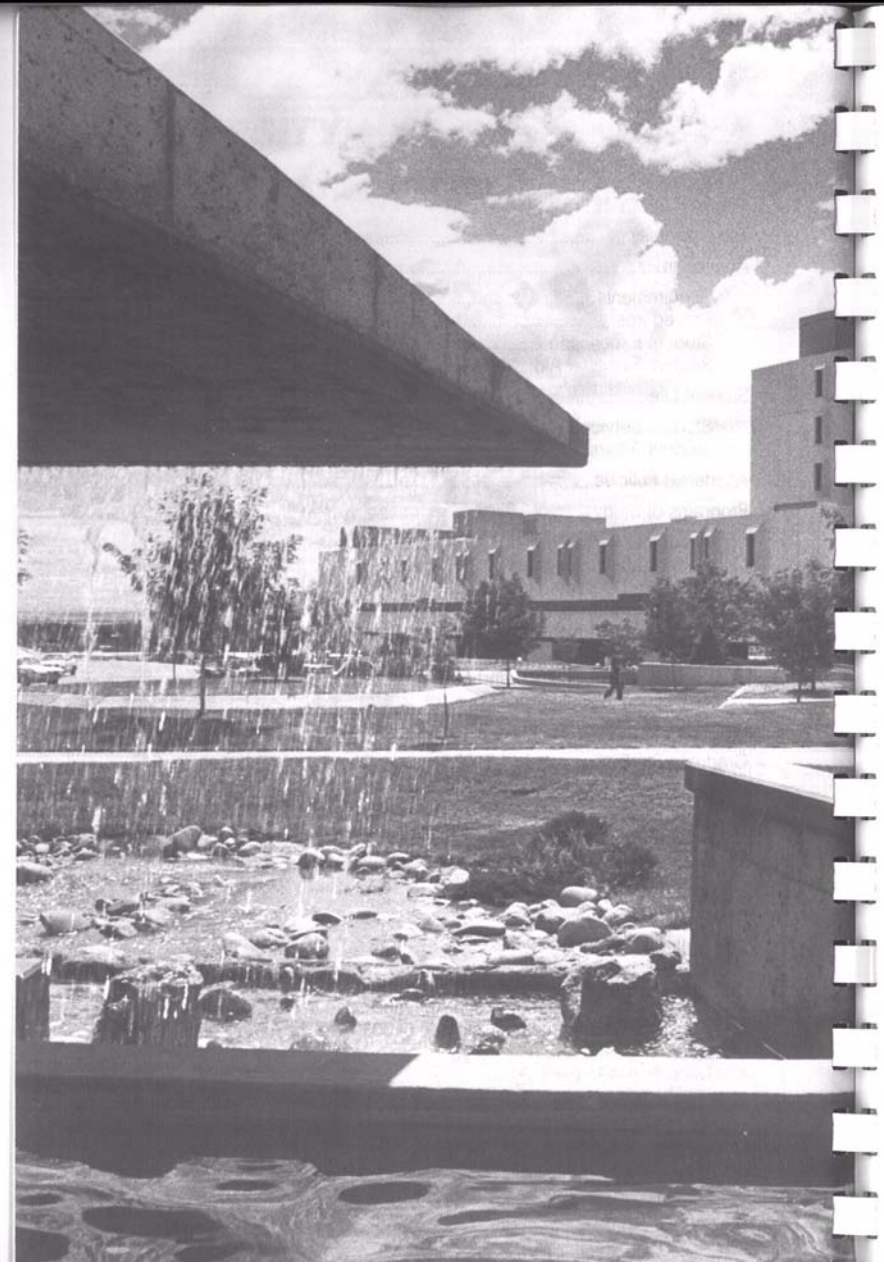
The bulletin

is authorized by the State Board of Agriculture and is published four times a year; two times in March, once in April and once in November. Second-class postage paid at Pueblo, Colorado 81003. (The zip code is that of the main post office, not the university.)



THE UNIVERSITY

HISTORY

The University of Southern Colorado has served the changing needs of the citizens of Colorado for more than 50 years in a variety of educational settings.

In 1933, the school 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 began to take shape on an Orman Avenue campus site donated by the Colorado Fuel and Iron Corporation. One year later, local citizens decided to support the institution with county taxes, so they organized the Pueblo County Junior College District and the school 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 new 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 decision to accelerate its drive to full university status.

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 threefold 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. But 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, and the greatest amount of time and resources are devoted to maximum performance in the classroom. At the same time, faculty also have an obligation to engage in research to add to the store of knowledge in various disciplines and fields, as well as to apply that knowledge to community and regional problems. Also, faculty involvement in research substantially enhances the quality of teaching at a university.

In addition to the primary emphasis on teaching and the accompanying obligation to conduct research, the university is committed to serving the surrounding community and region. The service obligation is fulfilled primarily through the processes of teaching and research, as the outcome of those activities significantly addresses the needs of society. But a regional university which strives for excellence must contribute in other ways to the overall quality of life and economic growth in its surrounding environment through 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 to educational programs, emphasizing and fostering cultural pluralism, 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), research (necessary to the advancement of knowledge and to high-quality teaching), and community service (programs which contribute actively to 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 coming three years, the University of Southern Colorado will place special emphasis on achieving the following goals and priorities:

- 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 interactions 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.

GOVERNANCE

As a 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.

Respective individual programs are approved by the following accrediting bodies:

Chemistry	American Chemical Society
Engineering Technology	Accreditation Board for Engineering and Technology
Education	National Council for Accreditation in Teacher Education; Colorado State Board of Education
Music	National Association of Schools of Music
Nursing	National League for Nursing
Bachelor of Social Work	Council on Social Work Education

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. The university takes affirmative action to ensure that applicants are employed, and that employees are treated during employment, without 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; rates 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 this non-discrimination policy.

THE CAMPUS

USC's campus, spanning more than 800 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.

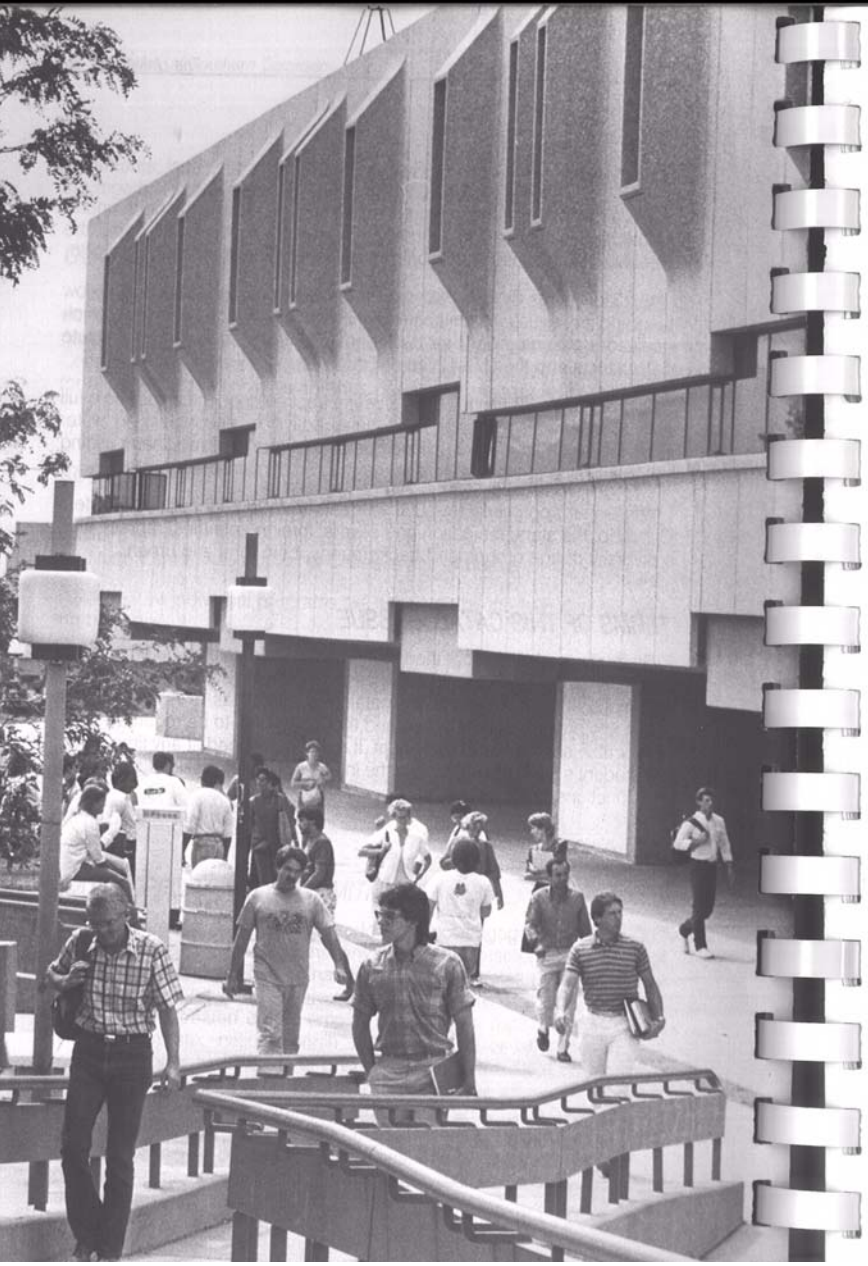
All 13 buildings on campus, as well as fountains and pathways, follow the grand and unusual architecture of the University Library complex, which received a national award for design in 1966 from the American Institute of Architects and the U.S. Office of Education.

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 59 of this issue. The 1987-88 issue becomes effective fall semester, 1987. Information contained within the catalog is current as of April 1987, but subject to change without notice and therefore is not to be regarded as an irrevocable contractual commitment. It may be changed 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 admissions 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 undergraduate admissions and campus visits should be addressed to the Office of Admissions, USC, Pueblo, CO 81001-4901.

REQUIREMENTS

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 score.

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:

a) the applicant's academic and personal potential to benefit from or contribute to university programs; and,

b) the applicant's previous academic record.

Students with non-traditional backgrounds are encouraged to apply to the University of Southern Colorado.

Admission requirements. Students may apply any time after 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:

1) a completed USC application;
2) a $10 application fee (non-refundable);
3) an official transcript of high school records; and
4) scores from either the ACT or the SAT.

NOTE: Acceptance by the university does not necessarily mean acceptance into a particular department or program. Some departments 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 for the first time must file with the Office of Admissions an application for admission and $10 application fee. They also must make certain that each institution attended sends an official transcript of record to the director of Admissions at USC. ACT or SAT scores and final high school transcripts also must be submitted if total transfer credits earned are less than 12 semester hours.

Transferring 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 fully of previous college work may be subject to disciplinary action, including dismissal.

Transfer of credit. Credit is accepted by USC from accredited institutions recommended 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. A maximum of 96 semester hours will be accepted in transfer toward degree completion at USC. Grades of D and F are not accepted.

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

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.

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 whether or not they apply to major requirements.

Transfer students should be aware of the 12-year time limit on credit earned toward a bachelor's degree, which applies to both transfer and resident credit. (Further 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 before they are destroyed.

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. If a student has taken humanities or social science classes before taking CLEP tests, those credits are deducted from the CLEP credits.

A maximum of 30 hours of correspondence and/or extension 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.

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 $10 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

5) The Student Health Statement. This statement must be completed and returned to USC before the university issues an I-20 form.

The Office of Admissions reserves the right to consider policy changes. 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 the student wishes to enroll. A student who withdraws, or is withdrawn, from the university and is subsequently readmitted after an absence of two or more semesters, is governed after readmission by the catalog current at the time of readmission. Any exceptions to the policy must have prior approval. Degree-seeking students who, while absent from USC, have attended other collegiate institutions or have taken college-level correspondence or extension courses must provide complete official transcripts of such studies.

The application fee is not required of undergraduates who have formerly attended the university as degree-seeking students.

UNCLASSIFIED STUDENTS

Unclassified status is reserved for applicants who wish to enroll in courses without degree-seeking status. Applicants who are 20 years of age or older and who wish to register as unclassified are required to file an application with the Office of Admissions.

Unclassified status is intended for students who already have received a college degree or desire a course or two:

1) to satisfy a special interest or curiosity;

2) to update career knowledge base; or

3) to become familiar with college-level work.

A full load (12 semester hours or more) may be carried by an unclassified student during the first semester at the university. Students attempting to register for a full load for a second consecutive semester are required to justify their unclassified status to the Office of Admissions. Unclassified students are ineligible to receive financial assistance from the university.

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.

HIGH SCHOOL STUDENTS

High school seniors may register for classes at the university and receive college credit applicable toward a degree. This credit is not intended to be applicable toward high school graduation requirements.

Students interested in participating in the Fast-track Program should obtain an application for admission as a special student from the Office of Admissions. The application must be approved by the student's counselor, high school principal and parents for each term in which the student wishes to enroll.

In some cases, the student's high school district may pay the university tuition but not other expenses. High school counselors have information about the availability of this program.

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 1987-88 are:

Fall Semester 1987	July 20, 1987
Spring Semester 1988	November 30, 1987
Summer Session 1988	April 29, 1988
Fall Semester 1988	July 22, 1988

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 Career Services and Counseling, Room 236 of the Psychology building.

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

Payment of tuition and fees. Tuition and fees are assessed after the semester has started at the end of the drop/add period. Instructions for payment and payment deadlines are publicized before the beginning of each semester. 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 Office of Records.

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 he/she is 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 the student's overt actions that link him/her 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 non-resident. 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 1986-87 were as follows:

Resident

No. of hours	Tuition	Fees	Total
1	$ 56.00	$ 15.00	$ 71.00
2	112.00	15.00	127.00
3	168.00	15.00	183.00
4	224.00	15.00	239.00
5	280.00	15.00	295.00
6	336.00	56.00	392.00
7	392.00	65.50	457.50
8	448.00	110.00	558.00
9	504.00	110.00	614.00
10-18	541.00	110.00	651.00
Tuition surcharge for each hour over 18			$ 35.00

Nonresident

No. of hours	Tuition	Fees	Total
1	$181.00	$ 15.00	$ 196.00
2	362.00	15.00	377.00
3	543.00	15.00	558.00
4	724.00	15.00	739.00
5	905.00	15.00	920.00
6	1086.00	56.00	1142.00
7	1267.00	65.50	1332.50
8	1448.00	110.00	1558.00
9	1629.00	110.00	1739.00
10-18	2143.00	110.00	2253.00
Tuition surcharge for each hour over 18			$ 138.00

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 25.00
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
- Windsurfing 35.00
- Ice Skating 20.00
- Training Room 25.00

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.

Room (per semester)
Single $919
Double $615
Board (per semester) ..... 19-meal plan $810
..... 14-meal plan $783
..... 10-meal plan $752

Room and Board (8-week summer session)
Double room $294
..... 10-meal plan $300
..... 15-meal plan $321

PAYMENT OF STUDENT ACCOUNTS

Tuition and fees are calculated according to the number of 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: A student is subject to withdrawal and to denial of credit if financial obligations are not satisfied in accordance with university policies.

ADDITIONAL PROCEDURES

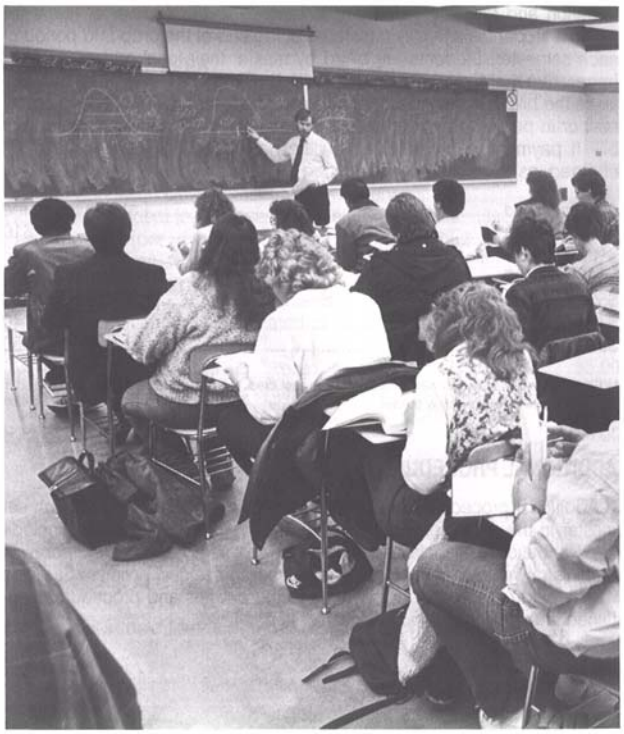
Additional procedures are publicized before the beginning of each semester in the semester class bulletin. The procedures described include the distribution of financial aid, payment due date, drop/add and withdrawal, administrative withdrawal for non-payment, and refund policies. Students will be held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

DELINQUENT STUDENT ACCOUNTS

Any student who does not pay his/her tuition and fee charges for the current semester **will not** receive grades and will not be permitted to register for the subsequent semester.

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.



STUDENT FINANCIAL AID

Financial aid is a means through which students, or students and their families, who apply and qualify for aid, can receive assistance through grant, loan, work-study or scholarship funds to help defray the costs of higher education. All financial aid awards are contingent upon availability of funds. Students may obtain applications and other necessary forms from the Office of Student Financial Aid, Room 309 of the Administration building.

The primary responsibility of paying for education rests with students and their families; the aid offered by the university is intended only as supplemental. Because the requests for funds always exceed the money available, and because federal monies always are related to documented financial need, USC requires students to follow the instructions for applying for aid outlined in the Student Financial Aid Handbook available in the Office of Student Financial Aid.

FINANCIAL AID POLICIES

Financial aid at USC is based on documented financial need and academic success, either predicted or achieved. Students may establish financial need by completing all forms required by the Office of Student Financial Aid.

Academic success is measured in the following ways:

Entering freshmen - A combination of high school rank, grade-point average and admissions test scores (ACT or SAT) is considered.

Continuing and/or transfer students - The cumulative grade-point average computed by the Office of Records is considered, as well as the number of credit hours completed per semester.

When to apply—priority dates. All applicants for financial aid for the 1987 summer session and for the 1987-88 academic school year should have applied by March 15, 1987. Applicants for aid for the 1988 spring semester only, should apply by November 1, 1987.

Students whose applications are not complete (including the Financial Aid Form Need Analysis Report from the College Scholarship Service or the Comprehensive Financial Analysis Report from the American College Testing Program, Form 1040's and additional documentation) by the established priority dates are considered on a funds-available basis when their applications are complete. Funds are awarded with consideration for high need first, then moderate to low need.

Requirements for processing an application. In order to have an application processed and to be considered for financial assistance, the student must:

1) Be admitted to USC as a degree-seeking *(classified)* student;

2) Have a completed application; and

3) Be in good standing and be a degree-seeking *(classified)* student making satisfactory progress toward graduation.

A student *may not* receive financial aid if he or she:

1) Is not registered for the required number of credit hours as stated on the application. (12 hours minimum, preferably 16, except for Pell and GSL.)

2) Is not in good standing making satisfactory progress toward an undergraduate degree;

3) Is on financial aid or academic suspension;

4) Is in default on loans or owes repayments on grants previously received to attend USC or other institutions; parents are in default on a PLUS loan;

5) Is not a citizen or permanent resident of the United States.

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 Student Financial Aid.

Satisfactory academic progress. To receive financial aid, students must be classified and must make continued academic progress toward a degree. Compliance with federal, state and University of Southern Colorado scholastic regulations is required.

Because of funding limitations, full-time students receive priority for financial aid. Full-time students must complete an average of at least 12 credit hours with passing grades each fall and spring semester that financial aid is received. (F is not considered passing.) If the student attends summer session, at least 6 credit hours are required to maintain full-time status.

Satisfactory progress is determined with consideration to both the grade-point average and the number of credit hours completed. Both full-time and nonfull-time students must have a minimum cumulative grade-point average as follows:

Total attempted credit hours	Cumulative grade-point average
1-24	1.60
25-48	1.80
49-72	2.00
more than 72	2.00

The table above applies retroactively to the nonfull-time student who is requesting financial aid, whether or not the student was receiving aid when the grades were earned.

Length of funding. Financial aid may be available for up to a maximum of 12 semesters for students who pursue bachelor's degrees. Bachelor degree candidates who require more time may appeal for continuation of funding through the Office of Student Financial Aid.

The above policies and procedures are in accordance with USC's efforts to recruit more non-traditional, minority and multi-cultural students. Students on academic suspension cannot be considered for financial aid.

Financial aid probation/suspension. Recipients who do not meet the above-stated requirements are subject to financial aid probation and/or suspension, which may be appealed through the Office of Student Financial Aid. Each recipient does have a responsibility to obtain a copy of the Financial Aid Satisfactory Academic Progress Policy booklet.

Students suspended from financial assistance may, depending upon individual circumstances, enroll at the university at their expense if they are not on academic suspension.

The director of Student Financial Aid, at his/her discretion, can approve financial aid for a student on a "continued probation status" for one additional semester provided the student has improved his/her grade-point average (GPA) and completed at least 12 hours during the semester in question. The student must contact the director for a counseling session.

Monitoring is conducted at the end of each spring and summer semester, using information from the Office of Records.

Continued eligibility. Financial aid is not renewed automatically from one academic year to the next. Students must reapply annually before the established priority dates to ensure continued consideration. Students receiving aid must re-establish eligibility annually by submitting new financial

aid applications and meeting the criteria for good standing and satisfactory academic progress. New awards are based on documented financial need and availability of funds.

For more detailed information on financial aid policies, refer to the Financial Aid Handbook or contact the Office of Student Financial Aid.

FINANCIAL ASSISTANCE PROGRAMS

GRANTS

Pell Grant (formerly BEOG). The Pell Grant is a federal program which entitles the student to receive a grant up to a maximum of $2300, but not more than 60 percent of the actual cost of attendance for a full academic year. The amount of the grant, however, depends on the level of funding authorized by the federal government.

To be eligible for a Pell Grant, a student must be accepted for enrollment or must be a continuing student in good standing. Graduate students and students already holding a bachelor's degree are not eligible. To receive consideration for a full Pell Grant, students must be enrolled for at least 12 credits per semester. The awards of students enrolled for fewer than 12 credits but at least six credit hours are pro-rated according to the current academic load. 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. Applications may be obtained from high school counselors or from the Office of Student Financial Aid, and should be completed according to instructions.

All students who are applying for financial assistance and are eligible to apply for a Pell Grant must do so and submit a copy of the Student Aid Report (SAR) to the financial aid office whether qualified or not.

Colorado Student Grant (CSG). The CSG is awarded to undergraduate residents on the basis of financial need. Stipends attached to the award are usually not greater than $2000 an academic year and generally will not exceed one-half the documented financial need.

Supplemental Educational Opportunity Grant (SEOG). The SEOG is a form of non-repayable financial aid and is designed to assist undergraduate students with 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. Stipends attached to the award are usually not greater than $2500 per academic year and generally will not exceed one-half of the documented financial need.

College Work-Study Program (CWSP). The CWSP is designed primarily 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 some 400 to 600 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 $1000, for juniors and seniors, $1500. The average wage rate for work-study students is approximately $3.70 per hour. Earnings are paid by check every other Friday. Students in the Work-Study Program assume responsibilities appropriate to an employee/employer relationship; failure to do so may result in the appropriate loss of the work-study award.

WORK-STUDY

Full-time work-study. Full-time work-study is a summer program designed to provide students with employment during the summer. It is expected that some of the earnings from the employment will 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 a degree-seeking (classified) student;
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 priority dates;
4) Save a major portion of their earnings to assist with next year's educational expenses and
5) Forego enrollment in summer classes, if awarded full-time work-study.

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 a limited program for students who have specified work opportunities on campus which will provide valuable academic and/or professional experience. Students must possess a skill or talent which is of use in a specific university position, or demonstrate financial need which cannot be documented in the normal fashion.

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 or the American College Testing Program Family Financial Statement. Students should not assume that they will be found ineligible for need-based financial aid. Those who are declared ineligible, however, may qualify for a no-need financial aid opportunity.

LOANS

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

A student may be eligible to borrow up to a total of:

— $4,500 if he/she is enrolled in the first two years of a degree program, or has completed less than two years of a program leading to a bachelor's degree;

— $9,000 if he/she is an undergraduate student who already has completed two years of study toward a bachelor's degree and has achieved third-year status (total includes any amount borrowed under NDSL for the first two years of study);

— $18,000 for graduate or professional study (total includes any amount borrowed under NDSL for undergraduate study).

Repayment of the loan begins nine months after the student graduates or leaves school. A student 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 school may agree to a lesser amount because of extraordinary circumstances such as prolonged unemployment.

In case of default on an NDSL which the school is unable to collect, the federal government may take action to recover the loan.

A former student may defer payment for up to three years while serving in:

1) The armed forces;

2) The commissioned Corps of the Public Health Service, or

3) The Peace Corps, VISTA, or a comparable organization.

Payments may be deferred for up to three years if a doctor certifies that the former student or his/her spouse is unemployed due to a temporary total disability.

A student may defer payments for up to two years while serving an internship required before professional practice.

A student may defer payments for a single period of up to one year while actively looking for a full-time job.

Payments may be deferred for periods of at least half-time study at an eligible school, for study in an approved graduate program and for study in an approved rehabilitation program for the disabled.

Repayment may be deferred for nine months after the end of any of the above periods.

Loan cancellation provisions are available for borrowers who teach handicapped children or who teach in designated schools. If the borrower dies or becomes totally and permanently disabled the loan obligation will be cancelled.

Questions about the terms of loan, repayment obligations, deferment or cancellation should be referred to the Office of Student Financial Aid or to the Accounting office.

Guaranteed Student Loan (GSL). A Guaranteed Student Loan (GSL) 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. The interest rate for borrowers is currently eight percent, and all subsequent loans to those borrowers will be at eight percent plus a 5.5 percent origination fee.

An undergraduate can borrow up to $2,625 a year. A graduate student can borrow up to $5,000 a year (in some states these amounts may be less.)

The total GSL debt allowed to be outstanding for an undergraduate is $17,250; the total for graduate or professional study is $54,750 (including any outstanding undergraduate level GSL loans).

A GSL application may be obtained from a private lender. The Office of Student Financial Aid or from a guarantee agency. After the application is filled out, USC must complete the section which certifies enrollment, the cost of the education, academic standing and any other financial aid received. If a borrower is placed on financial aid suspension, the bank will be notified.

PLEASE NOTE: Applicants for Guaranteed Student Loans must complete the Financial Aid Form (FAF) (Needs Analysis) and submit it to the College Scholarship Service.

PLUS loans. PLUS loans are meant to provide additional funds for post-secondary educational expenses. The interest rate for PLUS loans is 12 percent. Like GSL's they are made by a lender such as a bank, credit union, or savings and loan association.

Parents of dependent undergraduate students may borrow up to $4,000 per year.

Graduate students may borrow up to $4,000 per year.

Independent undergraduates may borrow up to $2,625 per year. However, the PLUS loan, combined with any GSL the undergraduate also may have, cannot exceed the yearly and total GSL undergraduate limits.

A borrower must begin repaying a PLUS loan within 60 days. The same deferment conditions available to GSL borrowers also are available to PLUS borrowers. Thus, borrowers who are full-time students or on active duty in the military, for example, are entitled to a deferment of principal payments. Parent borrowers are not granted deferments based on the status of the student for whom the parent borrowed. All borrowers must begin paying the interest within 60 days, unless the lender has agreed to allow the interest to accrue until the deferment ends.

For additional information students should contact: Colorado Student Loan Program, 11990 Grant Street, Suite 500, Northglenn, Colorado 80233, or telephone (303) 450-9911.

Short-term loan. Short-term loans are intended only for those financial emergencies that present extreme hardship cases which could not reasonably be foreseen and which seriously threaten the continuation of a student's education at the University of Southern Colorado. The maximum loan a student may have at one time is $100. Students must be currently enrolled for at least 12 semester credits, must not be on disciplinary probation or financial aid suspension and must not have an unpaid university account. Short-term loans will not be made at any time when school is not in session.

Loans are to be repaid with a short period of time (normally within 60 days). The student and financial aid counselor determine a definite due date acceptable to both. 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 Student Financial Aid. Foreign students are eligible to apply. There is a $3 fee assessed for processing the paper work.

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, junior college transfer students or continuing students at USC. The stipend is $800 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. 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 can be awarded to non-resident (out-of-state) students provided they meet all established criteria.

Private scholarship program. The University of Southern Colorado Foundation administers many scholarships awarded by corporations, businesses, foundations, individuals and other private sources. A few examples are the Steinhardt Pre Med, Sundstrand, Colorado Masons and Boettcher scholarships. 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 such as the Crouch and Seelig, are made by the USC scholarship committee. Information about most scholarships is available at the USC Foundation office, 317C Administration building, phone 549-2380, and high school counselors.

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, Administration building.

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.

ADDITIONAL ASSISTANCE PROGRAMS

Student employment services. The Office of Student Financial Aid provides a job locator and development (JLD) program. The program is designed to encourage the development and expansion of off-campus part-time employment opportunities for all students, regardless of financial need. The purpose of the JLD program is to provide every student who desires employment a reasonable opportunity to find it. Registration cards for the JLD program can be obtained in the Office of Student Financial Aid.

Veterans' benefits. All students who expect to receive veterans' or dependents' education assistance from the Veterans Administration are required to register with the veterans' adviser on campus at the start of 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 109 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. Students must first submit an application for financial aid and supportive documents by the priority deadline, then make an appointment with a financial aid counselor to complete the BIA application.

Disabled/handicapped students. The Student Development Center provides information and limited services for disabled and handicapped students. The center is in Room 236 of the Psychology building.

REFUNDS AND REPAYMENTS

If a financial aid recipient becomes 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 the student's financial aid awards before any payment is made to the student. 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.

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

The Residence Hall houses on-campus students. It is a modern, multi-storied building consisting of three wings which are joined by a large commons area. A main lounge serves as a gathering area and a movie theatre. 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 large-screen television room. The Residence Hall also has computer terminals for use by residents only.

The Residence Hall can accommodate 500 students, with approximately 48 students residing on each floor. All rooms are designed for two people and contain beds, desks, bookshelves, study lamps, closets, dressers, chairs and a wastebasket. 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 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 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 freshmen students under 21 years of age, enrolled in any university program must live in Belmont 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.

A $100 security/damage deposit must accompany each application for space in the hall. 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. At present there is no housing available on campus for married students. Married students should contact the University Center for referral to housing in the community.

Contract board policies. 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 University Center information desk maintains a file of off-campus, privately owned rooming houses and apartments. Since listings change rapidly, prepared housing lists are not furnished. Students living off campus should notify the Office of Records of change in address.

FOOD SERVICE

All campus food services are located in the 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 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, University Center, Room 114.

COUNSELING AND HEALTH SERVICES

Counseling. The center, located in Room 236 of the Psychology building, provides professional services for students and the community. The services include personal-social counseling, student discussion groups, seminars and workshops and an intake-referral system for other student/community activities.

Career Services. The Office of Career Services and Counseling in Room 236 of the Psychology building houses 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 graduates and alumni find career-related employment. This office is the on-campus clearing house for local and national job opportunities.

Student Academic Advisement. The Office of Career Services and Counseling in Room 236 of the Psychology building is responsible for coordinating academic advisement for undecided and unclassified students each semester. Those students committed to an academic major are advised by faculty members in their major field.

Testing Services. Test facilities for student and community use are in Room 236 of the Psychology building. The office 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. Handicapped services are located in the Office of Career Services and Counseling. The center provides information and limited services for disabled and handicapped students. The USC campus is barrier-free and the Residence Hall provides adequate living facilities for handicapped students.

Orientation. At the beginning of each semester, a program of orientation for 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 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, whether or not they carry student insurance. 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 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 Administration building.

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 University Center, Room 121. Contact American Language Academy, by telephone Monday—Friday, 8:00 a.m. to 5:00 p.m. at (303) 549-2222 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 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, Film and Video, 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 Intercollegiate Athletic Conference. USC sponsors the following intercollegiate sports:

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

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

INTRAMURALS

Intramurals is a special program involving 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 USC's campus since August of 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 109 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. 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.

UNIVERSITY CENTER

The University Center provides USC students and their guests with a warm and attractive place for relaxation and entertainment.

During the academic year, the 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. As events and meetings are scheduled, the University Center hours are expanded to accommodate pre-planned functions.

USC BOOKSTORE

The USC bookstore is a modern, 20,000-square foot store in the 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 and staff.

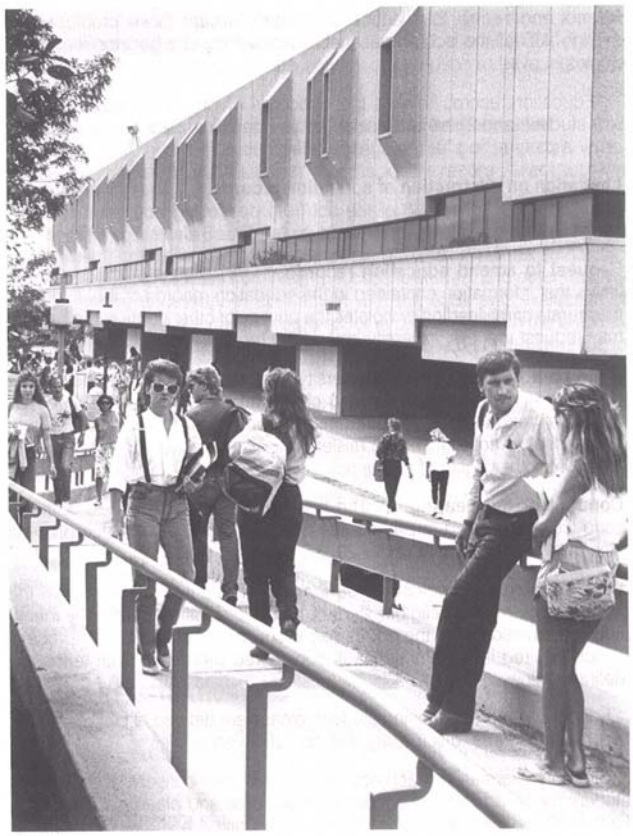
Library services staff assist patrons in learning how to find and utilize books, periodicals, pamphlets and government documents through instruction for individuals, small groups or formal classes. Staff also prepare subject bibliographies for classes, arrange inter-library loans, and provide computer-based 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; Tobie Hopkins Black Literature, the Ralph Taylor Southwest collection, and the Edward O'Brien Western collection.

Instructional Media Services supply non-print media aids and arrange for students to listen to audio cassettes of class lectures, as well as other taped learning resources as assigned by faculty.

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.

In Library Wing 226, students may practice foreign languages and English in the audio learning laboratory.



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

"Education 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 education records. The university is not precluded by section 438 of the act from destroying education records, subject to the exceptions delineated under 20 U.S.C. 1232g (a)(2).

Request to amend education records. An eligible student who believes that information contained in the education 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 education records to ensure that information in the education 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 **education records** of a student. This process is not required if the information is considered **directory.** Both terms are defined below.

Education 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 education 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 disclosures 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 authorized representatives of officials 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 of our 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 University Center office (Room 113) during regular working hours Monday through Friday from 8 a.m. to 5 p.m. To obtain an ID, a student must show a picture identification and the computer printout of his or her class schedule for the semester. Continuing students must have ID's validated each semester, and must present confirmation of registration.

Faculty and staff are provided a non-validated ID at $3 for a new card and $5 for a replacement. Employees should be prepared to show a picture identification and provide the name of the department and supervisor with whom they are employed. Validation each semester allows the faculty or staff member to attend many events at reduced cost. To validate an ID, the faculty/staff members pays $8.50 to the USC cashier and presents the receipt at the University Center office (Room 113) for validation. Spouse stickers may be obtained at the athletic department.

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 own 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 or 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 the Dean of Student Services. The vice president delegates the responsibility for administering the 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 institution's **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 listed for the year in which they were first enrolled, provided they complete graduation requirements within a continuous period of no more than 10 years. If a student withdraws, or is withdrawn 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 the policy must have prior approval. 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 were last 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 12 years before the date of admission or re-admission is not applicable toward the degree desired unless it is approved by the head of the program 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 grade-point average which places them 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, throughout 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 discussion hours spent each week in class. Laboratory courses give one hour of credit for each two or three hours spent in the laboratory.

FULL-TIME PROGRAM

A full-time program normally consists of 15 to 18 credit hours per semester during the regular academic year. (During summer session, a full-time load is smaller.) Under a normal full-time program, most students can complete a bachelor's degree in four years. Students should plan to work at least 48 hours a week on such a program – in class, in the laboratory and in preparation and study. To receive financial aid, insurance discounts or full veterans' benefits, students must earn at least 12 hours per semester.

LIMITS ON CREDIT-HOUR LOADS

Course loads of more than 18 semester credit hours are defined as overloads. Both on and off campus courses are counted in the credit-hour total.

Freshmen who have achieved fewer than 15 semester credit hours may not take an overload. Students with 15 or more semester hours may take an academic 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 take more than 25 semester hours, whether on or off campus, in a single semester.

Up to five semester hours may be taken in a given semester by test-out or challenge procedures. To challenge a course, a student must first enroll in the course and pay tuition for it, and then consult the appropriate faculty member, head of the program and college dean. A successfully challenged course counts in the overload limits.

Overload requests are approved by the student's faculty adviser, department chair and college dean. All three signatures may be required. Appeals may be made to the provost and vice president for Academic and Student Affairs.

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.

Non-degree: A student who has made no commitment to earning a degree. Work taken as a non-degree-seeking student may be classified retroactively for degree credit when and if a favorable evaluation is established. Students under suspension, or those denied regular admission, are not eligible to enroll as non-degree students.

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 for a course as auditors must declare their intention at registration or at the first class session. A request for no-credit forms are available in the Office of Records. Courses are taken for credit unless the Office of Records is notified prior to the deadline for schedule changes.

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
E	(Credit by examination)	0
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.

It should be noted that grades of S and U may be used only in certain courses approved by the Faculty Senate and that, 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 meeting a major or university requirement.

In progress. A grade of IP (in progress) may be given at the close of the term in certain courses approved by the Faculty Senate. Students receiving an IP must re-register in the same course the next term, pay tuition and must complete the work during that term. When the work is completed, students are given a regular grade.

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 other course requirements. Any instructor giving an IN grade must fill out 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 is assigned. The permanent grade is given by the instructor to the registrar at the time the incomplete is assigned. It is the students' responsibility to complete the course. Re-registration is not necessary.

Grade-point average computation. A 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 total 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.

FINAL EXAMINATIONS AND GRADE CHANGES

Final examinations are not to be scheduled at times other than those listed 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. Grades of A, B, C, D or F may be changed by instructors to 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 and NC may not be changed. It is the student's responsibility to request a grade change if one is justified except in the cases of grades of IN or IP.

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 program for one year. They are treated in confidence by the faculty member and head of the program.

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 and dean.

Adding courses. Courses may be added to a student's schedule through the initial schedule change period, as specified in the class schedules, with the permission of the instructor. Course additions must be processed through the Office of Records.

The student is responsible for processing his or her drop/add during the drop/add period. **Under no circumstances** does the instructor assume this responsibility on behalf of the student.

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 way 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 40 percent of the course duration has transpired, the instructor gives a grade of W if the student currently is passing the course, or WF to a student not doing passing work. After 40 percent of the course duration has transpired, all drops result in grades of WF.

NOTE: 40 percent of a 15-week course occurs at the end of the sixth week.
40 percent of a 10-week course occurs at the end of the fourth week.
40 percent of a 5-week course occurs at the end of the second week.
40 percent of an 8-week course occurs at the end of the third 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 affect 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, the student 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.

Addition of independent study and extension courses. A resident student may enroll in independent study and extension 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.

AUDITED COURSES

A student may register for a course as an auditor, without credit, provided the instructor concerned gives permission. The Office of Records must be notified of audit arrangements. The tuition for audited courses is the same as the tuition for credit courses. See page 50 for auditor description.

Persons 65 years of age or older, or 62 and retired, may audit courses without paying tuition so long as space is available. 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 of the regular university curriculum. In some cases such courses 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.

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 average, 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. Students suspended for poor scholarship 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 post-marked no later than July 20. Students submitting appeal letters after July 20 and before October 15, will be considered for spring semester admission. Appeal letters should be addressed to the provost and vice president for Academic and Student Affairs. It is the student's responsibility to initiate the appeals process.

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 and the 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 program 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. At such times, all students with deficient grade-point averages are notified by a statement on the bottom of their grade reports or by mail. 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. Should a student attain good academic standing (2.00), his or her probationary status is removed. Students on probation are required to contact the Counseling Center as a condition of the probation.

ATTENDANCE

Students are expected to attend all meetings of the classes 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. It is left to the discretion of each instructor to set an attendance policy for his or her classes and to inform students of the policy.

It must be kept in mind that even though it is the student's responsibility to drop a class, faculty members have the right to drop a student for non-attendance.

ACADEMIC INTEGRITY

Any method of unauthorized assistance in preparing materials which a student submits 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 is 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

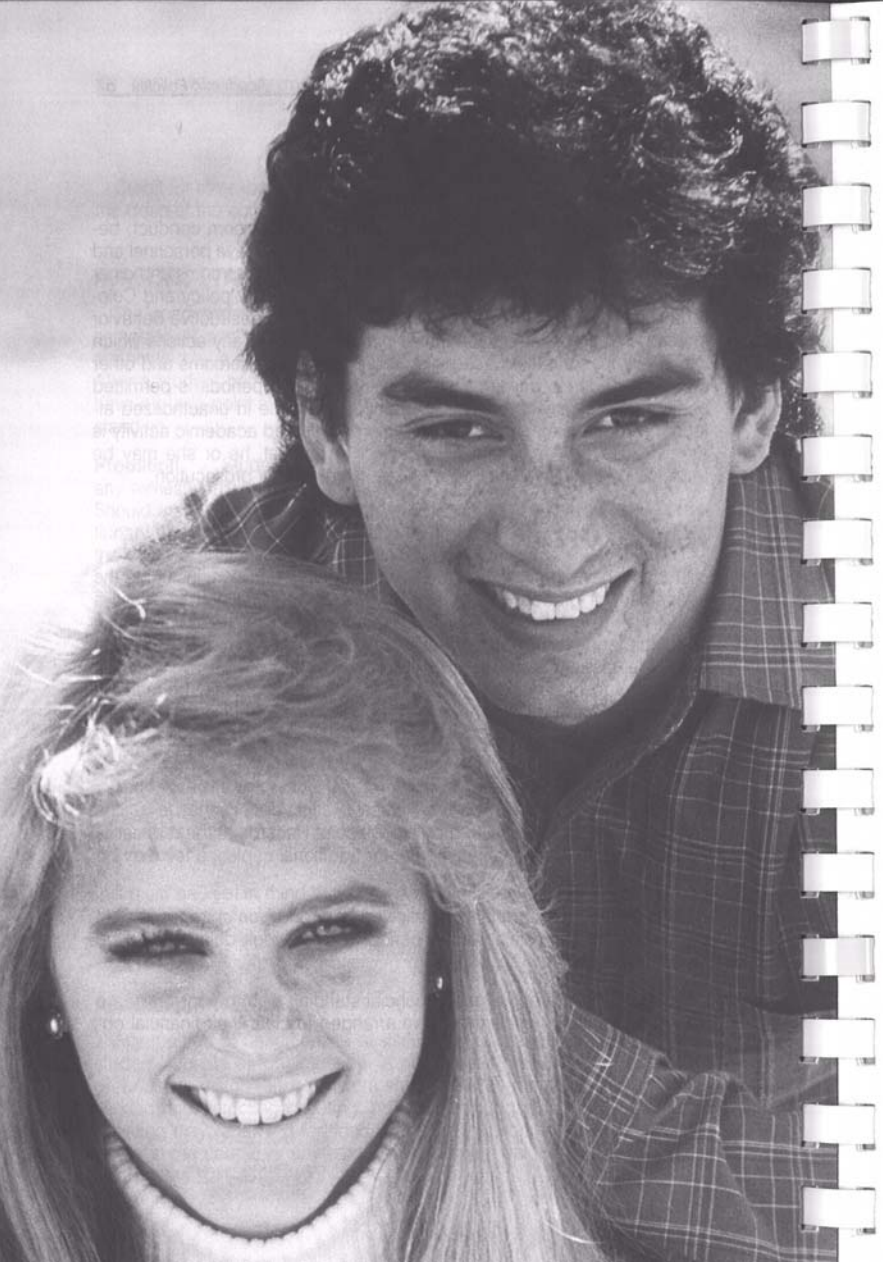
Students have the right to appeal any academic decision, including the assignment of grades. Final grades, however, are unalterable unless a grade change form is completed and signed by the instructor and the dean. Academic appeals should be made first to the classroom instructor, next to the department 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.

Three days should ordinarily be allowed for production of transcripts. At the end of the semester grading period, a three-week delay should be expected.

Students who are not in good financial standing with the university are not issued transcripts until they have arranged to clear their 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. Most 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:

1) earn a minimum of 128 semester hours with a cumulative grade-point average of at least 2.00. The 128 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.

   a) Successful completion of SPCOM 101, Basic Speech Communication, satisfies the speech requirement.

   b) Successful completion of six credit hours of English 110 and 211 or 115 and 216 satisfies the writing requirement.

   c) The mathematics requirement can be satisfied in one of two ways:
   - Scoring 23 or above on the mathematics component of the ACT.
   - Successful completion of MATH 120 or an approved higher level mathematics course with a grade of C or better. **Note:** MATH 240, 241, 360, 361, 377, 463 may not be used to satisfy this requirement.

3) complete the requirements for an approved degree program (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.

4) meet all financial obligations.

GENERAL EDUCATION REQUIREMENTS

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.

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.

Group I
(Humanities)

Subgroup		
A	ART	100, 101, 102, 103
B	FL	100
	FRN	111, 112
	GER	125, 126
	ITL	146, 147
	RUS	161, 162
	SPN	181, 182, 191, 192, 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, 105, 211, 212, 214, 221, 222, 231, 241, 242, 249
	MILSC	211
H	SPCOM	111, 131, 135, 216, 217
I	HUM	100
	IST	130, 135
J	CS	220
K	HUM	150, 151
	IS	201

Group II
(Social Science)

Subgroup		
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
	MILSC	210
	POLSC	100, 101, 102, 104, 150, 185, 201, 202, 250
	SW	100, 101
D	ACCTG	210
	BUSAD	100
	ECON	101, 201, 202
E	CS	101, 201, 202, 230
F	IS	101, 102

Group III
(Natural Science)

Subgroup		
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, 204
D	EN	103, 105, 106
	GEOG	102, 103, 281
	GEOL	101, 101L, 123, 123L
E	MATH	109, 121, 122, 124, 126, 131, 132, 156, 221, 233, 240, 241, 245
F	PHYS	100, 110, 121, 121L, 130, 131, 132, 201, 201L, 202, 202L, 221, 221L, 222, 222L
G	IS	202

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 coursework in the program.**

Emphasis areas. 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 of the academic major. 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. Concentrations of courses must be taken outside the student's specific academic major.

DOUBLE MAJORS

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 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 have the alternative to complete one semester of FL 100: Introduction to Comparative Linguistics (three semester hours), plus 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.

COMMENCEMENT

Commencement exercises take place once a year at the end of spring semester. Students eligible to participate include those who completed their requirements and received degrees 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)
Physical Education (BS)
Political Science (BA, BS)
Psychology (BA, BS)
Recreation (BS)
Social Science (BA, BS)
Social Work (BSW)
Sociology (BA, BS)
Speech Communication (BA, BS)

COLLEGE OF SCIENCE AND MATHEMATICS

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

SCHOOL OF BUSINESS

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

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

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

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)
Industrial Education (MA) (No new students admitted after December, 1986)

COLLEGE OF LIBERAL AND FINE ARTS

Elementary Education (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

Most academic departments have prepared sample programs of study for majors. The programs published in this catalog are intended for planning purposes, not to replace students' individual contacts with faculty advisers. Some programs of study are "required" to the extent that students should enroll in courses in the specific sequences identified. Students should contact the appropriate department chair for information on majors which do not have sample programs of study in this catalog.

COLLEGE OF APPLIED SCIENCE AND ENGINEERING TECHNOLOGY

The College of Applied Science and Engineering Technology offers degree programs through four academic departments.

DEPARTMENT OF COMPUTER SCIENCE TECHNOLOGY

BACHELOR OF SCIENCE IN COMPUTER SCIENCE TECHNOLOGY (BS)

Sample Program

Option 1: Application Programming

Freshman Year

Course		Credits
CST	115	1
CST	121, 122	6
ENG	110 or 115	3
ENG	211 or 216	3
MATH	124	5
SPCOM	101	2
Electives		3
General Education		9
		32

Sophomore Year

Course		Credits
ACCTG	201, 202	8
CST	222	3
CST	210	3
CST	230, 231	6
CST	240	3
MATH	156	3
MATH	245	3
General Education		5
		34

Junior Year

Course		Credits
CST	341	3
CST	350	3
CST	360	3
CST Upper-division Elective		3
Minor Coursework		12
General Education		10
		34

Senior Year

Course		Credits
CST	416	3
CST	470	3
CST Upper-division Electives		9
Electives		3
Minor Coursework		8
General Education		6
		32

Option 2: Systems Programming

Freshman Year

Course		Credits
CST	115	1
CST	121	3
CST	122	3
CST Elective		3
ENG	110, 211	6
MATH	126	5
General Education		11
		32

Sophomore Year

Course		Credits
CST	210	3
CST	222	3
CST	240	3
MATH	201	1
MATH	202	1
MATH	224	5
MATH	245	3
PHIL	205	3
SPCOM	101	2
General Education		7
		31

Junior Year

Course		Credits
CST	321	3
CST	330	3
CST	350	3
CST	360	3
CST Upper-division Elective		3
MATH	307	3
MATH	325	3
General Education		12
		33

Senior Year

Course		Credits
CST	416	3
CST	418	3
CST	470	3
CST Upper-division Electives		6
MATH	342	3
MATH	350	3
Free Electives		11
		32

Option 3: Hardware/Software Systems

Freshman Year

Course		Credits
CST	105	3
CST	115	1
CST	121	3
CST	122	3
EET	121, 161	5
EET	122, 162	5
ENG	110, 211	6
MATH	126	5
SPCOM	101	2
		33

Sophomore Year

Course		Credits
CST	210	3
CST	222	3
EET	254	4
EET	255	4
MATH	201	1
MATH	202	1
MATH	224	5
General Education		11
		32

Junior Year

Course		Credits
CST	321	3
CST	350	3
CST Upper Division as Advised		9
EET	452	3
EET Upper Division as Advised		3
MATH	325	3
MATH Upper Division as Advised		3
General Education		7
		34

Senior Year

Course		Credits
CST	416	3
CST	470	3
CST Upper Division as Advised		6
EET Upper Division as Advised		3
EET Upper-division Elective		3
General Education		12
		30

NOTE: Students may use a technology mathematics sequence of 15 hours to satisfy the Option 3 mathematics requirement (see adviser).

DEPARTMENT OF ENGINEERING TECHNOLOGIES

BACHELOR OF SCIENCE IN CIVIL ENGINEERING TECHNOLOGY (BSCET)

Sample Program

Freshman Year

Course		Credits
CET	101	2
CET	102, 103	8
CET	105	2
CET	106/106L	2
ENG	115, 216	6
MATH	131, 132	8
MET	111	3
SPCOM	101	2
		33

Sophomore Year

Course		Credits
CET	104	3
CET	202	3
CET	203	3
CET	311, 312	8
EN	105	2
MATH	233	5
PHYS	201/201L	4
PHYS	202/202L	4
		32

Junior Year

Course		Credits
CET	302	3
CET	303	3
CET	304, 305	6
CET	315/315L	3
CET	404	3
CHEM	111/111L	4
or		
GEOL	101/101L	
General Education		9
Business Elective		3
		34

Senior Year

Course		Credits
CET	401	3
CET	411	3
CET Electives		12
Business Elective		3
General Education		11
		32

BACHELOR OF SCIENCE IN ELECTRONICS ENGINEERING TECHNOLOGY (BSEET)

Sample Program

Freshman Year

Course		Credits
EET	110	3
EET	121, 122	8
EET	161, 162	2
ENG	110, 211	6
MATH	131, 132	8
SPCOM	101	2
General Education		3
		32

Sophomore Year

Course		Credits
CST	122	3
EET	211, 212	8
EET	254	4
EET	255	4
MATH	233	5
PHYS	201/201L	4
PHYS	202/202L	4
General Education		3
		35

Junior Year

Course		Credits
EET	311	4
EET	351	4
EET	353	3
EET	354	4
EET	355	4
EET	356	4
EET	393	1
ENG	305	3
Approved MATH Elective		3
General Education		3
		33

Senior Year

Course		Credits
EET	412	3
EET	455	4
EET	456	2
EET Electives		3
MGMT	310	3
Approved Technical Electives		6
General Education		11
		32

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY (BSMET)

Sample Program

Freshman Year

Course		Credits
CHEM	121/121L	5
ENG	115, 216	6
MATH	131, 132	8
MET	103	3
MET	104	3
MET	111, 112	6
SPCOM	101	2
		33

Sophomore Year

Course		Credits
EET	250	4
MATH	233	5
MET	201	3
MET	203	4
MET	205	3
MET	206	3
MET	222	3
PHYS	201/201L	4
PHYS	202/202L	4
		33

Junior Year

Course		Credits
EET	350	4
MET	308	3
MET	321	3
MET	352	3
MET	371	4
MET	372	3
MET	409	3
Guided Elective		3
General Education		9
		35

Senior Year

Course		Credits
EN	315	3
MET	331	3
MET	412	3
MET	451	3
MET	460	4
Guided Electives		6
General Education		11
		33

DEPARTMENT OF INDUSTRIAL ENGINEERING

BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING (BSIEN)

Required Program

Freshman Year

Course		Credits
CHEM	121/121L	5
EN	106	3
EN	107	2
ENG	110, 211	6
MATH	126, 224	10
PHYS	221/221L	5
		31

Sophomore Year

Course		Credits
EN	211, 212	6
EN	231/231L	5
EN	324/324L	4
MATH	337	3
MATH	350	3
PHYS	222/222L	5
SPCOM	101	2
*General Education (Group I or II)		6
		34

Junior Year

Course		Credits
BIOL	223	3
EN	301	4
EN	312/312L	3
EN	315	3
EN	321	3
EN	340	3
EN	342	3
EN	343	3
EN	456	3
MATH	301	1
*General Education (Group I or II)		5
		34

Senior Year

Course		Credits
EN	442	3
EN	443	3
EN	471	3
EN	473	3
EN	475	3
EN	477	3
EN	488	3
Approved Elective		3
*General Education (Group I or II)		9
		33

*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 or the Colorado School of Mines should consult an industrial engineering adviser for suggested curricula.

Freshman Year			*Sophomore Year*		
Course		**Credits**	**Course**		**Credits**
CHEM	121/121L	5	EN	211, 212	6
EN	106	3	EN	231/231L	5
EN	107	2	EN	232	4
ENG	110	3	EN	321	3
MATH	126, 224	10	MATH	325	4
PE	101-188	2	MATH	337	3
PHYS	221/221L	5	PHYS	222/222L	5
*General Education (Group I or II)		3	*General Education (Group I or II)		3
		33			33

*See departmental list of acceptable Group I and II courses.

NOTES:
1) Students should consult an engineering adviser for program variations in agricultural and chemical engineering.
2) Transfer students should have a grade point average of 2.5 or better with 60 S.H. credits or more and a grade point average of 3.0 or better with less than 60 S.H. credits.
3) Applications must be received by Feb. 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 SCIENCE AND TECHNOLOGY

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

Sample Program

Freshman Year			*Sophomore Year*		
Course		**Credits**	**Course**		**Credits**
APSM	105	2	APSM	205	5
APSM	115	4	APSM	215/215L	4
APSM	125/125L	4	APSM	245/245L	4
APSM	135/135L	4	CHEM	111/111L	4
APSM	155	5	CST	102	3
APSM	165	2	ECON	201	3
SPCOM	101	6	ENG	110 or 115	3
General Education		6	ENG	211 or 216	3
		33	MET	152	3
			General Education (Group I)		1
			(Group II)		3
					36

Junior Year			*Senior Year*		
Course		**Credits**	**Course**		**Credits**
ACCTG	201	4	APSM	325	3
ACCTG	202	4	APSM	335	5
APSM	235	3	APSM	405	5
APSM	255/255L	3	APSM	415	5
APSM	305	3	FIN	330	3
APSM	345	5	MGMT	310	3
BUSAD	220	3	MGMT	318	3
ECON	202	3	MGMT	414	3
PHYS	100	3	MKTG	340	3
General Education (Group I)		6			33
(Group II)		1			
		38			

BACHELOR OF SCIENCE IN INDUSTRIAL SCIENCE AND TECHNOLOGY (BS)

Sample Program

Freshman Year

Course		Credits
ENG	110, 211	6
or		
ENG	115, 216	
IST	101	3
IST	102	6
IST	120	2
MET	104	3
MET	111, 112	6
SPCOM	101	2
General Education		6
		34

Sophomore Year

Course		Credits
APSM	225	3
ED	202	3
ED	210	3
IST	202	3
IST	221	2
MET	103	3
PSYCH	101	3
Concentration Elective		6
General Education		10
		36

Junior Year

Course		Credits
CET	313	3
IST	302	3
IST	312	3
IST	320	3
IST	331	3
IST	345	2
IST	377	3
PSYCH	351	3
Elective in major		6
General Education		6
		35

Senior Year

Course		Credits
ED	435	3
ED	460	3
ED	461	2
ED	488	15
IST	455	3
IST	457	3
RDG	425	2
		31

NOTE: The industrial option is individually designed with an adviser.

COLLEGE OF LIBERAL AND FINE ARTS

The College of Liberal and Fine Arts offers degree programs through 10 academic departments.

DEPARTMENT OF ART

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

Sample Program

Freshman Year

Course		Credits
ART	101, 102	6
ART	115, 116	6
ART	141, 142	4
ART	210	1
ENG	110, 211	6
ART	202	2
SPCOM	101	2
General Education		3
		30

Sophomore Year

Course		Credits
ART	233	3
ART	274	3
ART	276	3
ART	281	3
Electives or Minor		9
General Education		12
		33

Junior Year

Course		Credits
ART	374	3
ART	381	3
ART	382	2
ART	397	4
ART	475	3
Electives or Minor		10
General Education		9
		34

Senior Year

Course		Credits
ART	410	1
ART	494 or 495	3
Upper-division Electives		22
General Education		6
		32

DEPARTMENT OF CHICANO STUDIES/HISTORY/PHILOSOPHY/POLITICAL SCIENCE

BACHELOR OF ARTS IN HISTORY (BA)

Sample Program

Freshman Year

Course	Credits
ENG 110, 211	6
HIST 101	5
HIST 102	5
SPCOM 100, 101	3
Foreign Language	10
General Education (Group III)	4
	33

Sophomore Year

Course	Credits
HIST 185	2
HIST 201	3
HIST 202	3
Electives	2
Foreign Language	6
General Education (Group II)	10
(Group III)	3
	29

Junior Year

Course	Credits
General Education (Group III)	3
History Upper-division Electives	6
Electives	24
	33

Senior Year

Course	Credits
History Upper-division Electives	7
Electives	25
	32

BACHELOR OF ARTS IN PHILOSOPHY (BA)

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

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

Sample Program

Freshman Year

Course	Credits
ENG 110, 211	6
POLSC 100	3
POLSC 101	3
POLSC 210	3
General Education	12
	27

Sophomore Year

Course	Credits
POLSC 201 or 202	3
POLSC 200 or 300	6
Minor Requirements	6
General Education	18
	33

Junior Year

Course	Credits
POLSC 300 or 400	9
General and Upper-division Electives	16
Minor Requirements	7
	32

Senior Year

Course	Credits
POLSC 370	3
POLSC 493	3
POLSC	3
General and Upper-division Electives	15
Minor Requirements	8
	32

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

Sample Program

Freshman Year

Course	Credits
ENG 110, 211	6
GEOG 103	3
HIST 102	5
POLSC 101	3
SPCOM 100, 101	3
General Education (Group I)	3
(Group II)	4
	27

Sophomore Year

Course	Credits
ECON 101 or 201	3
HIST 202	3
SOC 101, 102	6
SOCSC 151	3
Electives	9
General Education (Group I)	6
(Group II)	3
	33

Junior Year

Course	Credits
SOCSC Electives	15
Electives	18
	33

Senior Year

Course	Credits
SOCSC Electives	12
Upper-division Electives	19
	31

DEPARTMENT OF TEACHER EDUCATION

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 education sequence (except school nurse category which required only one education course) may be designated as an area of concentration for the baccalaureate degree.

DEPARTMENT OF ENGLISH/FOREIGN LANGUAGES

BACHELOR OF ARTS IN ENGLISH (BA)

Sample Program

Freshman Year

Course	Credits
ENG 110, 211	6
ENG 210, 212	6
SPCOM 101	2
Electives	2
General Education	16
	32

Sophomore Year

Course	Credits
ENG 221, 222	6
ENG 231, 232	6
Foreign Language or Linguistics	6
General Education	14
	32

Junior Year

Course	Credits
ENG 443	3
Upper-division Electives	9
General Education	20
	32

Senior Year

Course	Credits
ENG 341	3
ENG 493	3
ENG Upper-division Electives	3
General Education	23
	32

Secondary Teacher Certification Endorsement

Course	Credit
ENG 340	3
ENG 304	3
ENG 315, 316	3
ENG 341	3
ENG 342	2
ENG 377	3
ENG 412	2
Other literature courses	15
	34

BACHELOR OF ARTS IN FOREIGN LANGUAGES (BA)

Sample Program
Spanish

Freshman Year

Course	Credits
ENG 110, 211	6
HIST 101 or 102	5
SPCOM 101	2
SPN 191, 192	10
or	
SPN 288, 289	6
Electives	2
General Education (Group III)	7
	28-32

Sophomore Year

Course	Credits
ENG 130, 131, 132	3
SPN 281, 282	6
SPN 286, 287	4
SPN 288, 289 or Electives	8
General Education (Group I)	3
(Group II)	5
(Group III)	3
	32

Junior Year

Course	Credits
SPN 385	3
SPN 386	3
Upper-division Spanish	6
Second Foreign Language (or test out)	10
Electives in Minor	6
General Education (Group I)	4
	32

Senior Year

Course	Credits
*Upper-division Spanish	8
Electives in Minor	24
	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 requirements in three semesters.

DEPARTMENT OF MASS COMMUNICATIONS

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

Sample Program
News-Editorial Emphasis

Freshman Year

Course	Credits
ENG 110, 211	6
MACOM 101	3
MACOM 102	3
SPCOM 101	8
General Education	
(Group I)	8
(Group II)	8
	36

Sophomore Year

Course	Credits
MACOM 201	3
MACOM 202	3
MACOM 216	3
MACOM 265	3
MACOM 280	2
Electives	6
General Education	
(Group I)	2
(Group II)	2
(Group III)	10
	34

Junior Year

Course	Credits
MACOM 301	3
MACOM 311	3
MACOM 401	4
Electives	21
	31

Senior Year

Course	Credits
MACOM 411	3
MACOM 415	3
MACOM 445	5
MACOM 465	3
Electives	16
	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 specialized 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 students majoring in mass communications specialize in one of the four sequences listed above, arranging a schedule with the appropriate sequence director. All majors should complete the institutional requirements in basic competencies prior to enrolling in MACOM 201.

DEPARTMENT OF MUSIC

BACHELOR OF ARTS IN MUSIC (BA)

Required Core:

Course	Credit
MUS 101, 102	8
MUS 121, 122	4
MUS 201, 202	8
MUS 244, 245	4
MUS 311, 312	4
MUS 321, 372	6
	34

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

Major Performance Emphasis	Appropriate Ensemble
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 PHYSICAL EDUCATION/RECREATION

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION (BS)

Sample Program
K-12 Certification

Freshman Year

Course		Credits
BIOL	162	3
ED	102	1
ED	202	3
ENG	110, 211	6
MATH	120	4
PE	232	2
PE	248	1
PSYCH	101	3
SPCOM	101	2
General Education		8
		33

Sophomore Year

Course		Credits
BIOL	221/221L	4
ED	210	3
PE	233	3
PE	235	2
PE	242	3
PE	243	1
PE	244	3
PE	245	2
PE	246	2
PE	247	2
PE	249	2
PE	250	2
PE	289L	1
SPCOM	211	2
		32

Junior Year

Course		Credits
BBE	363	2
ED	435	4
IST	345	2
PE	322	2
PE	342	2
PE	343	2
PE	364	2
PE	378	2
PE	389L	1
PSYCH	351	3
RDG	301	3
General Education		6
		31

Senior Year

Course		Credits
ED	460	3
ED	489	15
PE	442	2
PE	451	2
PE	461	3
PE	465	2
PE	471, 472, 473, 474, 482, 483 (Select two courses)	4
		31

Required Core

Course		Credits
PE	232	2
PE	233	3
PE	235	2
PE	289L/389L	2
PE	322	2
PE	342	2
PE	343	2
PE	364	2
PE	378	2
PE	442	2
PE	451	2
PE	461	3
PE	465	2
Two electives approved by the student's adviser		4
		32

Teacher Certification Core

Course		Credits
PE	242	3
PE	243	1
PE	244	3
PE	245	2
PE	247	2
PE	249	2
(Elementary Endorsement)		
PE	246, 248, 250	5
(Secondary Endorsement)		

K-12 (total of 50 hours) All courses listed above.

BACHELOR OF SCIENCE IN RECREATION (BS)

Sample Program

Freshman Year

Course		Credits
ENG	110, 211	6
SPCOM	101	2
General Education		24
		32

Sophomore Year

Course		Credits
PE	233	3
REC	340	2
REC	350	2
Allieds and Methods		12
Electives		5
General Education		9
		33

Junior Year

Course		Credits
PE	461	3
PE	465	2
REC	389	3
REC	481	3
Allieds and Methods		10
Electives		10
		31

Senior Year

Course		Credits
REC	482	3
REC	493	1
REC	498	9
Electives		19
		32

Required Core

Course		Credit
PE	233	3
PE	461	3
PE	465	2
REC	340	2
REC	350	2
REC	389	3
REC	481	3
REC	482	3
REC	493	1
REC	498	9
		31

DEPARTMENT OF PSYCHOLOGY

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

Sample Program

Freshman Year

Course		Credits
ENG	110, 211	6
*PSYCH	101	3
SPCOM	101	2
Electives		11
General Education		10
		32

Sophomore Year

Course		Credits
*PSYCH	201/201L	4
PSYCH Electives		6
Electives		8
General Education		14
		32

Junior Year

Course		Credits
*PSYCH	301/301L	4
PSYCH Electives		6
Electives		15
General Education		
(Group I)		3
(Group III)		4
		32

Senior Year

Course		Credits
*PSYCH	401	3
PSYCH Electives		9
Electives		20
		32

*Required for all majors.

DEPARTMENT OF SOCIOLOGY/ANTHROPOLOGY AND SOCIAL WORK

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

Course		Credits
CS	101	3
ENG	115 or 116	3
MATH	120	4
SW	100	3
SW	101, 102	6
SPCOM	101	2
General Education		10
		31

Sophomore Year

Course		Credits
BIOL	221	3
ENG	216 or 211	3
PSYCH	211	3
SW	205	3
SW	210	3
Electives		7
General Education		10
		32

Junior Year

Course		Credits
PSYCH	352	3
SW	320	3
SW	322, 323, 324	9
SW	350	3
Electives		14
		32

Senior Year

Course		Credits
SW	401	3
SW	420	3
SW	460	3
SW	493	3
SW	494	9
Electives		10
		31

DEPARTMENT OF SPEECH COMMUNICATION/THEATRE

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

Sample Program

Freshman Year

Course	Credits
ENG 110, 211	6
SPCOM 100	1
SPCOM 101	2
SPCOM 103	2
SPCOM 211	3
General Education	
(Group I)	6
(Group III)	9
	29

Sophomore Year

Course	Credits
SPCOM 212	2
SPCOM 214	1
SPCOM 222	3
SPCOM 221	3
SPCOM 231	3
SPCOM 241	3
SPCOM 261	3
Electives	2
General Education	
(Group I)	9
(Group II)	4
	33

Junior Year

Course	Credits
SPCOM 312	2
SPCOM 360	3
SPCOM 361	2
SPCOM Electives	4
Electives	18
General Education	
(Group I)	1
(Group III)	1
	31

Senior Year

Course	Credits
SPCOM 412	2
SPCOM 493	3
Electives	26
	31

COLLEGE OF SCIENCE AND MATHEMATICS

The College of Science and Mathematics offers degree programs through five academic departments.

DEPARTMENT OF CHEMISTRY

BACHELOR OF SCIENCE IN CHEMISTRY (BS)

Sample Program

Freshman Year

Course	Credits
CHEM 121/121L	5
CHEM 122/122L	5
ENG 110, 211	6
MATH 124	3
MATH 126	5
General Education	4
	28

Sophomore Year

Course	Credits
CHEM 301/301L	5
CHEM 302/302L	5
MATH 224	5
MATH 240, 241	3
PHYS 221/221L	5
SPCOM 101	2
General Education	7
	32

Junior Year

Course	Credits
CHEM 317/317L	4
CHEM 318/318L	4
CHEM 321, 322	6
GER 125	5
PHYS 222/222L	5
Electives	5
General Education	5
	34

Senior Year

Course	Credits
CHEM 323	2
CHEM 419/419L	4
CHEM 421	3
CHEM 493	1
CHEM 495	3
Electives	19
	32

Required Core

Course		Credit
CHEM	121/121L 122/122L	10
CHEM	301/301L 302/302L	10
CHEM	317/317L	4
CHEM	321, 322	6
CHEM	419/419L	4
CHEM	421	3
CHEM	493	1
		38

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

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 202/202L	8
CHEM	122/122L	5	or		
ENG	110 or 115	3	PHYS	121/121L	4
ENG	211 or 216	3	General Education		
SPCOM	101	2	(Group I, II)		6
General Education					30 or 34
(Group I, II)		3			
		32			

Junior Year			*Senior Year*		
Course		**Credits**	**Course**		**Credits**
BIOL	301/301L	5	BIOL	341/341L	4
BIOL Upper-division,			or		
Adviser-approved			BIOL	412/412L	
Electives		12	BIOL	471	1
Electives		6	BIOL	493	1
General Education			BIOL Upper-division,		
(Group I, II)		14	Adviser-approved		
		37	Electives		8
			Electives		17
					31

Required Core

Course		Credit
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 junior or senior year.

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

Students who major in medical technology should consult department advisers for sample programs.

DEPARTMENT OF MATHEMATICS

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

Sample Program

Freshman Year

Course		Credits
CST	105	3
CST	122	3
ENG	110, 211	6
MATH	126, 224	10
MATH	201	1
MATH	202	1
PHYS	221, 221L	5
SPCOM	100, 101	3
		32

Sophomore Year

Course		Credits
CST	210	3
CST	222	3
MATH	271	3
MATH	307	3
MATH	325	4
PE Activities Class		2
PHYS	222/222L	5
General Education		
(Group I)		3
(Group II)		6
		32

Junior Year

Course		Credits
CST	360	3
CST Upper-division Elective		3
MATH	327	3
MATH	350	3
or		
MATH	456	
MATH Upper-division Electives		3
PHYS	323/323L	5
Elective		3
General Education		
(Group I)		5
(Group II)		4
		32

Senior Year

Course		Credits
CST Upper-division Electives		5
MATH	301	1
MATH Upper-division Electives		6
MATH	421	3
Electives		12
General Education		
(Group I)		2
(Group II)		3
		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

BACHELOR OF SCIENCE IN NURSING (BSN)

Sample Program

Freshman Year

Course		Credits
BIOL	206/206L	4
CHEM	111/111L	4
ENG	110, 211	6
MATH	120	4
PSYCH	101	3
SPCOM	100, 101	3
General Education		
(Group I)		3
(Group II)		1
		28

Sophomore Year

Course		Credits
ANTHR	103	3
BIOL	223/223L	4
BIOL	224/224L	4
CHEM	112/112L	4
MATH	156	3
NSG	202/202L	4
NSG	301	3
SOC	101	3
General Education		
(Group I)		6
		34

Junior Year

Course		Credits
NSG	302	4
NSG	304	4
NSG	306	3
NSG	307	3
NSG	351	3
NSG	352	6
NSG	354	3
NSG	362	5
Elective		3
		34

Senior Year

Course		Credits
NSG	401	2
NSG	404	3
NSG	408	5
NSG	410	5
NSG	451	3
NSG	452	6
NSG	454	4
Upper-division Electives		6
		34

DEPARTMENT OF PHYSICS/PHYSICAL SCIENCE

BACHELOR OF SCIENCE IN PHYSICS (BS)

Sample Program

Freshman Year

Course		Credits
CHEM	121/121L	5
CHEM	122/122L	5
ENG	110, 211	6
MATH	126	5
MATH	201	1
MATH	202	1
MATH	224	5
PHYS	221/221L	5
Courses in chosen option		5
		38

Sophomore Year

Course		Credits
MATH	325	3
MATH	337	3
PHYS	222/222L	5
PHYS	323/323L	5
SPCOM	101	2
Courses in chosen option		10
General Education (Group I)		3
		31

Junior Year

Course		Credits
PHYS	301	4
PHYS	321	3
PHYS	322	1
PHYS	341	3
PHYS	342	1
Courses in chosen option and/or Electives		15
General Education (Group II)		7
		34

Senior Year

Course		Credits
PHYS	431	4
PHYS	432	4
PHYS	480	1
PHYS	492	1
Chosen option and/or Electives		15
General Education (Group I)		7
(Group II)		3
		35

SCHOOL OF BUSINESS

School of Business policies. The standard semester course load for full-time students is 16 credit hours. Student 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, earn C grades or higher in all courses within their major and 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 program 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.

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, business communications, business law and institutional requirements. Upon completion of the pre-business core, the student makes a formal application to the program for admission to upper-division courses in the School of Business. Application forms are available in the program office. Students are responsible for adhering to the pre-business requirements.

DEPARTMENT OF ACCOUNTING

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION IN ACCOUNTING (BSBA)

Required Program

Freshman Year

Course	Credits
BUSAD 160	3
ENG 110, 211	6
MATH 121	4
SPCOM 101	2
General Education	17
	32

Sophomore Year

Course	Credits
ACCTG 201	4
ACCTG 202	4
BUSAD 220	3
BUSAD 260, 261	6
BUSAD 270	3
ECON 201	3
ECON 202	3
General Education	6
	32

Public Accounting

Junior Year

Course	Credits
ACCTG 301, 302	8
ACCTG 311	4
ACCTG 320	4
ECON 310	3
FIN 330	3
MGMT 310	3
MKTG 340	3
Electives	4
	32

Senior Year

Course	Credits
ACCTG 401	4
ACCTG 403	4
ACCTG 404	3
ACCTG 410	4
ACCTG 440	4
MGMT 485	3
Electives	4
General Education	6
	32

Industrial/Governmental Accounting

Junior Year

Course	Credits
ACCTG 301	4
ACCTG 311	4
ACCTG 320	4
CST 220	4
ECON 310	3
FIN 330	3
MGMT 310	3
MGMT 365	3
MKTG 340	3
Elective	1
	32

Senior Year

Course	Credits
ACCTG 411	2
ACCTG 430	4
ACCTG 440	4
MGMT 366	3
MGMT 465	3
MGMT 485	3
Electives	3
General Education	10
	32

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

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION (BSBA)

Required Program

Freshman Year

Course	Credits
ENG 110, 211	6
BUSAD 160	3
MATH 121	4
SPCOM 101	2
General Education	7-17
	32

Sophomore Year

Course	Credits
ACCTG 201	4
ACCTG 202	4
BUSAD 220	3
BUSAD 260, 261	6
BUSAD 270	3
ECON 201	3
ECON 202	3
General Education	6
	32

Junior Year

Course	Credits
ECON 310	3
FIN 330	3
MGMT 310	3
MKTG 340	3
General Education and Emphasis	20
	32

Senior Year

Course	Credits
MGMT 485	3
General Education and Electives	29
	32

Sample Program Emphasis Areas
Junior and Senior Years

General Management

Course	Credits
BUSAD 302	3
ECON 410	3
MGMT 311	3
MGMT 318	3
MGMT 320	3
MGMT 410 or 411	3
MGMT 414	3
School of Business Upper-division Electives	12
	33

Computers and Information Systems

Course	Credits
CST 220	4
MGMT 311	3
MGMT 362	3
MGMT 365	3
MGMT 366	3
MGMT 460	2
MGMT 465	3
MGMT 469	3
MGMT 470	3
Programming Elective	6
	33

Personnel and Industrial Relations

Course	Credits
BUSAD 302	3
ECON 402	3
MGMT 318	3
MGMT 410	3
MGMT 411	3
SOC 430	3
School of Business Upper-division Electives	15
	33

BUSAD Agriculture*

Course	Credits
ACCTG 201	4
ACCTG 202	4
BUSAD 160	3
BUSAD 220	3
BUSAD 260	3
BUSAD 261	3
ECON 201	3
ECON 202	3
FIN 330	3
MGMT 310	3
MGMT 320	3
MGMT 414	3
MKTG 340	3
MATH 221	5
	46

*Required courses for agriculture emphasis area; see adviser in that area.

Industrial Management

Course	Credits
ECON 410	3
EN 443	3
MGMT 311	3
MGMT 318	3
MGMT 320	3
MGMT 362	3
MGMT 365	3
MGMT 411	3
MGMT 412	3
MGMT 465	3
School of Business Elective	3
	33

Marketing

Course	Credits
ECON 410	3
MKTG 341	3
MKTG 342	3
MKTG 343	3
MKTG 344	3
MKTG 346	3
MKTG 348	3
MKTG 440	3
MKTG 441	3
School of Business Upper-division Electives	6
	33

Finance

Course	Credits
ACCTG 301	4
ECON 302	3
ECON 330	3
FIN 331	3
FIN 333	3
FIN 431	3
At least two of the following courses:	
ACCTG 302	4
FIN 335	3
FIN 337	3
FIN 430	3
School of Business Upper-division Electives	7-8
	23

NOTE: Management students must earn 18 of the last 32 credit hours prior to graduation in residency.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION IN ECONOMICS (BSBA)

Sample Program

Freshman Year

Course		Credits
BUSAD	160	3
ENG	110, 211	6
MATH	121	4
SPCOM	101	2
General Education		7-17
		32

Sophomore Year

Course		Credits
ACCTG	201	4
ACCTG	202	4
BUSAD	220	3
BUSAD	260, 261	6
BUSAD	270	3
ECON	201	3
ECON	202	3
General Education		9
		35

Junior Year

Course		Credits
ECON	310	3
FIN	330	3
MGMT	310	3
MKTG	340	3
General Education and Departmental Major		20
		32

Senior Year

Course		Credits
MGMT	485	3
General Education and Electives		29
		32

Core Requirements

Course		Credits
ECON	301	3
ECON	302	3
ECON	410	3
ECON Upper Division and/or ACCTG, FIN, MGMT Upper Division		9 / 15
		33

NOTE: Economics students must earn 18 of the last 32 credit hours prior to graduation in residency.

EXTENDED STUDIES

The university makes available a broad array of credit courses and non-credit seminars and workshops through the Division of Extended Studies. 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 and Fort Carson in Colorado Springs, the Fremont Education Center and the Colorado State Penitentiary in Canon City, and community college campuses throughout central and southeastern Colorado.

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

Courses taken through the University of Southern Colorado Extended Studies 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 Extended Studies 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.

To insure academic integrity, academic extension courses are taught primarily by university faculty members. When this is not feasible, equally qualified instructors are recruited from the neighboring communities.

Courses are normally scheduled in eight-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.

The university is increasing outreach services, particularly through television, workshops and seminars geared toward Colorado public agencies, businesses and industries.

COOPERATIVE EDUCATION

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. This program is administered by the academic departments on campus.

MILITARY SCIENCE (ARMY ROTC)

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 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.

TELECOMMUNICATIONS

KTSC-TV, Channels 8 and 53, as a non-commercial public television station licensed by the Federal Communications Commission to the university, operates as a public service under the vice president for Business Services. 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 daytime schedule includes instructional programs for public schools; 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

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.

Information regarding eligibility, program offerings, and standards for successful completion of the program are available from the director of Special Academic Programs 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 topic courses which could add to the offerings. 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. Senior 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.

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 elected 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.
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 - clockhours in laboratory, demonstration, or studio experiences per week)
Corequisite BIOL 191L ..... -required to be taken concurrently
"Introduction to . . . " ..... -explanation of course content
GEN.ED. IIIA ..... -satisfies the university's general education requirement in Group III, Subgroup A.

Note: Not all of the above information may be noted in each course. Additional symbols include:
VAR - Variable credit course L - suffix indicating lab course

"HOUSE-NUMBERED" COURSES

200,300,400,500 - Workshop
290,390,490,590 - Special Projects
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 - Telecourse

COURSE PREFIXES

Courses of instruction are identified by the following approved prefixes:

ACCTG	—Accounting
AG	—Agriculture
ANS	—Applied Natural Science
ANTHR	—Anthropology
APSM	—Auto 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
IS	—Interdisciplinary Studies

IST	—Industrial Science and Technology
ITL	—Italian
MACOM	—Mass Communications
MATH	—Mathematics
MEDT	—Medical Technology
MET	—Mechanical Engineering Technology
MGMT	—Management
MILSC	—Military Science
MKTG	—Marketing
MUS	—Music
NSG	—Nursing
PE	—Physical Education
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 Professors Hammond, Haskin, Peterlin
Assistant Professors Bridges, Su

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 and allow students to concentrate in their area of interest by selecting either the public accounting emphasis area or the industrial/governmental emphasis area.

The public accounting emphasis is designed for students seeking careers in public accounting and intending to sit for the national Certified Public Accountants (CPA) examination. The program is accredited by the Colorado State Board of Accountancy. Students completing it qualify under the education requirements of Colorado law for the examination, which they should plan to take during the last semester of their senior year.

The industrial/governmental emphasis designed for students seeking accounting careers in industry and/or government, provides basic competencies in financial and cost accounting, auditing, taxation, information systems, and management planning and decision techniques. Students completing this program are encouraged to sit for the Certified Management Accountants (CMA) or the Certified Internal Auditor (CIA) examination.

A baccalaureate degree student may minor in accounting by completing 24 hours of approved accounting courses. ACCTG 201,202,301,302 are required. The remaining eight hours of accounting courses must be approved by the student's adviser.

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 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 an awards program. Awards are 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. Other scholarships are available through the university.

UNDERGRADUATE COURSES

201 Principles of Financial Accounting 4(4-0)
The accounting model, measurement and valuation processes involved, classification systems, and terminology of financial reporting along with selected tax implications essential to interpretation and use of financial statements.

202 Principles of Managerial Accounting 4(4-0) Prerequisite: ACCTG 201.
Managerial uses of accounting information, including cost-based decision making, differential accounting and responsibility accounting.

210 Taxes for Individuals 2(2-0)
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. ED IID.

301 Intermediate Accounting I 4(4-0) Prerequisite: ACCTG 202.
Working capital items, non-current assets, equities and compound interest concepts.

302 Intermediate Accounting II 4(4-0) Prerequisite: ACCTG 301.
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.
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.
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: senior accounting majors.
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.
Accounting theory — current concepts and developments 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.
Business law as found in the Business Law section of the Uniform CPA examination.

410 Auditing 4(4-0) Prerequisite: ACCTG 302.
Auditing standards, procedures, programs, working papers and internal control are covered conceptually and with practical case studies.

411 Operational Auditing 2(2-0) Prerequisite: ACCTG 202.
Emphasis on the tools employed by the internal auditor to ensure the effective functioning of the organization.

430 Accounting Information Systems 4(4-0) Prerequisite: ACCTG 202, CST 220.
Examination of accounting systems as a component of the total business information process. Particular attention given to the accountant's role in simplification, internal control and computerized systems.

440 Fund Accounting 4(4-0) Prerequisite: ACCTG 202.
A study of the fund accounting methods employed in not-for-profit institutions, government and governmental agencies.

491 Special Topics (1-3 VAR)
Selected accounting topics which respond to specific and timely needs of students.

495 Independent Study (1-3 VAR) Prerequisite: senior accounting student with permission of student's adviser.

498 Internship (1-6 VAR) Prerequisite: junior status, accounting major, with permission of dean, School of Business.
Supervised field accounting work in selected business, social and governmental organizations that will enhance the student's training in accounting; supplemented by written research and reports.

GRADUATE COURSES

510 Managerial Accounting 3(3-0) Prerequisite: Graduate standing.
Accounting concepts and methods utilized in managerial planning, budgeting, controlling,and evaluating to optimize decision making.

591 Special Topics 3(3-0)
Critical review and discussion of relevant accounting topics.

592 Research (1-6 VAR)
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.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

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 sciences majors with upper-division status, after satisfactorily completing a prescribed curriculum at USC. Those majors approved are: horticulture (floriculture and horticultural business management concentrations), animal science (industry concentration), and agricultural business. Requirements for the prescribed curriculum for each of the majors can be obtained from the department of life sciences office (LS 207).

101 Introductory Animal Science 3(3-0) Corequisite: AG 101L.
Introductory course dealing with domestic animals, cattle, horses, sheep, swine, poultry, and pets. Emphasis on origin, breeds, production characteristics, breeding (genetic principles), nutrition, management and health. GEN. ED. IIIA.

101L Introductory Animal Science Lab 1(0-2) Corequisite: AG 101.
Pragmatic instruction dealing with skills relative to 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.

103L Livestock Judging Lab 1(0-2) Corequisite: AG 103.

105 Agriculture Economics 3(3-0)
The role of agriculture in the economy, relation to economic forces to the farm business and agriculture industry.

112 Fundamentals of Dairy 2(2-0) Corequisite: AG 112L.
Dairy cattle breeds, selection of breeding stock, feed and milking practices, reproductive problems, milk production, marketing.

112L Fundamentals of Dairy Lab 1(0-2) Corequisite: AG 112.
Field experience and skill development related to dairy farming enterprise.

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.
Skill development field experience related to field crop production.

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 efficiences.

204 Introductory Soil Science 3(3-0) Prerequisite: CHEM 111, 111L or 121 and 121L or permission of instructor. Corequisite: AG 204L.
Formation, properties, and management of soils, emphasizing soil conditions that affect plant growth.

204L Introductory Soil Science Lab 1(0-2) Corequisite: AG 204.
Chemical and physical properties of soils.

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 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.
Skill development, field experience related to light horse production.

262 (BIOL 262) Basic Horticulture 3(3-0) Prerequisite: BIOL 201 and 201L or permission of instructor. Corequisite: AG 115L. GEN. ED. IIIA.

262L (BIOL 262L) Basic Horticulture Lab 1(0-2) Prerequisite: BIOL 201 and 201L or permission of instructor. Corequisite: AG 115. GEN. ED. IIIA.

291 Special Topics (1-3 VAR)
Areas of current progress in agriculture topics selected to meet group desires.

360 (BIOL 360) Applications of Computers in the Laboratory 3(2-2) Prerequisite: CST 101 or MATH 240 or equivalent.
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 381) Entomology 2(2-0) Prerequisite: BIOL 191, or permission of instructor. Corequisite: AG 381L.
Structure, classification, ecology and control of insects.

381L (BIOL 381L) Entomology Lab 1(0-2) Prerequisite: BIOL 191. Corequisite: AG 381.
Collection and identification of local insects.

385 (BIOL 385) Plant Taxonomy 2(2-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: AG 385L.
Identification of the common families of conifers and flowering plants; study of their systematic relationships.

385L (BIOL 385L) Plant Taxonomy Lab 2(0-4) Corequisite: AG 385.
Collection and classification of local flora.

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 15(0-40)
Career or job field work experience with an individual farm business agency, institution, or program (S/U grade).

ANTHROPOLOGY (ANTHR)

Professor Buckles
Assistant 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, archaeology which analyzes past societies and peoples, and cultural anthropology which studies lives and cultures of people in particular social groups.

The emphasis in anthropology prepares students to work in a wide variety of occupations, including education, government, business, industry and private research agencies. Anthropologists are finding 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 210, 310 and 492.

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 the instructors.

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

103 Introduction to Socio-Cultural Anthropology 3(3-0)
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)
Biological nature of humans; emphasis on how forces of evolution have shaped this nature in the past and present. GEN. ED. IIIA.

105 Introduction to Archaeology 3(3-0)
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)
Cross-cultural introduction to language processes in human society. GEN. ED. IIB.

107 Cultural Diversity 3(3-0)
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)
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.
Training in field and/or laboratory techniques by participation in projects of anthropological concern.

210 (POLSC/SOC/SW 210) Techniques of Analysis 3(3-0)
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.
Training in field and/or laboratory techniques by participation in projects of anthropological concern.

250 Life Crises in Culture 3(3-0)
Examination of the ways various cultures treat life crises such as birth, transition to adulthood, marriage, aging and death.

251 World Archaeology 3(3-0)
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)
Relationship between group processes and personality factors in a cross-cultural perspective. GEN. ED. IIB.

291 Special Topics (1-3 VAR)
Topics identified by subtitles taught. Students may enroll as often as new topics are introduced.

301 Peoples and Cultures of the Southwest 3(3-0)
Examination of the regions multiethnic and pluralistic society; emphasis on diverse adaptations to distinctive nature and cultural environments.

302 American Myths and Fantasies 3(3-0)
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.

304 The Divine in Culture 3(3-0)
Concepts of the supernatural viewed cross-culturally and in particular culture contexts.

305 Forensic Anthropology 3(3-0)
Techniques of excavation and identification of skeletal remains in connection with forensic medicine and criminal investigations.

310 Social and Cultural Theory 3(3-0)
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.
Training in field and/or laboratory techniques by participation in projects of anthropological concern.

391 Special Topics (2-4 VAR)
Special areas of faculty/student interest within the discipline.

401 (SOC 401) Health, Culture and Society 3(3-0)
Analysis of how cultural, social and psychological factors influence health and health-care.

402 (SOC 402) Aging, Culture and Society 3(3-0)
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.
Training in field and/or laboratory techniques by participation in projects of anthropological concern.

451 Culture/Deviance/Psychopathology 3(3-0)
Analysis of the relationship between culture and the causes and manifestations of deviance and psychopathology.

453 Southwestern Archaeology 3(3-0)
Investigations of the prehistories of diverse peoples and cultures of the Southwest.

491 Special Topics (1-3 VAR)
Topic identified by subtitles taught. Students may enroll as often as new topics are introduced.

492 Research 3(3-0)
Analysis of the research process in anthropology.

493 Seminar (2-4 VAR)
Major principles, propositions and concepts which establish sociological understanding.

494 Field Experience (3-12 VAR)
Practical on-the-job experience in an agency setting. Only with permission of instructor.

495 Independent Study (1-10 VAR) Prerequisite: Previous work in anthropology and permission of instructor.
Directed study of students interested in specific areas of anthropological concerns.

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.
Techniques of the effective and efficient use of scientific literature. Topics to be included will be general content and organization of Chemical Abstracts, Biological Abstracts, Beilstein, Current Contents, primary literature sources, etc. The 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.
The course will review 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)
An interdisciplinary seminar in which students will present information gained from literature and research results on topics appropriate to the application of natural sciences. May be taken up to two times for credit.

ART (ART)

Professors Brassill, Jensen, Sajbel
Associate Professors Hench, Marino, Wands
Assistant Professor Latka

The major in art leads to the degrees of bachelor of arts (BA) and bachelor of science (BS). A minor in art also is available. The art department participates in the teacher certification of the education department.

Art majors are expected to complete the following courses which comprise the core program of 18 semester hours: ART 101, 102, 115, 116, 141, 142, 210, and 410. These core courses are prerequisites for all other courses taken by art majors.

Each art major will confer with an 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 core courses. To earn a BS degree, the art major is required to complete a minimum of 48 hours in art which includes the 18 hours of core courses. Students pursuing a state certification to teach elementary or high school art are expected to complete no less than 48 hours of art.

The art minor requires 20 semester hours, including the core program of 18 semester hours: ART 101 or 102, 115 or 116, and 142. Additional courses will be selected in consultation with the department chair.

UNDERGRADUATE COURSES

100 Introduction to Art 3(3-0)
Art forms, meaning and function across cultures and through time. GEN. ED. IA.

101 Art History Survey I 3(3-0)
Development of style, iconography and function of art from Prehistoric times to Gothic. GEN. ED. IA.

102 Art History Survey II 3(3-0)
Development of style, iconography and function of art from Gothic to present time. GEN. ED. IA.

103 Art History Survey III 3(3-0)
Development of style, iconography and function of art in non-western cultures. GEN. ED. IA.

115 Design I 3(1-5)
Basic course attempting to establish the foundations of visual order.

116 Design II 3(1-5)
Basic course with emphasis on three-dimensional.

118 Art Non-Major 3(0-6)
Studio course for students interested in practicing specific areas of the arts, i.e. ceramics, drawing, film, jewelry, painting, photography, printmaking, sculpture and watercolor.

141 Beginning Drawing I 2(0-4)
Introductory course developing an individual's perception and technical skills in rendering on a two-dimensional surface.

142 Figure Drawing II 2(0-4)
Studio class in study of the human figure.

145 Free Hand Descriptive Drawing 2(0-4)
One and two point perspective drawing. Free-hand, hard-line drawings using various projections and illustrative techniques.

201 Studio Materials 1(0-2)
As above, sections in clay, fiber, metal, wood and museum practices.

202 Art Processes 1(0-2)
Similarities and differences within visual arts. Sections in sculpture, painting, ceramics, photography and criticism and theory.

210 Art Career Orientation 1(1-0)
Guided development of individual job objectives.

233 Sculpture I 3(0-6)
Basic problems in sculpture relating specific concerns of visual form and processes.

234 Painting I 3(0-6) Prerequisite: foundation.
Application of materials and techniques to a visual idea through the use of color theories, surface awareness and compositional emphasis.

235 Painting II 3(0-6) Prerequisite: foundation.
Continuation of above at higher level of technical and visual pursuit.

236 Watercolor Painting 3(0-6) Prerequisite: foundation.
Water media as a specialized approach to painting.

237 Collage 1(0-2) Prerequisite: foundation, or permission of instructor.
Paper collage and mixed media as an approach to painting.

241 Drawing III 2(0-4) Prerequisite: ART 141, 142.
Advanced course in pursuit of finished drawings.

242 Figure Drawing IV 2(0-4) Prerequisite: ART 142.
Continuation of ART 142 with expanded interpretational and compositional awareness.

245 Ceramics I 3(0-6) Prerequisite: foundation.
Essential skills in ceramic processes. Emphasis on form and function as related to students' needs and creative intent.

251 Fundamentals for Wood I 3(0-6) Prerequisite: foundation.
Techniques of hand and power tools for producing sculpture and useful forms in wood and related materials.

255 Jewelry Techniques I 3(0-6) Prerequisite: foundation.
Fabrication and methods of jewelry construction. Use of a variety of techniques and of related materials leading to independent studio work.

260 Weaving 3(0-6) Prerequisite: permission of instructor.
Techniques of loom and non-loom weaving.

270 Relief Printmaking (1-3 VAR)
Basic processes of printing from raised surfaces.

274 Computer Imaging (1-3 VAR)
Use of micro computers to develop visual images.

276 Photography (1-3 VAR)
Photography as an art form in itself as well as an adjunct to other art media.

281 Introduction to Graphic Design 3(1-4) Prerequisite: foundation.
Tools, design elements and processes that concern advertising and communication designers.

282 Calligraphy (1-3 VAR)
Styles of hand lettering and layout of calligraphic forms.

291 Special Topics (1-5 VAR)
Study and/or activity not covered by regular offerings.

301 Art History: Southwest Native America 3(3-0) Prerequisite: permission of instructor.
Development of style, iconography and function of Indian art from Prehistoric to present time.

302 Art History of Pre-Columbian America 3(3-0) Prerequisite: permission of instructor.
Development of style, iconography and function of art from Prehistoric times to arrival of Spanish in Middle and South America.

303 Art History of Latin America 3(3-0) Prerequisite: permission of instructor.
Development of style, iconography and function of art from time of Spanish conquest of Latin America to present.

332 Modeled Cast Sculpture 3(0-6) Prerequisite: foundation.
Techniques of producing three-dimensional form through modeling, mold-making and casting in a variety of materials.

333 Sculpture II 3(0-6)
Processes for producing sculpture via the subtractive methods.

341 Portrait Painting 1(0-2) Prerequisite: ART 235.
Representational painting using portrait models.

342 Figure Painting 1(0-2) Prerequisite: ART 235.
Composition and environmental additions to the figure.

343 Landscape Painting 1(0-2) Prerequisite: ART 235.
Perception and interpretation of nature on location from sketches.

345 Ceramics II 3(0-6) Prerequisite: ART 245.
In-depth development of specific techniques concerning the nature of ceramics. Perfection of skills and personalization of style.

346 Production Pottery 3(0-6) Prerequisite: permission of instructor.
Intensive experience in practical problems of production; emphasis on functional ware. Material, equipment, sales and procedure to establish a studio.

351 Form in Wood II 3(0-6)
Sophisticated methods of working wood and related materials into sculpture and useful forms.

355 Jewelry Techniques II 3(0-6) Prerequisite: ART 255.
Various methods of constructing cast jewelry. In-depth course leading to independent studio work.

356 Enameling Techniques I 3(0-6) Prerequisite: ART 255.
Problems in limoges, champleve, cloisonne, as well as innovative approaches leading to independent studio work.

357 Enameling Techniques II 2(0-4) Prerequisite: permission of instructor.
Applied jewelry design with emphasis on creativity and innovation. Brief coverage of the history of designing in jewelry and personal adornment.

370 Advanced Relief Printmaking (1-3 VAR)
Basic processes of printing from raised surfaces.

371 Intaglio (1-3 VAR) Prerequisite: foundation.
Basic processes of printing from raised and lowered surfaces.

372 Lithography (1-3 VAR) Prerequisite: foundation.
Processes of planographic printing from drawings made on stone.

373 Serigraphy (1-3 VAR) Prerequisite: foundation.
Processes of screen printing including preparation of photographic stencils.

374 Computer Imaging (1-3 VAR)
Use of computers to develop visual images for advertising and commercial application.

375 History of Art Film 3(3-0)
Significant art films illustrating the development of style, subject matter and techniques of film making from late 19th century to the present.

376 Photography (1-3 VAR)
Photography as an art form in itself as well as adjunct to other art media.

377 Principles of Elementary Art Education 3(3-0)
Lecture course dealing with the development of visual concepts within the child.

379 Principles of Secondary Art Education 2(2-0)
Lecture course dealing with theories and methods of art education beyond the elementary school.

381 Graphic Design II 3(1-4) Prerequisite: ART 281.
Layout and the preparation of camera-ready mechanicals.

382 Illustration 2(0-4) Prerequisite: ART 381.
Specialized course in the use of images rendered in varying techniques to express ideas.

383 Exhibition Design 2(0-4) Prerequisite: permission of instructor.
Communication and design principles applied to the display of objects. Special attention to museum problems.

384 Papermaking (1-3 VAR)
Techniques of making paperpulp, sheets of paper, various types of molds for paper casting.

397 Studio Series 3(0-6) Prerequisite: when appropriate.
Advanced studio offerings for students who have completed all other course offerings in that specific discipline. Scheduled concurrently with lower division studios. Repeatable once.

401 Art History: Greek, Roman, Byzantine 3(3-0) Prerequisite: permission of instructor.
Development of style, iconography and function of art in Aegean and Mediterranean civilizations.

405 Art History: Modern 3(3-0) Prerequisite: permission of instructor.
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.
Development of style and iconography of contemporary art.

407 Art History: Museum Training 3(3-0) Prerequisite: permission of instructor.
Curating, conservation or presentation and interpretation of art from various periods and cultures.

410 Art Career Orientation 1(1-0) Prerequisite: senior standing.
Senior level evaluation of personal plans toward job objectives.

420 Multi-Media 3(3-0)
Studio course in the creation of images and ideas through combined materials, and its special appropriateness as a technique in art.

445 Glaze Calculation 1(0-2) Prerequisite: permission of instructor.
The simple necessities for forming glazes from earth oxides. Studio vesting, firing and practical application. Chemistry not a prerequisite.

446 Kiln Construction 1(0-2) Prerequisite: permission of instructor.
Building and designing all types of kilns. Fuel and material sources. Practical experience by constructing a kiln.

447 History of Ceramics 1(1-0) Prerequisite: permission of instructor.
World view of ceramics as related to the potters' tradition. Technical developments, style trends and related historical events.

475 Film Making 3(1-4) Prerequisite: permission of instructor.
Film as a means of personal expression.

478 Art Education Methods Application Lab 2(0-4) Prerequisite: ART 377 or ART 379.
Laboratory situation in the application of theories and methods of art education.

481 Communication Graphics 3(1-4) Prerequisite: permission of instructor.
Pursuit of the design of words and images into the world of motion in TV and film.

491 Special Topics (1-5 VAR)
Study and/or activity not covered by regular offerings. Repeatable.

494 Field Experience (1-5 VAR) 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.

495 Individual Projects (1-5 VAR) Prerequisite: junior or senior standing and permission of instructor.
On-campus individual experience in which the student works under tutorial arrangement with instructor and has regular conferences.

496 Cooperative Education Placements (1-4 VAR) Prerequisite: permission of instructor.

497 Studio Series 3(0-6) Prerequisite: ART 397.
Further advanced sections of studio offerings. See Studio Series. Repeatable once.

GRADUATE COURSES

500 Workshop (1-5 VAR) Prerequisite: permission of instructor and graduate standing.
Advanced course in new materials and techniques using multi-media sources. Concepts and ideas explored as an integral part of the workshop.

591 Special Topics (1-3 VAR)
Study and/or special activity not covered by regular offerings. May include any offerings from the major emphasis areas in ceramics, drawing, enameling, graphic design, art history/museum studies, jewelry, painting and sculpture.

AUTOMOTIVE PARTS AND SERVICE MANAGEMENT (APSM)

Associate Professors Martinet, Wade
Assistant Professor Mason

The major in automotive parts and service management leads to a bachelor of science (BS) degree designed to provide the student with an indepth technical knowledge of the automobile and a broad range of management skills as applied in the modern automotive business. 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.

105 Introduction to the Parts and Service Industry 2(2-0)
Introduction to the industry from the viewpoint of history, social impact, organization structure, manpower needs and future growth.

115 Automotive Engine Design and Operation 4(2-4)
Design and operation of internal combustion engines, two and four cycle, rotary, diesel, gas, turbine, steam fuel cell and other future automotive power concepts.

125 Automotive Suspension and Brake Systems 3(3-0)
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.
Laboratory to accompany APSM 125.

135 Automotive Fuel Systems and Exhaust Emissions 3(3-0)
Design and theory of automotive fuel systems, carburetion, fuel injection, turbo charging and supercharging. Also functions and design of automotive emission systems.

135L Automotive Fuel Systems and Exhaust Systems Lab 1(0-2) Corequisite: APSM 135.
Laboratory to accompany APSM 135.

155 Automotive Jobbers and Dealer Parts Operation 5(5-0)
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)
How to select the correct piece of industrial equipment to do the job for the customer; also the use of parts catalogs and microfilm in heavy equipment.

205 Automotive Jobber Distribution and Merchandising 5(5-0)
Channels of distribution and merchandising for the automotive jobber from the manufacturer to the ultimate user.

215 Automotive Power Trains and Drive Lines 3(3-0)
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.
Laboratory to accompany APSM 215.

225 Power Mechanics 3(3-0)
Power sources including steam, atomic, internal combustion, turbines, engines, plus transmission of power. (Not required for APSM majors.)

235 Machine Shop Equipment and Operation 3(2-2)
Functions of automotive machine shop equipment and basic automotive machine shop management.

245 Automotive Electrical Systems I 3(3-0)
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.
Laboratory to accompany APSM 245.

255 Automotive Electrical Systems II 2(2-0) Prerequisite: APSM 245/245L. Corequisite: APSM 255L.
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.
Laboratory to accompany APSM 255.

296 Cooperative Education Placement (1-5 VAR)
For APSM freshmen and sophomores. Industrial cooperative education work experience under direction of field supervisor and APSM faculty member.

305 Auto Parts and Service Management 3(3-0)
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.
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.
Diagnosis of electrical, fuel, engine, brake and transmission systems, plus study of service management and service writer duties.

345 Advanced Automotive Systems 5(3-4) Prerequisite: junior standing or permission of instructor.
Theory and lab experience on new concepts in automotive electrical, fuel and suspension systems.

405 Automotive Sales Principles and Practices 5(5-0)
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.
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) Permission of instructor and supervision provided.
For advanced students. Each student selects, outlines and pursues a project.

496 Cooperative Education Placement (1-5 VAR)
For APSM juniors and seniors. Industrial cooperative education work experiences under direction of field supervisor and APSM faculty member.

BILINGUAL BICULTURAL EDUCATION (BBE)

Assistant Professors Gutierrez, Trujillo

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)
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/curriculum in bilingual education.

401 Teaching the Limited English Proficient Student 2(1.5-1.5) Prerequisite: admission to teacher education program.
Methods and techniques of teaching English to children of linguistically and culturally different backgrounds.

403 Teaching Elementary Subjects in Bilingual Education 3(2-3)
Practice in teaching principles of subject matter in bilingual education.

460 Survey of Language/Cultural Tests in Bilingual Education 2(2-0)
Introduction to current language/cultural instruments for the prospective bilingual education teacher of the elementary school.

487 Student Teaching Bilingual (1-15 VAR) Prerequisite: admission to the teacher education program.
For students in elementary bilingual program. Department approval required before enrollment. Application for student teaching must be submitted one full semester prior to enrollment. (S/U grades.)

495 Independent Study (1-2 VAR)
Special research for the student specializing in bilingual education.

GRADUATE COURSES

500 Workshop (1-3 VAR) Prerequisite: graduate standing.
In-depth 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 how the educational process can be adapted to children of diverse cultural backgrounds.

541 Survey of Research in Bilingual Education 2(2-0) Prerequisite: graduate standing and BBE 412.
Review of research related to bilingual education.

595 Independent Study (1-2 VAR) Prerequisite: graduate standing.
Special research for the student specializing in bilingual education.

BIOLOGY (BIOL)

Professors Dorsch, Farris, Herrmann, Janes, Linam, Osborn, Seilheimer, Sublette
Associate Professors Burand, Murray, Thomas

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 controlled-environment greenhouse, regional museum and local herbarium.

The student majoring in biology may plan to enter the world of work or to 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 the professional school. The student should contact the specialized adviser as early as possible.

The pre-professional program advisers are:

Program	Adviser
Pre-chiropractic medicine	Dr. Hal Murray
Pre-forestry and pre-wildlife management	Dr. Neal O. Osborn
Pre-optometric	Dr. Hal Murray
Pre-pharmacy	Dr. Jerald L. Connelly
Pre-physical therapy	Dr. Hal Murray
Pre-occupational therapy	Dr. Hal Murray
Pre-podiatric medicine	Dr. John A. Dorsch
Pre-veterinary medicine	Dr. Larry Thomas
Pre-dental	Dr. Gerald C. Farris
Pre-medicine and pre-osteopathic medicine	Dr. John A. Dorsch
Pre-physician's assistant	Dr. Hal Murray

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 completes successfully the two-year program at USC with a 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. Each student should obtain a written description of specific degree requirements from the appropriate adviser. It is recommended that all students who might attend a graduate school take one year of a foreign language and 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). Dr. Jay Linam, phone 549-2509, is the program adviser. 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. Dr. John Burand, phone 549-2815, is the program adviser.

Two types of minors in biology are available: 1) 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; 2) the general biology minor is designed for students who wish to establish a minor program and find that biology is helpfully related to their personal goals.

The professional biology minor requires 23 semester hours: 14 semester hours of specific lower-division courses plus nine or more additional hours of electives, eight of which must be upper division. 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)
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)
Analysis of personal dietary habits and behavior in relation to basic human nutritional needs and food composition. GEN. ED. IIIA.

121 Environmental Conservation 4(4-0)
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)
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)
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)
In-depth look at the human body from the standpoint of positive health, wellness and fitness. GEN. ED. IIIA.

171 Career Planning I 1(1-0)
Identifying career options and creating a personalized educational program.

191 Aspects of Biology 3(3-0) Corequisite: BIOL 191L.
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.
A laboratory course to accompany BIOL 191. GEN. ED. IIIA.

192 Introduction to Computing in the Life Sciences 1(0-2)
Orientation to the software and hardware available in the department of life sciences. This course serves as 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.
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.
A laboratory course to accompany BIOL 201. GEN. ED. IIIA.

202 Zoology 3(3-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 202L.
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.
A laboratory course to accompany BIOL 202. GEN. ED. IIIA.

206 Introduction to Microbiology 3(3-0) Corequisite: BIOL 206L.
For students of nursing and allied health. Applied aspects of medical microbiology.

206L Introduction to Microbiology Lab 1(0-3) Corequisite: BIOL 206.
A laboratory course to accompany BIOL 206.

221 Principles of Human Anatomy and Physiology 3(3-0) Corequisite: BIOL 221L.
Fundamentals of anatomical structures and physiological function. GEN. ED. IIIA.

221L Principles of Human Anatomy and Physiology Lab 1(0-2) Corequisite: BIOL 221.
A laboratory course to accompany BIOL 221. GEN. ED. IIIA.

223 Human Physiology and Anatomy I 3(3-0) Corequisite: BIOL 223L.
In-depth study of human physiology and anatomy designed for students who require or desire a more 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.
A laboratory course to accompany BIOL 223. GEN. ED. IIIA.

224 Human Physiology and Anatomy II 3(3-0) Corequisite: BIOL 224L.
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.
A laboratory course to accompany BIOL 224. GEN. ED. IIIA.

262 (AG 115) Basic Horticulture 3(3-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: BIOL 262L.
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.
A laboratory course to accompany BIOL 262. GEN. ED. IIIA.

280 Introduction to Biotechnology 3(3-0)
Introduction and current developments in the use of biological organisms for research and for commercial and industrial processes.

291 Topics (1-6 VAR)
Courses designed to study advances in biology or areas of particular interest to special groups of professional biologists and other related professions. Courses must be approved by the department.

294 Field Experience (1-4 VAR)
Volunteer work experience under program director, department coordinator and faculty supervisor through the cooperative education program. Not open to students who have taken BIOL 296.

301 General Microbiology 3(3-0) Prerequisite: BIOL 191 and CHEM 301, 301L or permission of the instructor. Corequisite: BIOL 301L.
Introduction to the bacteria and viruses including microbial genetics and physiology.

301L General Microbiology Lab 2(0-4) Corequisite: BIOL 301.
Laboratory techniques of observation, handling, cultivation, identification and control of microorganisms.

302 Medical Microbiology and Immunology 3(3-0) Prerequisite: BIOL 301 or permission of the instructor. Corequisite: BIOL 302L.
Introduction to immunology and survey of pathogenic bacteria, viruses and fungi.

302L Medical Microbiology and Immunology Lab 2(0-4) Corequisite: BIOL 302.
Laboratory techniques of immunology and medical microbiology.

320 Emergency Medical Technician (EMT) Training 6(6-0) Prerequisite: Standard or advanced first aid or equivalent, or permission of instructor.
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.
Comparative study of developmental anatomy of vertebrate animals.

321L Comparative Vertebrate Anatomy, Dissection 2(0-4) Corequisite: BIOL 321.
Comparative dissection of representative vertebrate animals.

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, Dissection 1(0-2) Corequisite: BIOL 324.
Dissection and examination of the anatomical structure of the head, neck and chest.

341 Vertebrate Physiology 3(3-0) Prerequisite: BIOL 202, CHEM 205 and 205L or 301 and 301L. Corequisite: BIOL 341L.
Basic general physiology and the functions of animal and human body systems.

341L Vertebrate Physiology Lab 1(0-2) Corequisite: BIOL 341.
A laboratory course to accompany BIOL 341.

342 Pathobiology 3(3-0) Prerequisite: BIOL 341 or permission of instructor. Corequisite: 342L.
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.
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.
A laboratory course to accompany BIOL 351.

352 Evolution and Futuristics 2(2-0)
Historical view of the theory of evolution with emphasis upon man's place in nature and the forces which have produced evolution. Issues involving man's management of his future.

353 Ecology 4(4-0) Prerequisite: BIOL 201 and 202 or permission of instructor. Corequisite: BIOL 392L.
Interaction and interdependencies between organisms and their environment.

353L Ecology Field Studies 1(0-2) Corequisite: BIOL 392.
Independent and group ecological research in aquatic and terrestrial ecosystems.

354 Urban Ecology 3(3-0)
Urban ecology and problems arising from urban implosion. The critical state of energy resources, recent changes in legislation concerning the environment and case studies on national, regional and local urban areas.

360 (AG 360) Applications of Computers in the Laboratory 3(2-2) Prerequisite: CST 101.
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)
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)
Teaching experience under supervision of instructor.

383 Mammalogy 1(1-0) Corequisite: BIOL 383L.
Evolution, classification and biology of mammals; practice in identifying and preparing specimens. Offered alternate years.

383L Mammalogy Lab 1(2-0) Corequisite: BIOL 383.
Offered alternate years.

384 Ornithology 1(1-0) Corequisite: BIOL 384L.
Classification, life history, laboratory and field identification of birds. Offered alternate years.

384L Ornithology Lab 1(0-2) Corequisite: BIOL 384.
Offered alternate years.

394 Field Experience (1-4 VAR)
Volunteer work experience under program director, program coordinator and faculty supervisor through the cooperative education program. Not open to students who have taken BIOL 396.

412 Cellular Biology 3(3-0) Prerequisite: BIOL 201, 202, CHEM 122, 122L, 205, 205L or permission of instructor. Corequisite: BIOL 412L.
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.
A laboratory course to accompany BIOL 412.

426 Plant Morphology 2(2-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: BIOL 426L.
Forms, basic structures, relationships, life histories and evolutionary trends of representatives of the major autotropic plant groups.

426L Plant Morphology Lab 1(0-2) Corequisite: BIOL 426.
A laboratory course to accompany BIOL 426.

432 Embryology 2(2-0) Prerequisite: BIOL 202 or permission of instructor. Corequisite: 432L.
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.
A laboratory course to accompany BIOL 432.

441 Freshwater Invertebrate Zoology 2(2-0) Prerequisite: BIOL 191, 202, or permission of instructor. Corequisite: BIOL 441L.
Classification, pylogeny, systematics, morphology, physiology, and natural history of freshwater invertebrates inclusive of insects. Offered alternate years.

441L Freshwater Invertebrate Zoology Lab 2(0-4) Corequisite: BIOL 441.
Identification of freshwater invertebrates. Offered alternate years.

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. Offered alternate years.

443L Limnology Lab 2(0-4) Corequisite: BIOL 443.
Limnological methods. Offered alternate years.

450 Recombinant DNA Technology 3(3-0) Prerequisite: BIOL 301, 351 or 412.
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)
Creating and securing graduate school and employment opportunities.

472 Radiation Biology 3(3-0) Prerequisite: BIOL 201, 202 CHEM 122, 122L, or permission of instructor. Corequisite: BIOL 472L.
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.
Laboratory course in radiation biology methods.

481 (AG 381) Entomology 2(2-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 481L.
Structure, classification, ecology and control of insects.

481L (AG 381L) Entomology Lab 1(0-2) Prerequisite: BIOL 191. Corequisite: BIOL 481.
Collection and identification of local insects.

482 Parasitology 2(2-0) Prerequisite: BIOL 191 or permission of instructor. Corequisite: BIOL 482L.
Taxonomy, morphology, life cycles, host relationships of animal parasites.

482L Parasitology Lab 1(0-2) Prerequisite: BIOL 191. Corequisite: BIOL 482.

485 (AG 385) Plant Taxonomy 2(2-0) Prerequisite: BIOL 201 or permission of instructor. Corequisite: BIOL 485L.
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.
Collection and classification of local flora.

491 Special Topics (1-6 VAR)
Courses designed to study advances in biology or areas of particular interest to special groups of professional biologists and other related professions. Courses must be approved by the department.

493 Seminar 1(1-0) Prerequisite: permission of program chairman.
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)
Volunteer work experience under program director, program coordinator and faculty supervisor through the cooperative education program. Not open to students who have taken BIOL 496.

495 Independent Study (1-6 VAR) Prerequisite: junior standing or permission of instructor.
Designed for academically strong juniors and seniors and graduates majoring in biology. Students should choose a supervising professor and obtain permission from the department.

498 Internship 15 (0-30)
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

GRADUATE COURSES

526 Plant Morphology 2(2-0)
Forms, basic structures, relationships, life histories and evolutionary trends of representatives of the major autotropic plant groups.

526L Plant Morphology Laboratory 1(0-2)

532 Embryology 2(2-0)
Development of representative vertebrate and invertebrate animals with particular emphasis on the early embryology of branchiostoma, frog, chick and pig.

532L Embryology Laboratory 2(0-4)

540 Molecular Genetics 2(2-0) Prerequisite: BIOL 301/301L and 351/351L.
Molecular and biochemical basis of heredity. Regulation of gene expression.

540L Molecular Genetics Laboratory 1(0-2)

541 Freshwater Invertebrate Zoology 2(2-0)
Classification, phylogeny, systematics, morphology, physiology, and natural history of freshwater invertebrates inclusive of insects.

541L Freshwater Invertebrate Zoology Laboratory 2(0-4)

543 Limnology 2(2-0)
Biology, chemistry and physics of lakes and rivers.

543L Limnology Laboratory 2(0-4)

552 Theory and Application of Electron Microscopy 2(2-0)
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 Laboratory 2(0-4)

572 Radiation Biology 3(3-0)
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 Laboratory 1(0-2)

581 Entomology 2(2-0)
Structure, classification, ecology and control of insects.

581L Entomology Laboratory 1(0-2)

582 Parasitology 2(2-0)
Taxonomy, morphology, life cycles, host relationships of animal parasites.

582L Parasitology Laboratory 1(0-2)

583 Mammalogy 1(1-0)
Evolution, classification and biology of mammals; practice in identifying and preparing specimens.

583L Mammalogy Laboratory 1(0-2)

584 Ornithology 1(1-0)
Classification, life history, laboratory and field identification of birds.

584L Ornithology Laboratory 1(0-2)

585 Plant Taxonomy 2(2-0)
Identification of common families of conifers and flowering plants; study of their systematic relationships.

585L Plant Taxonomy Laboratory 2(0-4)

591 Special Topics (1-6 VAR)
Courses designed to study advances in biology or areas of particular interest to special groups of professional biologists and other related professions. Courses must be approved by the department.

595 Independent Study (1-6 VAR)
Designed for academically strong juniors and seniors and graduates majoring in biology. Students should choose a supervising professor and obtain permission from the department.

596 Thesis Research 6(VAR)
Research on a topic leading to a thesis. Required for completion of a degree.

BUSINESS ADMINISTRATION (BUSAD)

Professors Kochenberger, Shirley
Associate Professor Reiner
Assistant Professor Ahmadian

The major in business administration leads to the bachelor of science in business administration (BSBA) degree, and provides students with the theoretical and conceptual basis of management and marketing as well as application skills to assume leadership roles in industry, government and education. The School of Business also offers a graduate program leading to a master's degree in business administration (MBA).

The undergraduate business administration major permits students to select one emphasis area and to specialize in order to qualify for specific employment opportunities. The major is designed to prepare students for careers in retailing, wholesaling, industrial or not-for-profit organizations, and to assume managerial positions. Emphasis areas are available in general management, industrial management, finance, computers and information systems, business administration agriculture, and marketing.

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 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)
Introduction to the concepts and practices of business in a free enterprise system, including social requirements of business firms. Open to all students, but especially recommended to non-School of Business majors and all freshmen. GEN. ED. IID.

114 Small Business Environment 3(3-0)
For non-business majors only. Study of the financial, accounting, management, marketing and legal problems in small businesses with special emphasis on recognizing and evaluating business opportunities.

160 Introduction to Computers and Information Systems 3(3-0)
Concepts, technology and applications of computers and computer-based information systems in business and government.

220 Principles of Business Law 3(3-0)
Law as it relates to business. Coverage includes contacts, sales, bailments and personal property.

260 Business Statistics I 3(3-0) Prerequisite: MATH 121.
Statistical methods in business with programming, including descriptive statistics, probability distributions, sampling, theory, hypothesis testing, parameter estimation and sampling applications.

261 Business Statistics II 3(3-0) Prerequisite: BUSAD 260.
Statistical methods used in the solution of modern business and economic problems, including analysis of variance, regression, correlation, nonparametric methods and sample survey techniques. Computer applications are used.

270 Business Communications 3(3-0) Prerequisite: ENG 110 and 211.
Means of extending management capabilities through effective internal and external communications, including data organization and presentation.

296 Cooperative Education Placement (1-3 VAR)
Opened to qualified lower-division students with approval of department chairperson. Supervised field work in selected businesses, not-for-profit and governmental organizations; supplemented by written report. (S/U grades)

302 Law, Government and Business 3(3-0) Prerequisite: junior standing.
Government influence on business activities, including legislation affecting the competitive character of systems protecting the consumer and employee.

305 Planning for Employment 1(1-0) Prerequisite: junior standing.
Preparation of resumes, job interviewing techniques and researching potential employers. (S/U grades.)

480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of instructor.
Integrates prior studies toward solving problems of selected small business firms in the community and/or computer simulation of business cases.

491 Special Topics (1-3 VAR)
Selected topics which respond to specific needs and requests.

495 Independent Study (1-3 VAR) Prerequisite: senior standing and permission of dean, School of Business.
Individual research, directed readings, and/or special assignments.

498 Internship (1-6 VAR)
Open to qualified upper-division students with approval of department head. Supervised field work in selected business, social and governmental organizations that will enhance the student's training in management; supplemented by written reports. (S/U grades.)

GRADUATE COURSES

550 Quantitative Methods in Managerial Decision Making 3(3-0) Prerequisite: graduate standing.
The application of mathematical, statistical and computer techniques in managerial decision making are studied. Problems encountered with decisions in uncertain environments and the methodology of decision analysis are investigated. Topics include: decision diagramming, expected utility criteria, basics of probability manipulation, subjective probability assessment and value of information calculation.

551 Business, the Law, and Management Ethics 3(3-0) Prerequisite: graduate standing.
Specific legal problems encountered by entrepreneurs and the role of ethics in managerial decision making are studied. Multiple, changing and often conflicting ethical traditions are investigated.

554 Seminar in Management of Non-Profit Organizations 3(3-0) Prerequisite: graduate standing.
The 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)
Critical review and discussion of relevant business administration topics.

592 Research (1-6 VAR)
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.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

CHEMISTRY (CHEM)

Professors Connelly, Druelinger, Mahan, Smith
Associate Professor Hammer
Assistant Professors Saul, Wilkes

The major in chemistry leads to a bachelor of science (BS) degree and is fully accredited by the American Chemical Society. In addition to curricula for students who wish to pursue chemistry as a profession, programs can be designed for students 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 major option, is 44 semester hours including the 38 semester credit hour core, CHEM 323 and 318/318L.

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 CHEM 411 and one or 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 38 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 38 semester-credit-hour core, 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 38 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 that 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. The students also currently are required to complete 42 semester hours in professional education courses. 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 credit 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)
Chemistry related to the everyday world. Drugs, food, pollution, pesticides, consumer products, energy, and home health. Principally for nonscience majors but open to all. GEN. ED. IIIB

111 Principles of Chemistry 3(3-0) Corequisite: CHEM 111L.
Fundamental laws, theories and principles of chemical reactions. Designed for students majoring in liberal arts, nursing, home economics and agriculture. Not open to chemistry majors and minors. GEN. ED. IIIB

111L Principles of Chemistry Lab 1(0-2) Corequisite: CHEM 111.
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.
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.
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.
One semester general chemistry emphasizing gases, ionic equilibria, oxidation-reduction, chemical thermodynamics.

119L General Chemistry for Engineers Lab 1(0-3) Corequisite: CHEM 119.
Laboratory applications of principles covered in CHEM 119.

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.
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.
Laboratory component to CHEM 121. GEN. ED. IIIB.

122 General Chemistry II 4(4-0) Prerequisite: CHEM 121. Corequisite: CHEM 122L.
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.
Laboratory component to CHEM 121 including qualitative analysis. GEN. ED. IIIB.

291 Special Topics (1-5 VAR) Prerequisite: permission of instructor.
Topics will be considered which serve the interest of 10 or more students.

301 Organic Chemistry I 3(3-0) Prerequisite: CHEM 122. Corequisite: CHEM 301L.
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.
A laboratory course to accompany CHEM 301.

302 Organic Chemistry II 3(3-0) Prerequisite: CHEM 301. Corequisite: CHEM 302L.
Continuation of CHEM 301.

302L. Organic Chemistry Lab II 2(0-6) Prerequsite: CHEM 301L. Corequisite: CHEM 302.
Laboratory course to accompany CHEM 302.

317 Quantitative Analysis I 2(2-0) Prerequisite: CHEM 122. Corequisite: CHEM 317L.
Volumetric and gravimetric analysis integrated with instrumental analysis, both optical and electrometric methods.

317L Quantitative Analysis Lab I 2(0-4) Corequisite: CHEM 317.
Laboratory component to CHEM 317.

318 Quantitative Analysis II 2(2-0) Prerequisite: CHEM 317 or permission of instructor. Corequisite: CHEM 318L.
Continuation of CHEM 317.

318L Quantitative Analysis Lab II 2(0-4) Corequisite: CHEM 318.
Laboratory component to CHEM 318.

321 Physical Chemistry I 3(3-0) Prerequisite: CHEM 122. Prerequisite or Corequisite: MATH 224 and PHY 201 or 221.
Chemical thermodynamics, chemical dynamics, quantum chemistry, chemical structure and spectroscopy.

322 Physical Chemistry II 3(3-0) Prerequisite: CHEM 321.
Continuation of CHEM 321.

323 Experimental Physical Chemistry 2(0-4) Prerequisite: CHEM 321 or permission of instructor.
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(0-2) 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.
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.
Continuation of CHEM 411. Intermediary metabolism of carbohydrates, lipids, and amino acids. Bioenergetics.

412L Biochemistry Lab II 1(0-2) Corequisite: CHEM 412.
Laboratory course to accompany CHEM 412.

419 Instrumental Analysis 2(2-0) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 419L.
Emission spectrograph, atomic absorption, gas chromatography spectrophotometry, x-ray fluorescence, voltommetry, NMR, IR, etc.

419L Instrumental Analysis Lab 2(0-5) Prerequisite: CHEM 317, 321, or permission of instructor. Corequisite: CHEM 419.
Laboratory component to CHEM 419.

421 Inorganic Chemistry 3(3-0) Prerequisite: CHEM 321 or permission of instructor.
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.

430 X-Ray Crystallography 3(3-0) Prerequisite: permission of instructor.
Theory and practice of powder method, x-ray fluorescence, single crystal method, space group symmetry, application to geoscience and chemical problems.

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.
Topics are considered which serve the interest of 10 or more students.

493 Seminar 1(1-0) Prerequisite: permission of head of the program.
Seminar for majors and minors concerning current or unusual topics in chemistry. Speakers may include guests, faculty, or students. May be repeated for a maximum of two credits. (S/U grades)

495 Independent Study (1-7 VAR) Prerequisite: permission of instructor.
To be arranged by the student with the instructor of the student's choice.

GRADUATE COURSES

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.

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.
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.
Intermediary metabolism of carbohydrates, lipids and amino acids. Bioenergetics.

519 Instrumental Analysis 2(2-0) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 519L.
Modern methods of chemical analysis-atomic absorption, gas chromotography, XRF, voltammetry, NMR, IR, etc.

519L Instrumental Analysis Lab 2(0-5) Prerequisite: CHEM 317, 321 or permission of instructor. Corequisite: CHEM 519.
Lab component to CHEM 519.

521 Advanced Inorganic Chemistry 3(3-0) Prerequisite: CHEM 321 or permission of instructor.
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)
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.
Topics are considered which serve the interests of 10 or more students.

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)
Overview of the historical, political and socio-cultural experience in the Chicano. GEN. ED. IIE.

201 Aztlán: Genesis to Today 3(3-0)
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)
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)
Survey of outstanding contemporary Chicano works. Literature deals with Chicano themes including analysis of folklore and myth. GEN. ED. IJ.

230 Chicano: Social and Psychological Study 3(3-0)
Social and psychological forces faced in the Chicano community. GEN. ED. IIE.

291 Special Topics (1-3 VAR)
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.
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.

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. Also 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)
Political, cultural and economic development of Mexico from preconquest civilization to the present.

493 Seminar (1-3 VAR) Prerequisite: CS 101.
Various problems within the realm of Chicano studies in-depth integrated approach.

495 Independent Study (1-3 VAR) Prerequisite: CS 101.
Special topics dealing with the Chicano and society.

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 COURSE

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

CIVIL ENGINEERING TECHNOLOGY (CET)

Associate Professors Rao, 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, and soil, water 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 133 semester hours, with a 2.00 cumulative grade-point average in the major.

101 Introduction to Civil Engineering Technology 2(2-0)
Acquaints CET students with USC 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)
Beginning course in plane surveying. Covers proper chaining techniques, care and use of engineering levels and transits and traversing.

103 Surveying II 4(2-4) Prerequisite: CET 102 or permission of instructor. Corequisite: CET 104.
Introduction to land, topographic and construction surveying.

104 Map Drafting 3(0-6) Prerequisite: CET 102, MET 111 or permission of instructor. Corequisite: CET 103.
Introductory course in plotting traverses, plainmetric maps, topographic maps, profiles and highway design.

105 Construction Materials 2(2-0)
Properties and uses of building materials as they apply to the construction industry.

106 Concrete Mix Design 1(1-0)
Properties of portland cement concrete and its ingredients, concrete mix design, placing and finishing.

106L Concrete Lab 1(0-2) Corequisite: CET 105.
Testing concrete materials using the ASTM concrete specification as a guideline.

202 Statics 3(3-0) Prerequisite: MATH 132 or permission of instructor.
Theory and application of action and reaction forces, moments as applied to structures.

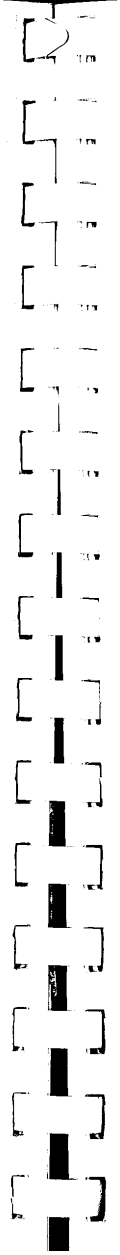
203 Strength of Materials 3(3-0) Prerequisite: CET 202.
Basic stress-strain relationships resulting from compression, tensile, shear, bending loads, center of gravity and moments of inertia.

211 Structural Detail Drafting 3(0-6) Prerequisite: MET 111.
Introduction to the detailing of steel, wood and concrete structural drawings for fabrication.

212 Subdivision Design 3(0-6) Prerequisite: CET 103, 104.
Basics of subdivision design, preliminary and final plat preparation and horizontal coordinate geometry.

296 Cooperative Education Placement (1-5 VAR)
Industrial cooperative education work experience under the director of a field supervisor and faculty member.

302 Structural Analysis 3(3-0) Prerequisite: CET 203.
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.
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.
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.
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.
Develops professional skill in surveying, triangulation, state plane coordinates and engineering astronomy.

312 Advanced Surveying II 4(2-4) Prerequisite: CET 103, MATH 132.
Highway and route surveys, horizontal and vertical curves, grades, slope staking and earthwork.

313 Architectural Drafting I 3(0-6) Prerequisite: MET 111.
Preparation of a complete set of working drawings for a modern residential building.

314 Architectural Drafting II 3(0-6) Prerequisite: CET 313.
Introduction to architectural design, design sketches and working drawings for a light commercial building.

315 Soil Mechanics Technology 2(2-0) Prerequisite: CET 203. Corequisite: CET 315L.
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.
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.
Boundary control, property descriptions, deeds, subdivisions. Emphasizes the legal aspects of land lay and surveying.

402 Civil Design Projects 3(0-6) Prerequisite: senior CET or permission of instructor.
Practical, realistic project relating to civil engineering technology is selected for development, design and reported. This is an independent study course.

404 Fundamental Structural Design 3(3-0) Prerequisite: CET 302.
Structural steel design of beams, columns, girders and trusses to AISC standards.

405 Reinforced Concrete Design 3(3-0) Prerequisite: CET 302.
Design of reinforced concrete beams, columns, girders and floor systems to conform to current ACI code.

411 Hydraulics 3(3-0) Prerequisite: CET 203.
Introductory course in the study of non-compressible fluids at rest and in motion. Includes the flow of water in pipes and open channels.

412 Hydrology 3(3-0) Prerequisite: CET 411.
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.

421 Architectural Solar Heating 3(3-0) Prerequisite: junior standing.
Passive and active solar heating of building spaces and water.

491 Special Topics (1-6 VAR) Prerequisite: permission of instructor.
Special interest topics or projects not covered in existing technology courses.

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

COMPUTER SCIENCE TECHNOLOGY (CST)

Professors Baldauf, Cook, Sathi
Associate Professors Knight, May
Assistant Professors Borton, Chandler, Padgett, Schlegel, Smith, Tappen

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 computer hardware architecture and software design.

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. Each option includes a minor or emphasis area and one or more required related courses plus a number of electives.

All options follow the recommended 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 27 hours of specialized mathematics. Option 3 requires a minimum of 27 hours of specific electronics engineering technology course work.

A minimum of 20 semester hours in computer science technology is required for the minor. Any student desiring a minor should consult with a CST faculty member to arrange a suitable program. Arrangements for a minor should be made early in the student's education plan. At least six hours must be taken from CST upper-division course work.

101 Computers and You 3(3-0) (non-majors only)
Computers, information and technological change. The information revolution and its impact. Orientation to computer systems and their objective organizations, influences on society, individuals, positive and negative impacts, uses in society and tomorrow's outlook. GEN. ED. IIIC.

102 Programming w/BASIC 3(3-0) (non-majors only).
Introduction to computer languages, 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. IIIC.

105 FORTRAN 3(3-0) Corequisite: MATH 120 or equivalent (for majors).
Principles of FORTRAN-77 programming with problem solving for science and business. Topics: language specifications, functions, arrays and subroutine subprograms.

115 Operating Systems I 1(1-0) Corequisite: CST 122 or equivalent.
Introduction to the external command structure needed to utilize the current USC computer system. Topics include file handling, editors, system utilities and system command files.

121 Introduction to Computer Science I 3(3-0) Corequisite: (for majors) CST 121 may be waived.
Fundamentals of computer science theory. Topics include computers, problem solving, implementation, software, data, structured programming, data structures. Subjects include variables, constants, repetition, selection, subalgorithms, software design, records, stacks, strings, and arrays.

122 Structured Programming with Pascal 3(3-0) Corequisite: CST 121.
Concepts of algorithmic processes and problem solving. Language: Pascal. Topics: pseudocode, computation, character manipulation, top-down structured programming, sequential files, subroutines, functions, sorting and searching.

200 Micro-Computer Software Applications 2(2-0) (non-majors only)
Utilization of microcomputers for common applications. Emphasis will be placed on the most current software available in an MS-DOS environment. Subjects include 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 supporting course CST 200. Nationally prominent software packages will be used to solve problem sets.

210 Introduction to Assembler Language 3(3-0) Prerequisite: CST 122.
Introductory concepts of assembler programming for instruction formats, I/O definition, arithmetic operations and output editing as well as integer data handling.

222 Data Structures w/Pascal 3(3-0) Prerequisite: CST 122, Corequisite: MATH 245.
Continuation of CST 102 for computer science majors. Programming discipline — style, expression, debugging, testing. Algorithmic development and analysis. Topics include searches, sorts, data structures, strings and recursion. Advanced features of Pascal.

230 COBOL Programming I 3(3-0) Prerequisite: CST 122.
ANSI COBOL programming principles for basic business applications. Topics: general program development, coding, execution and debugging.

231 COBOL Programming II 3(3-0) Prerequisite: CST 230.
ANSI COBOL programming for business applications. Advanced topics: magnetic tape, sequential disk, direct access and indexed sequential access methods, language concepts of sort and report generator.

240 Systems Analysis and Design I 3(3-0) Prerequisite: CST 105, 210, 230, or EN 106.
Systems analysis and design process, actual systems design layout work and integrated business systems analysis.

290 Special Projects (1-5 VAR) Prerequisite: sophomore standing (consent of faculty).
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.
Selected topics in computer science technology, mini/micro computer systems, industrial standards of excellence. Selection based on demonstrated need and student interest.

296 Cooperative Education Placement (1-5 VAR)
For freshmen and sophomores. Industrial cooperative education work experience under the direction of a field supervisor and faculty member.

310 PL/1 Programming 3(3-0) Prerequisite: CST 122.
Problem solving and structured programming techniques are presented using PL/I as a vehicle. Topics include structured pseudocode, text processing problems, and PL/I syntax including procedures.

311 Unix/C 3(3-0) Prerequisite: CST 222 and 210.
A comprehensive study of the C-Language and Unix operating system. Emphasis will be placed on the use of each in modern software design and implementation.

321 Data Structures II 3(3-0) Prerequisite: CST 210, 222 and MATH 245.
A continuation of CST 222 including trees and graphs and their applications, algorithms for sorting and searching of advanced data structures.

330 Programming Languages 3(3-0) Prerequisite: CST 222.
A LISP-based course exploring fundamental issues of programming language design. Topics: 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.

341 Systems Design and Analysis II 3(3-0) Prerequisite: CST 240.
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 222 or equivalent.
Design, implementation and use of data base management systems; comparison of available software packages; concepts of query languages and security considerations. Laboratory assignments will utilize a relational data base system.

360 Digital Computer Concepts 3(3-0) Prerequisite: MATH 245, CST 210, and junior CST standing.
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 credit for students in CST Option 3.

405 Computer Graphics I 3(3-0) Prerequisite: CST 105, MATH 126 or permission of instructor.
Introduction to the theory and applications of computer graphics. Topics include mathematical principles. DISSPLA, hidden line problem and special projects. Graphics images will be produced in two and three dimensional representations.

410 Data Communications Systems 3(3-0) Prerequisite: CST 210.
The fundamentals of data communications explained using the ISO Open Systems Interconnection reference model. Topics include communication media, hardware, message flow with protocols, networking, and analysis and management of data communication systems.

416 Operating Systems II 3(3-0) Prerequisite: CST 115, 210 and 222 and MATH 245.
Theory and design of supervisors, concepts of job tasks and data management, scheduling, queueing, multi-programming.

418 Compiler Construction I 3(3-0) Prerequisite: CST 321 and 330.
A project-oriented course in which students write the Lexical analyzer of a simplified PASCAL compiler.

419 Compiler Construction II 3(3-0) Prerequisite: CST 418.
A project-oriented course in which students write the Syntax analyzer and code generator.

420 Artificial Intelligence 3(3-0) Prerequisite: CST 330.
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.

424 Software Engineering and Ada Programming I 3(3-0) Prerequisite: CST 321 or permission of instructor.
A presentation of the major features of the ADA programming language and their relevance to software engineering.

425 Ada and Software Engineering II 3(3-0) Prerequisite: CST 424.
A continuation of CST 424 emphasizing a large student written project.

450 Advanced Database Structures 3(3-0) Prerequisite: CST 230 and 350, or permission of instructor.
Investigation and study of data modeling, system development and data technology. Topics include database engineering and design, hardware, student projects, administration and selection.

460 Computer Systems Architecture I 3(3-0) Prerequisite: CST 210, 360 and senior standing.
Architecture of modern computers. Arithmetic and logic units, microprogrammable control units, architecture of micro, mini, commercial and maxi computers, parallel and pipeline processing.

464 Computer Systems Fundamentals I 3(3-0) Prerequisite: CST 210, 360 or equivalent.
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)
Laboratory supporting course CST 464. Laboratory exercises addressing operating systems, machine language and assembly language of currently manufactured micro-processor computers.

470 File Processing 3(3-0) Prerequisite: CST 222 and 230 or knowledge of FORTRAN concepts or PLI I.
Provide foundation for applications of data structures and file processing techniques. Particular topics include sequential access, data structures, random access storage and file input and output.

490 Special Projects (1-5 VAR) Prerequisite: permission of department head.
Allows students to earn credit independently under the guidance of a faculty member.

491 Special Topics 3(3-0) Prerequisite: junior or senior standing.
Timely or important concepts in computer science. Topic normally announced in schedule of classes. May be repeated for credit.

496 Cooperative Education Placement (1-5 VAR)
For juniors and seniors. Industrial cooperative education work experience under the direction of a field supervisor and faculty member.

ECONOMICS (ECON)

Professors Askwig, Sarver

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 finance as well as the application skills to assume leadership roles in industry, government and education.

Economics provides an excellent preparation for graduate and professional training in economics, management, banking and law. The finance emphasis area prepares students for careers in financial institutions, insurance, real estate, investments and financial management.

A baccalaureate degree student may minor in economics by completing 24 hours of approved economics courses. A minor in economics enhances

degree programs in many areas such as accounting, management, marketing, history, political science, the social sciences and mathematics. ECON 201 and 202 are required. (With adviser approval, ECON 101 may be substituted for ECON 201.) The remaining 15 hours must include either ECON 301 or 302.

UNDERGRADUATE COURSES

101 Introduction to Economics 3(3-0)
Studies the broad aspects of today's economy and stresses problems of general interest. Not open to School of Business majors. GEN. ED. IID.

201 Principles of Macroeconomics 3(3-0)
Study of fundamental principles with emphasis on macroeconomics. GEN. ED. IID.

202 Principles of Microeconomics 3(3-0) Prerequisite: ECON 201.
Study of fundamental principles with emphasis on microeconomics. GEN. ED. IID.

291 Special Topics (1-3 VAR) Prerequisite: permission of instructor.
Selected topics dealing with current economic affairs are treated.

301 Intermediate Macroeconomics 3(3-0) Prerequisite: ECON 202, ENG 211, 120, and SPCOM 101.
Economic theory and policy using the national income approach to explain income, employment and growth.

302 Intermediate Microeconomics 3(3-0) Prerequisite: ACCTG 202, BUSAD 261 and ECON 202.
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.
Analytical 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.
Relationships of banks to the Federal Reserve system and Treasury Department and to money.

330 Public Finance 3(3-0) Prerequisite: ECON 202.
Principles and issues of government revenue and expenditure policies.

340 Comparative Economic Systems 3(3-0) Prerequisite: ECON 202.
Contending ideologies which shape economic systems in determining what, how, for whom and the rate of economic growth.

360 Business Cycles Analysis and Forecasting 3(3-0) Prerequisite: ECON 202.
Examines market economy in a systematic way to reveal the nature of economic instability.

402 Economics of Labor 3(3-0) Prerequisite: ECON 202.
Study of labor and management relations, operations of labor markets, determination of wages and distribution of income.

408 Urban Economics 3(3-0) Prerequisite: ECON 202.
Theories and methods of economic analysis of urban problems.

410 Managerial Economics 3(3-0) Prerequisite: ECON 202 and senior standing.
Practical application of well-known principles to economic problems of managers.

420 History of Economic Thought 3(3-0) Prerequisite: ECON 202.
Economic thought of important contributors from the past to the present.

450 Econometrics 3(3-0) Prerequisite: ECON 202 and MATH 121.
Treatment of theory, mathematics and statistics necessary for serious quantitative analysis of economic phenomena with a focus upon practical application in dealing with uncertainty in problem solving.

480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of assistant dean, School of Business.
Integrates prior studies toward solving problems faced by selected firms in the community and/or computer simulation of business cases.

491 Special Topics (1-3 VAR) Prerequisite: permission of instructor.
Selected topics of economic issues and economic analysis are treated.

495 Independent Study (1-3 VAR) Prerequisite: senior standing in School of Business and permission of dean, School of Business.
Individual research, directed readings, and/or special assignments.

498 Internship (1-6 VAR) Prerequisite: junior standing in School of Business and permission of dean, School of Business.
Supervised field work in selected business, social, and governmental organizations; supplemented by periodic seminars and written reports.

GRADUATE COURSES

501 Managerial Economics 3(3-0) Prerequisite: graduate standing.
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)
Critical review and discussion of relevant economics topics.

592 Research (1-6 VAR)
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.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

EDUCATION (ED)

Professors Hostetler, McCanne, Strader, Whitmer
Associate Professors Miller, Jorgensen
Assistant Professors Guiterrez, Trujillo

In cooperation with other academic programs, 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 bilingual education and reading. Graduate courses for teachers are offered for the renewal of teaching certificates.

Teacher education is accredited by the Colorado Department of Education and 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.

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 science and technology, mathematics, music, physical education, science, social studies and speech; a K-6 endorsement in music and 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 education sequence (except school nurse category which required only one education course) may be designated as an area of concentration for the baccalaureate degree.

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 or better in certain courses, a 2.5 grade-point average or better overall, and passing scores on 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 study.

UNDERGRADUATE COURSES

102 Teaching as a Career 1(1-1)
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 Foundations of Education 3(3-0)
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.
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(2-3) Prerequisite: PSYCH 351 and admission to teacher education program.
Establishing baseline skills, identifying behaviors, planning, adapting materials and measuring progress for the atypical learner in the mainstream.

413 Teaching Social Studies 2(1.5-1.5) Prerequisite: admission to teacher education program.
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.
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. Required for student teaching in kindergarten or first grade. 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.
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 Computer Based Education 2(1-2) Prerequisite: admission to teacher education program.
Current microcomputer application in the classroom and principles of educational software.

435 Classroom Management 3(2-3) Prerequisite: admission to teacher education program.
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 Laboratory in Education 3(2-3) Prerequisite: admission to teacher education program.
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.
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.
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.
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.
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)
Designed to meet expressed needs of students. Each topic course has a subtitle and no subtitle may be repeated for credit.

494 Field Experience (1-10 VAR)
Field experience in an educational setting. Not applicable to teacher certification.

495 Independent Study (1-3 VAR)
Individual education projects and problem-solving experiences designed to meet a student's special needs.

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.
Establishing baseline skills, identifying behaviors, planning, adapting materials and measuring progress for the atypical learner in the mainstream.

520 Computer Based Education 2(1-2) Prerequisite: graduate standing.
Current microcomputer applications in the classroom and principles of evaluating educational 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; 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"—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 I 2(2-0) Prerequisite: graduate standing.
Principles of curriculum design, educational goals, instructional objectives, 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; 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 in 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.
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.
Designed to meet the expressed needs of students. Each topic has a subtitle and no subtitle may be repeated for credit.

592 Research (1-3 VAR) Prerequisite: graduate standing and permission of graduate adviser.
Action research in a teacher's classroom supervised by a graduate faculty member. Proposals must be negotiated prior to class enrollment.

595 Independent Study (1-2 VAR) Prerequisite: graduate standing and permission of graduate adviser.
Qualified graduate students may negotiate an independent study plan with a member of the graduate faculty for one or two credits.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

ELECTRONICS ENGINEERING TECHNOLOGY (EET)

Professors Cottrell, Hill, Jenkins
Perkins, Reiff, Warfield

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

The engineering technologist is trained and educated to be an integral member of a team of engineers, scientists, and technicians involved with electronics/computer development, design, manufacturing, testing, research, installation and maintenance.

Job opportunities have been numerous over recent years, and the United States Bureau of Labor Statistics continues to project that technologists will be sought after by industry, government and other prospective employers through the 1980's.

Students considering engineering technology majors should realize that the programs are rigorous, demanding and oriented toward problem solving. A suitable high school background includes at least a two-year sequence in mathematics, including algebra, and at least one year in a physical science such as physics or chemistry. Students without this background should expect to take longer than normal to complete this program.

The four-year baccalaureate degree 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 134 semester credit hours of work as determined by the program requirements and approved by the adviser.

In response to industries' critical need for engineering technologists with computer design background, the electronics engineering technology department offers this option in the junior and senior years. It allows the student to complete a total of 29 semester hours of computer courses in fulfillment of the requirements for a bachelor of science degree in electronics engineering technology. Only one additonal semester hour is required over the regular EET program total semester-hour requirements. Students electing this option must consult an adviser before registering for the junior year.

110 Computer Aided Electronic Drafting 3(2-2) Corequisite: EET 121 or equivalent.
Graphical representations of data, electrical and printed circuit drafting, electronic fabrication, introduction to computer-aided drafting.

121 DC Circuits 4(4-0) Corequisite: MATH 131.
DC circuits, energy, power, resistance, capacitance, inductance, electro-magnetism, loop and nodal network analysis, Thevenin's and Norton's theorems.

122 AC Circuits 4(4-0) Prerequisite: EET 121. Corequisite: MATH 132.
AC circuit analysis, RMS values, impedance, admittance, phasors, network theorems, resonance transformers, polyphase systems, power, and power factor.

161 Circuits Lab I 1(0-2) Corequisite: EET 121.
Use of electronic instruments and practical experience relating to specific principles of DC circuits, capacitance and inductance.

162 Circuits Lab II 1(0-2) Prerequisite: EET 161. Corequisite: EET 122.
Effects of AC on RLC circuits, impedances, inductance, resonance, transformers and use of the oscilloscope.

210 Computer Applications in Engineering Technology 2(2-0) Prerequisite: MATH 132 or equivalent.
An examination of techniques, other than programming, by which computers are used to solve problems. It is interdisciplinary and focuses on the application of spreadsheet and database programs to the solution of technical problems. The student will define a suitable project, generate an appropriate solution and complete a technical report.

211 Electronics I 4(3-2) Corequisite: EET 122 or MATH 132.
Semiconductor physics, diodes, analysis and design of transistor circuits, biasing, equivalent circuits, multi-state amplifiers, frequency effects, field effect transistors.

212 Electronics II 4(3-2) Prerequisite: EET 122, 143, 162 and 163. Corequisite: MATH 233.
Feedback effects, oscillators, frequency spectra, harmonics. Transistor and diode switches. Linear waveshaping, multivibrator, Schmitt trigger, and time base circuits.

250 Basic Electronics Principles 4(3-2) Prerequisite: MATH 105.
Fundamentals of electric circuits, batteries, magnetism, motors, generators, transformers and test equipment.

254 Introduction to Digital Systems 4(3-2) Prerequisite: EET 122.
Digital techniques, including binary codes, Boolean Algebra, gates, flip-flops, counters, shift registers and arithmetic operations.

255 Introduction to Microprocessors 4(3-2) Prerequisite: EET 254.
Analysis of microcomputer systems including both hardware and software considerations, with emphasis on machine language programming. Includes microcomputer design project.

296 Cooperative Education Placement (1-5 VAR)
For freshmen and sophomores. Industrial cooperative education work experience under direction of field supervisor and faculty member.

311 Control Systems I 4(3-2) Prerequisite: MATH 233, junior standing.
System representation, Laplace transforms, solution or differential equation, block diagrams, transfer functions, basic control system operation, system performance, Bode plots.

321 Solid State Theory 3(3-0) Prerequisite: EET 252, MATH 233 and PHYS 202/202L.
Physical electronics of solid state with applications to 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 4 (3-2) Prerequisite: EET 108 or 122 and MATH 132.
Analysis and operation of AC and DC motors and generators, including both single phase and three phase AC machines.

351 Linear Integrated Circuits 4(3-2) Prerequisite: EET 251.
Applications of linear integrated circuits such as operational amplifiers, power supply regulators and active filters. Includes instrumentation amplifiers, comparators and timers.

353 Software Development 3(3-0) Prerequisite: EN 245 or equivalent.
Electronics technology applications programming using structured programming techniques with PASCAL.

354 Computer Architecture Design 4(3-2) Prerequisite: EET 143, 255, and EN 245.
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.

355 Advanced Microcomputer Systems 4(3-2) Prerequisite: EET 255 and EN 245.
Advanced 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.

356 Advanced Integrated Circuits 4(3-2) Prerequisite: EET 252.
Analysis of the inter-connection of integrated circuits into systems. Also covers design principles of systems.

393 Seminar 1(1-0) Prerequisite: junior standing.
An 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 411.
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.

455 Control Systems II 4(3-2) Prerequisite: EET 411.
Block diagrams, transfer functions, practical systems, the Z transform, digital systems, frequency response techniques, Bode plots as applied to control systems. Includes robots.

456 Design Projects 2(2-1) Prerequisite: junior or senior standing in EET.
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.

457 Computer Interface Design 3(2-2) Prerequisite: EET 255
Design and implementation of computer interfaces to input-output devices and other systems.

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 3(2-2) Prerequisite: EET 353 or equivalent.
Pictorial communications with computer, graphic programs and specialized input/output devices.

491 Special Topics (1-5 VAR) Prerequisite: permission of department head.
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 head.
Individual assignments under supervision of a staff member of the department.

496 Cooperative Education Placement (1-5 VAR)
For juniors and seniors. Industrial cooperative education work experience under direction of field supervisor and faculty member.

ENGINEERING (EN)

Professors Cheng, Freark, Sisson
Associate Professor Massey

The industrial engineering major leads to a bachelor of science in industrial engineering (BSIEN) degree and provides courses for the completion of the first two years of the four-year BS degree requirements in civil, electrical and mechanical engineering for potential transfer students. It also provides upper-division courses for the engineering options in chemistry and physics.

A student interested in an engineering career should begin preparation in high school by taking college preparatory courses in mathematics, chemistry and physics. Students without this background who are strongly motivated can enter the program but will have to complete some courses whose credits will not count toward the degree.

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 concerned with physical systems and the people that design and operate them.

The activities of industrial engineers include work measurement, operations research, plant layout, applied statistics, ergonomics, materials handling, production planning and control, quality control, manufacturing operations and management consulting. The computer has significant applications among the techniques utilized by the industrial engineer.

Engineering options in chemistry and physics offer students in each of these majors an opportunity to achieve specific employment or graduate educational goals. These options have been cooperatively designed by chemistry, physics and engineering faculty to include selected upper-division engineering courses and provide a broad background in science and engineering. The program requirements for the individual engineering options are described in the chemistry, and physics sections of this catalog.

Students transferring into industrial engineering must have earned a minimum 2.5 grade-point average in all mathematics and science courses attempted, a minimum 2.5 grade-point average in all engineering courses attempted and an overall 2.5 grade-point average. 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 minimum grade of C in all industrial engineering program courses is required for graduation in addition to those requirements specified for all USC degrees.

USC students planning to transfer to Colorado State University are required to follow a prescribed curriculum (see page 74).

The master of science in systems engineering degree deals with the design and analysis of large-scale, complex, man/machine/software systems. It is an interdisciplinary degree which utilizes tools and techniques from the engineering disciplines, as well as from the mathematical, behavorial and physical sciences. Course work emphasizes the elements of probability and statistics, optimization and operations research, decision making, and systems theory. Use of the digital computer in the solution of systems problems is stressed. 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)
Introduction to the solution of engineering problems. Application of algebraic, trigonometric and calculus techniques to engineering problems. GEN. ED. IIID.

104 Introduction to BASIC Programming in Engineering 2(2-0)
Computer programming using BASIC, examples from various engineering disciplines.

105 FORTRAN 2(2-0)
Introducton to FORTRAN computer programming with examples drawn from various engineering technology disciplines. GEN. ED. IIID.

106 FORTRAN Computer Programming 3(3-0)
FORTRAN language computer programming using examples and numerical techniques chosen from mathematics, science and engineering. GEN. ED. IIID.

107 Engineering Graphics 2(0-4)
Introduction to the preparation of engineering drawings using freehand sketching, drafting instruments and graphics of software.

211 Engineering Mechanics I 3(3-0) Prerequisite: MATH 126, PHYS 221 or permission of instructor.
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.
Introduction to the relationship between forces and moments acting on rigid objects and the motion of the objects.

223 Engineering Surveying I 3(2-2) Prerequisite: MATH 122.
Basic course in surveying including use of tape, compass, transit and level in plane and geodetic surveying and introduction to triagulation and trilateration.

231 Circuit Analysis I 4(4-0) Prerequisite: MATH 224. Corequisite: EN 231L, PHYS 222.
Circuit concepts, conventions and network equations. Initial conditions and classical method of obtaining transient and steady-state solutions.

231L Circuit Analysis Lab I 1(0-2) Corequisite: EN 231.
Observation and analysis of electrical circuits and transients involving resistance, inductance and capacitance.

232 Circuit Analysis II 4(4-0) Prerequisite: EN 231. Corequisite: EN 232L.
Continuation of EN 231 including waveform synthesis, network theorems. Fourier series, pole-zero diagrams and two-port network theory. Introduction to Laplace transform.

232L Circuit Analysis Lab II 1(0-2) Prerequisite: EN 231. Corequisite: EN 232.
Continuation of EN 231L Lab.

242 Computer Engineering 3(2-2) Prerequisite: EN 106 or equivalent and MATH 121.
Computer architecture, logic design, microprocessors, microcomputers, assembly language programming, and applications.

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 121, PHYS 221 and MATH 126.
Material and energy balances with or without chemical reactions in chemical engineering applications.

291 Special Topics (1-5 VAR)
For students who have a special interest in some area of engineering not covered by existing courses.

296 Cooperative Education Placement (1-5 VAR)
For freshmen and sophomores. Work experience under direction of a field supervisor and faculty member.

301 Fluid Mechanics 4(4-0) Prerequisite: EN 212.
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. Corequisite: EN 312L.
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.
Experimental studies of material properties, characteristics and microstructures. Effects of plastic deformation and heat treatment.

315 Introduction to Organization and Operations 3(3-0)
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 202 or 221 or equivalent.
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.

323 Engineering Surveying II 3(2-2) Prerequisite: EN 223.
State-plane coordinates and celestial observation. Theory and practice in horizontal and vertical curves. Earthwork problems.

324 Mechanics of Materials 3(3-0) Prerequisite: EN 211. Corequisite: EN 324L.
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.
Measurements of stress-strain and other destructive or non-destructive testing.

331 Electronics I 3(3-0) Prerequisite: EN 231. Corequisite: EN 331L.
Analysis, design and applications of semiconductor diodes, transistors, amplifiers, feedback, and integrated circuits.

331L Electronics Lab I 2(0-4) Corequisite: EN 331.
Laboratory to verify experimentally the theories presented in Electronics I.

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, MATH 350 and industrial engineering junior standing.
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 Manufacturing Processes I 3(3-0) Prerequisite: EN 312/312L.
Materials and processes for manufacturing including machining, casting, and forming processes: design, modeling and control.

343 Industrial Engineering Economy 3(3-0) Prerequisite: EN 106, MATH 224 and 350.
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.

423 Engineering Highway Design 3(3-0) Prerequisite: EN 323.
Highway planning, geometric design of modern highways, horizontal and vertical alignment, cross-sections, subgrade structure drainage systems of highways, interchanges and intersections.

435 Microprocessor Control Systems 3(2-2) Prerequisite: EN 331.
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 and MATH 350.
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.
Control charts, acceptance sampling, rectifying inspection, standard sampling plan. Failure time distribution models, reliability estimation, hazard function, reliability of systems.

451 Engineering Hydrology 3(3-0) Prerequisite: EN 301 or permission of instructor.
Occurrence and distribution of water, precipitation, evaporation, transpiration, infiltration, streamflow, groundwater and well flows, runoff and drainage and hydrography analysis.

456 Applied Statistics I 3(3-0) Prerequisite: MATH 224 and 350.
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, 456 and MATH 350.
Application of mathematical models to engineering problems. Linear and dynamic programming, optimization and queuing theory and probablistic models.

473 Production and Computer-Aided Engineering 3(3-0) Prerequisite: EN 340, 342 and MATH 337, 350.
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 442, 471, 473 and MATH 350.
Engineering systems design, planning and control engineering analysis and design applications in resource utilization.

477 Operations Planning and Control 3(3-0) Prerequisite: EN 442, 471, 473 and MATH 350.
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 and MATH 350.
Application of industrial engineering principles to a design project.

491 Special Topics (1-5 VAR) Prerequisite: junior standing.
Special interest topics not covered in existing engineering courses.

495 Independent Study (1-5 VAR) Prerequisite: junior standing.
Independent study for engineering courses.

496 Cooperative Education Placement (1-5 VAR)
For juniors and seniors. Work experience under direction of field supervisor and faculty member.

GRADUATE COURSES

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

501 Software Systems Engineering 3(3-0) Prerequisite: graduate standing.
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.
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.
Data processing and computer oriented engineering systems management. Topics include 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.
Product evaluation, testing, liability, field service and customer support, cost estimating.

530 R&D Project Planning and Control 3(3-0) Prerequisite: graduate standing.
Techniques in analysis of complex engineering systems. Methodology for determining optimum operating criteria.

540 Advanced Engineering Economics 3(3-0) Prerequisite: graduate standing.
Advanced concepts of economic analyses using probability and morality techniques for equipment. Models for equipment replacement and cost effectiveness concepts.

571 Engineering Operations 3(3-0) Prerequisite: graduate standing.
The application of mathematical models to industrial problems. Linear programming, queuing theory, inventory models, dynamic programming and simulation models to solve actual problems.

575 Engineering Systems Analysis and Design 3(3-0) Prerequisite: graduate standing.
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.
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.
Each student will select, outline and pursue a project. May be repeated.

591 Special Topics (1-3 VAR) Prerequisite: graduate standing.
Selected topics in engineering. May be repeated.

596 Thesis (1-6 VAR) Prerequisite: graduate standing and adviser approval.
Work on thesis for MS degree in systems engineering. By arrangement with major adviser.

ENGLISH (ENG)

Professors Bassein, Dille, Griffin
Associate Professors Croxton, Vincent, Whitsitt
Assistant Professors Gloe, Illick, Olin, Senatore, Taylor

The major in English leads to a bachelor of arts (BA) degree. Offerings in literature, the English language and writing prepare professional and pre-professional majors for many careers. Secondary 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 open laboratory with professional staffing supplements course work for students enrolled in English and other USC courses.

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 Engish, 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)
Beginning course in expository writing, emphasizing skills of written expression, organization, and presentation, ACT verbal score of 16 or higher or SAT verbal score above 336 required.

115 Technical and Scientific Communication I 3(3-0)
Course for technology students placing emphasis upon vocabulary, grammar, sentence structure, outlining and written expression. Equivalents to ENG 110. ACT verbal score of 16 or higher or SAT verbal score above 336 required.

120 Literature, the Creative Writing Experience 3(3-0)
Use of models from recent poets, short story writers and novelists to stimulate creative and analytical writing skills. Weekly writing assignments prompted by class discussion and analysis of the readings lead to the writing of articulate prose and poetry as a means of self-definition and self-discovery.

121 The Writer's Response: Evaluating Literature 3(3-0) Prerequisite: ENG 120 or permission of instructor.
Explication of literary texts. Use of evidence in forming evaluations and conclusions about novels, poems and short stories. Several short papers and a term paper are required.

130 Introduction to Fiction 1(1-0)
Introduces short stories and novels from varying times and places, for students who have not been exposed to much literature. GEN. ED. IC.

131 Introduction to Plays 1(1-0)
Literature from varying times and places with emphasis on artistry, especially desirable for the student who has not been exposed to much literature. GEN. ED. IC.

132 Introduction to Poetry 1(1-0)
Introduces verse and poetry from varying times and places, for students who have not been exposed to much literature. GEN. ED. IC.

150 Spelling Review 1(1-0) Prerequisite: ENG 110 or 115, or permission of instructor.
Five-week module 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.
Five-week module on 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.
Five-week module of sentence correctness in using clauses and phrases effectively.

157 Paragraph Development 1(1-0) Prerequisite: ENG 110 or 115, or permission of instructor.
Five-week module of methods of paragraph organization and development.

161 Careers for English majors 1(1-0)
Identifies career options and presents employment opportunities for students majoring in English.

210 American Literature I 3(3-0)
Literature from colonial times to Civil War, including the growth of naturalism and the rise of the New England School. GEN. ED. IC.

211 Composition II 3(3-0) Prerequisite: ENG 110 or 115.
Sequential course to provide intensive consideration of paragraph and essay development and to introduce procedures and techniques in preparing the referenced paper. It is recommended that this course be completed during the sophomore year.

212 American Literature II 3(3-0)
Literature from Whitman to the present; emphasis on the influence of westward expansion, growth of regionalism, literature of social protest, and post-World War II writing. GEN. ED. IC.

216 Technical and Scientific Communication II 3(3-0) Prerequisite: ENG 110 or 115.
Writing course specializing in composition skills which benefit students in technical and scientific areas. It is recommended that this course be completed during the sophomore year.

221 Western World Literature I 3(3-0)
Historical and thematic sides of major writers from ancient Greece to the Renaissance. GEN. ED. IC.

222 Western World Literature II 3(3-0)
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 1750. GEN. ED. IC.

232 Literature of England II 3(3-0)
Literature and literary history of England from 1750 to the present. GEN. ED. IC.

254 Science Fiction 3(3-0)
Imaginative literature of fact and fiction, reading, lectures, movies, and television. GEN. ED. IC.

260 Women in Literature 3(3-0)
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)
Variety of subjects including individual authors, themes, or areas of language development.

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)
Incidents and patterns of language in participants' lives to explore humans as semantic reactors who can deceive, coerce or nurture with their forms of language.

305 Technical and Scientific Report Writing 3(3-0) Prerequisite: ENG 211 or 216, or permission of instructor.
Study an application of technical writing in the student's major. Emphasis on discrete professional formats and styles in writing manuals, proposals, government contracts and reports and journal articles. For upperclassmen or special students in technical and professional fields, open only for students who have completed the basic competencies requirements.

315 Creative Writing: Poetry 3(3-0) Prerequisite: ENG 110, 211 and ENG 340, or permission of instructor.
Introduction to writing poetry, opportunity to write in a self-fulfilling way with some practice on form.

316 Creative Writing: Fiction 3(3-0) Prerequisite: ENG 110, 211 and ENG 340, or permission of instructor.
Introduction to creating character, situation, and overall structure, emphasis on imaginative and real-life portrayal.

331 Development of the Novel I 3(3-0) Offered alternate years.
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)
Focuses on developing writing techniques and styles applied to periodical publications.

340 Advanced Composition (1-3 VAR) Prerequisite: ENG 211 or permission of instructor.
Advanced forms of non-fiction writing; essays, articles and reports with attention given to needs of students.

341 History of the English Language 3(3-0)
English language from Anglo-Saxon period to present; emphasis on history of linguistic and structural changes.

342 English Syntax and Usage 2(2-0)
English usage and language systems, emphasis on forms and functions of language analysis.

351 Children's Literature 2(2-0)
Options for the person selecting literature for children, including the meaningful, the pleasurable, and that which is keyed to a variety of learners.

363 17th Century British Literature 3(3-0)
Drama, prose, and poetry of Bacon, Donne, Jonson, Webster, 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)
Materials and teaching/learning systems for literature, language, composition.

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 110 or 211 and/or permission of instructor.
Explores a variety of subjects including rhetorical techniques, language conventions, or language learning.

412 Literature for Adolescents 2(2-0)
Literature suitable for adolescents, including classical and contemporary authors, and issues in selection of evaluation.

441 Chaucer and His Age 3(3-0)
Chaucer and his contemporaries in their cultural setting.

443 Linguistics 3(3-0)
Theorists, systems, analyses, and studies of language.

461 Careers for English Majors 1(1-0)
Identify and explore graduate school and employment opportunities.

481 Literary Criticism 3(3-0)
Great critics and critical movements from Aristotle to Samuel Johnson.

491 Special Topics (1-3 VAR)
Individual authors, themes, or areas of language development. An extensive term paper in addition to work done for ENG 291.

493 Seminar 3(3-0)
Examines specific topics, themes and works in American, English or world literature and poetry.

494 Field Experience (1-5 VAR)
A semester long internship. Student performs professional duties and English-related skills required by the cooperating commercial business or public service agency.

495 Independent Study (1-3 VAR)
Directed, intensive study and guidance in studying major literary figures or movements, arranged with the head of the program.

496 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of the 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.
Selected American classics, emphasizes critical reading skills, basic techniques of evaluation, and practices in writing responses to literature.

512 Literature for Adolescents 2(2-0) Prerequisite: graduate standing.
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.
Individual authors, themes, or areas of language development.

595 Independent Study 2(2-0) Prerequisite: graduate standing.
Directed, intensive study and guidance for studying major literary figures or movements; arranged with the head of the program.

FINANCE (FIN)

Associate Professors Abebe, Noreiko
Assistant Professor Dhatt

UNDERGRADUATE COURSES

330 Corporate Financial Management 3(3-0) Prerequisite: ACCTG 202, BUSAD 261 and ECON 202.
Principles of finance involved in problems confronting business organizations. Techniques of financial decision making for liquidity management, financial forecasting, long-term and short-term financing.

331 Managerial Finance: Policy, Planning and Control 3(3-0) Prerequisite: FIN 330.
Continuation of Corporate Financial Management; planning, policy formulation and financial decision making. Cash and capital budgeting, credit policy and accounts receivable management, cost of capital, mergers, acquisitions and investment banking.

333 Investment Analysis 3(3-0) Prerequisite: FIN 330.
Analysis and forecasting of security markets, industry and company studies, portfolio selection and management.

335 Real Estate 3(3-0) Prerequisite: ECON 101 or ECON 201.
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.
Life, property, and health insurance from purchaser's point of view, emphasis on the operation and contributions of the insurance industry.

430 Financial Institutions and Markets 3(3-0) Prerequisite: ECON 310.
Structure, operations and portfolio compositions of financial intermediaries, including commercial banks, savings and loans, life insurance companies, pension fund management, mortgage banking and consumer and federal credit agencies.

431 Financial Policy Analysis 3(3-0) Prerequisite: FIN 331 and 333.
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 dean, School of Business.
Integrates prior studies in business into a realistic approach to solve problems faced by selected firms in the community and/or computer simulation of business cases.

491 Special Topics (1-3 VAR) Prerequisite: permission of instructor.
Selected finance topics which respond to specific and timely informational needs of students.

495 Independent Study (1-3 VAR) Prerequisite: senior standing in School of Business and permission of dean, School of Business.
Individual research, directed readings, and/or special assignments.

498 Internship (1-6 VAR) Prerequisite: junior standing in School of Business, and permission of dean, School of Business.
Supervised field work in selected business, social and governmental organizations to enhance the student's training in finance, supplemented by written reports.

GRADUATE COURSES

530 Financial Management 3(3-0) Prerequisite: graduate standing.
The foundations of business financial management and the valuation of the corporation. Topics include: 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 is on the integration of theory and methods through the use of cases.

531 International Financial Management 3(3-0) Prerequisite: graduate standing.
Those aspects of international environment relevant for managers of internationally active businesses are explored. Topics include: 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. The application of theory to current problems such as commercial policy and international liquidity will also be emphasized.

532 Management of Financial Institutions 3(3-0) Prerequisite: graduate standing.
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.
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 of emerging high technology firms.

591 Special Topics 3(3-0)
Critical review and discussion of relevant finance topics.

592 Research (1-6 VAR)
The student will work under the close supervision of a graduate faculty member in basic or applied reseach resulting in a report of high academic quality.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

FOREIGN LANGUAGE (FL)

Professor Bright
Associate Professor Milne
Assistant Professor Covi

Courses with the FL prefix are available for all students of foreign language. Consult with the departmental advisers for specific information on FL courses.

UNDERGRADUATE COURSES

100 Introduction to Comparative Linguistics 3(3-0)
Basic concepts in linguistics. Classification and comparison of languages. GEN. ED. IB.

137 Foreign Language for Travel 1(1-0)
Fundamental vocabulary for basic tourist communication.

171 Introduction to a Critical Foreign Language I 3(3-0)
Study of a critical foreign language not offered regularly. Different languages are offered when enrollment permits.

172 Introduction to a Critical Foreign Language II 3(3-0) Prerequisite: FL 171 or permission of instructor.
Study of a critical foreign language not offered regularly. Different languages are offered when enrollment permits.

250 Foreign Language Field Trip (2-6 VAR) Prerequisite: permission of instructor.
Communication, lectures by writer, artists, political leaders and specialists. Visits to museums. Attendance at movies, theatre and excursions.

291 Special Topics (1-3 VAR)
An aspect of a foreign language not contained in regular courses.

296 Cooperative Education Placement (1-4 VAR) Prerequisite: permission of instructor.
Arrangements between employers and faculty members provide students with an opportunity to earn academic credit and monetary reimbursement for on-the-job training in their field of study.

388 Materials and Techniques in Teaching Foreign Languages 2(2-0)
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. (S/U grades.)

496 Coooperative Education Placement (1-4 VAR) Prerequisite: one year of college FL study.
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 COURSE

591 Special Topics (1-3 VAR)
Advanced work in a foreign language, variable dealing with literature, culture, language or pedagogy. Content will have prior approval of the department chair.

FRENCH (FRN)

Assistant Professor Covi

The minor in French requires satisfactory completion of 32 credit hours, including FRN 301, 302, 303, 312 and approved French electives numbered above 300.

111 Beginning Spoken French I 5(5-1)
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. IB.

112 Beginning Spoken French II 5(5-1) Prerequisite: FRN 111 or equivalent.
GEN. ED. IB.

212 Intermediate French I 5(5-1) Prerequisite: FRN 112 or equivalent.
Grammar review, idioms and writing of compositions. Selected readings with oral and written exercises.

213 Intermediate French II 5(5-1) Prerequisite: FRN 212 or equivalent.
Grammar review idioms and writing of compositions. Selected readings with oral and written exercises.

301 Advanced French Conversation I 2(2-0) Prerequisite: FRN 111, 112, 211 or permission of instructor.
Emphasis on acquisition of vocabulary and idiomatic expressions. Advanced oral practice.

302 Advanced French Conversation II 2(2-0) Prerequisite: FRN 301, or permission of instructor.

303 French Phonetics and Diction 2(2-0) Prerequisite: Intermediate French or permission of instructor.
French pronunciation, theory, correction and practice of diction and intonation. Phonetic transcription and remedial exercises. Required for teacher certification.

308 French Civilization I 3(3-0) Prerequisite: Intermediate French or equivalent.
Geography, art architecture, economics and social problems, correlated with history from the origins to contemporary French. Required for teacher certification.

309 French Civilization II 3(3-0) Prerequisite: FRN 308 or permission of instructor.
Required for teacher certification.

312 Advanced French Grammar I 3(3-0) Prerequisite: Intermediate French or equivalent.
Systematic review of grammar; presentation of the more sophisticated syntactical patterns to enable students to write correctly. Required for teacher certification.

381 Masterpieces of French Literature 2(2-0) Prerequisite: two years of college French or equivalent.
Close study of outstanding French works with emphasis on literary forms, critical methods and techniques.

GEOGRAPHY (GEOG)

Associate Professor Howard

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)
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.
Intensive experience 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)
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.
Reconstruction of past environments and social systems of the great civilizations; policies, life styles, internal development and national aspirations.

GEOLOGY (GEOL)

Professor Schaeffer
Assistant Professor Powell

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)
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.
Laboratory course to accompany GEOL. 101. GEN. ED. IIID.

123 Historical Geology 3(3-0) Prerequisite: GEOL 101.
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.
Laboratory course to accompany GEOL 123. GEN. ED. IIID.

204 Introduction to Soil Science 3(3-0) Prerequisite: CHEM 111 or 121.
Formation, properties and management of soils emphasizing soil conditions that affect plant growth.

204L Introduction to Soil Science Lab 1(0-2) Corequisite: GEOL 204.
Laboratory course to accompany GEOL 204.

300 Environmental Geoscience 3(2-2) Prerequisite: GEOL 101 or 123.
Geological conditions and influences affecting the life and development of man: mineral, oil, stream erosion, landslides, subsidence, earthquakes.

301 Mineralogy 4(3-2) Prerequisite: CHEM 121.
Cystallographic, chemical and physical properties of minerals and their methods of identification.

302 Petrology 4(3-2) Prerequisite: GEOL 301.
Rock petrogenesis and identification by use of macroscopic, binocular microscope methods. Phase systems of silicate melts.

308 Invertebrate Paleontology 3(1-4) Prerequisite: GEOL 123 or BIOL 202.
Identification, classification, morphology and stratigraphic significance of fossil macroinvertebrates plus micro.

313 Principles of Geomorphology 3(2-2) Prerequisite: GEOL 101 or 123.
Classification and genesis of landforms of earth's surface. Includes fluvial and glacial processes.

315 Geologic Field Techniques 2(0-4) Prerequisite: permission of instructor.
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.
Principles of ground water hydrology. Methods of conducting ground water survey. Ground water case histories, especially Colorado's.

410 Stratigraphy and Sedimentation 5(5-0) Prerequisite: GEOL 123 and 302.
Methods of transportation and environments of deposition of sediments. Geologic formations, facies and tectonic framework.

411 Structural Geology 5(5-0) Prerequisite: GEOL 123 and 302, MATH 122.
Origin, description, classification and analytical interpretations of the structural features of the earth's crust.

440 Geochemistry 3(3-0) Prerequisite: CHEM 123 and GEOL 301, or permission of instructor.
Chemical applications to the study of geology, including some study of isotope, age dating and trace element techniques, organic geochemistry, aqueous of geochemistry and geochemistry of some ore deposits.

491 Special Topics (1-2 VAR) Prerequisite: permission of instructor.
Topics are considered which serve the interest of 12 or more students.

495 Independent Study (1-2 VAR) Prerequisite: permission of the department.
Field and/or laboratory research on special geologic problems.

GERMAN (GER)

125 Beginning Spoken German I 5(5-1)
Pronunciation and grammar with oral-aural training. Easy reading and conversation. GEN. ED. IB.

126 Beginning Spoken German II 5(5-1) Prerequisite: GER 125 or equivalent.
GEN. ED. IB.

222 Intermediate German I 5(5-0) Prerequisite: GER 126 or equivalent.
Review and expansion of first-year grammar. Compositions, reading and discussion of contemporary German life.

223 Intermediate German II 5(5-0) Prerequisite: GER 222 or equivalent.

322 Advanced German Grammar I 3(3-0) Prerequisite: GER 222 or equivalent.

323 Advanced German Grammar II 3(3-0) Prerequisite: GER 322 or equivalent.

326 German Civilization I 3(3-0) Prerequisite: GER 222 or equivalent.
German geography, culture and history from the beginning to the present.

327 German Civilization II 3(3-0) Prerequisite: GER 326 or equivalent.

HISTORY (HIST)

Professors Daxton, Eagan, Sandoval, Steeples

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.

History graduates gain a broad perspective on human development through time with a strong background in understanding the relationships among people and nations.

The history major requires 30 credit hours, including HIST 101, 102, 185, 201, and 202. Other courses are selected by students with adviser approval.

No grade below C is acceptable in the major.

UNDERGRADUATE COURSES

101 World Civilization to 1500 5(5-0)
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)
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)
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)
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)
United States from reconstruction era to the mid-twentieth century. GEN. ED. IIC.

211 Colorado History 2(2-0)
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)
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)
The growth of U.S. power, politically, economically and socio-culturally into a major power.

306 20th-Century America 3(3-0)
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) Prerequisite: HIST 202 or POLSC 101.
Origin, development, broadening of the American Constitution by legal decisions, customs, political parties, executive agreements, legislative interpretation.

362 History of Russia 3(3-0)
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)
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)
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)
Political, cultural and economic development of Mexico from preconquest 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, T'ang, 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)
Events and personalities from World War I to the present.

491 Special Topics (1-3 VAR) Prerequisite: junior or senior status with adequate preparation and permission of instructor.
Independent study involving seminars and research.

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.
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.
Political, cultural and economic development of Mexico from preconquest civilizations to the present.

558 20th-Century Europe 3(3-0) Prerequisite: graduate standing.
Events and personalities from World War I to the present.

589 History of the Southwest 3(3-0) Prerequisite: graduate standing.
History of the Mexican cession to the United States from its Indian and Hispanic origin to the present.

HUMANITIES (HUM)

100 Film: Art and Technology 3(3-0)
Study of developing 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)
Study of the historical interrelationship between the fine arts and the humanities and contemporaneous social and technological developments from antiquity to the late classical period. GEN. ED. IK.

151 Humanities and Technology 3(3-0)
Study of the historical interrelationship between the fine arts and the humanities and contemporaneous social and technological developments from late classical period to the present. GEN. ED. IK.

INDUSTRIAL SCIENCE AND TECHNOLOGY (IST)

Professor Morgan
Associate Professors Bottini, Tedrow

The major in industrial science and technology leads to a bachelor of science (BS) degree. The major prepares students who wish to teach industrial subjects in the secondary schools or seek careers in construction, insurance, government, manufacturing, public service, retail business, service management, planning, estimating or inspection. Students electing the industrial option are required to complete a minor outside the College of Applied Science and Engineering Technology and/or to complete two areas of specialization within the college.

Facilities consist of large laboratories which are exceptionally well equipped, in many cases surpassing the recommendations of public schools and industry. The professional staff have both academic and practical industrial experience as well as strong teaching backgrounds, and are well qualified to prepare teachers for today's and tommorrow's schools.

Teaching option. The BS degree is designed for individuals who wish to qualify to teach industrial science and technology in private and public schools. Certification requirements may be accomplished by completing the industrial science and technology program listed and the professional education requirements of the state. See certification under the program of education.

All students are required to complete a major emphasis in one of the following: automotive, drafting, electronics, metals or woodworking; hours to be approved by the adviser. Students may elect to fulfill the requirements for a combination concentration by completing one-half the requirements in any two of the above areas. Approval by the head of the industrial science and technology program is required.

Industrial option. The BS degree is also designed for individuals who wish to enter industry. Students complete a core of courses selected from automotive, drafting, electronics, metals, and woodworking.

Students must take additional courses and specialize in one of the core areas, and complete a minor outside of the College of Applied Science and Engineering Technology (business recommended), and/or a second area of specialization. The minor and option must have approval of the head of the program.

A minor in industrial science and technology may be earned by completing the following courses: Auto 2 credits, Drafting 6 credits, Metals 6 credits, Wood 9 credits, Welding 3 credits, IST 377-3 credits, IST 455-3 credits. Total 32 credits.

UNDERGRADUATE COURSES

101 Beginning Woodworking 3(0-6)
Basic skills in designing and layout. Hand and machine woodworking tools and equipment are used.

102 Machine Woodworking 6(2-8) Prerequisite: IST 101.
Projects while using selected power woodworking machines. Safety in the use and care of machines is emphasized.

103 Advanced Woodworking 6(2-8) Prerequisite: IST 102.
Intensive study of the woodworking industry as it relates to materials, production, and construction.

106 Fundamentals of Carpentry I 3(0-6)
Tools and types of building materials which are essential in planning and building houses and furniture are investigated.

120 Philosophy of Industrial Education 2(2-0)
Philosophical foundations of industrial education in a modern society. European and American men who have influenced the development of industrial education in America.

130 Period and Modern Architecture 3(3-0)
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)
The history and practical application of period and modern styles of furniture. GEN. ED. I-I.

202 Crafts 3(0-6)
For students who teach crafts. Selection, composition, design and fabrication of plastics, leather and art metals.

203 Wood Turning 3(0-6)
Basic skills in wood turning and the use of the lathe to supplement bench and machine woodworking.

214 Industrial Finishing 3(0-6) Prerequisite: IST 101 or equivalent.
Spraying, brushing and padding finishing techniques, traditional and new finishing materials are used.

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 Construction and Manufacturing Technology I 3(0-6)
Products and procedures as used in the construction industry. Students simulate industrial practices in laboratory.

305 World of Construction and Manufacturing II 2(0-4) Prerequisite: IST 106.
Cognitive and psychomotor skills and attitudes in manufacturing practice experiments.

310 Cabinet and Furniture Making I 2(2-0) Prerequisite: IST 102.
Laboratory course in cabinet making and furniture construction.

311 Cabinet and Furniture Making II 6(2-8) Prerequisite: IST 310.
Laboratory experience in advanced cabinet making practices, millwork and furniture making.

312 Cabinet Making and Furniture Making III 3(0-6) Prerequisite: IST 311.
Individual projects using innovative construction methods and techniques in industry.

320 Pattern Making and Foundry 3(2-4) Prerequisite: IST 301.
Pattern and core design, draft, shrinkage, finish and operation of basic woodworking tools and machinery.

331 Ornamental Iron and Art Metal 3(0-6)
Hot and cold iron worked into ornamental objects using various forming totals. Bending, cutting, riveting, welding, layout and design work.

345 Career Education 2(2-0) Prerequisite: IST 202.
Design, implementation and conducting of career education programs. Selection and preparation of teaching materials for career education programs.

346 Problems in Career Education 2(2-0) Prerequisite: IST 202.
Students develop instructional materials, design teaching aids, and collect occupational information. Review of facilities, equipment and supply needs of career educational programs.

361 Advanced Cabinet and Furniture Making 3(0-6) Prerequisite: IST 300.
Innovative materials, designs, construction techniques, tools, and machines used in school and industry explored and utilized.

377 Materials and Techniques of Teaching Industrial Education in the Secondary Schools 3(3-0) Prerequisite: IST 120.
Practical methods and techniques of teaching industrial education classes.

455 Curriculum Development and Evaluation in Industrial Education 3(3-0) Prerequisite: IST 120.
Practical methods and techniques of organizing curriculum and evaluative materials.

457 Organization and Administration in Industrial Education 3(3-0) Prerequisite: IST 120.
Laboratory organizational patterns, administrative duties of the teacher, and safety regulations.

490 Special Projects (1-5 VAR)
For advanced students. Each student selects, outlines and pursues a project. Instructor approval and supervision provided. May be repeated.

493 Seminar (1-5 VAR)
Individual and small-group activities. Individual experimentation and expertise development in industrial education. May be repeated.

495 Independent Study (1-5 VAR)
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)
For juniors and seniors. 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.

511 Circuit Theory 3(0-6) Prerequisite: EET 356 or equivalent.
Lumped network element models, Kirchoff's laws, mode equations, mesh equations, superposition, reciprocity, substitution, Thevenin's, Norton's compensation, Millman's maximum power transfer theorem.

520 Trends and Problems in Teaching Technical Drawing 2(0-4) Prerequisite: MET 311.
Emphasis on problems of technical obsolescence, new drafting standards and methods of coping with expanding drafting technology.

521 Drafting Techniques 2(0-4) Prerequisite: MET 308.
Graphic methods for solving and displaying algebraic equations, coordinate geometry and empirical equations, nomography.

528 Crafts—Leather and Plastics 3(0-6) Prerequisite: IST 200 or equivalent.
Career awareness and occupational information are an integral part of the course. Basic techniques of working leather and plastics will be taught.

530 Advanced Machine Shop 2(0-4) Prerequisite: MET 304.
Various types of numerically controlled machine tools, their operation and capabilities.

533 Manufacturing Processes 2(0-4) Prerequisite: IST 530.
Current materials of industry and how they affect industrial society.

535 Crafts—Metals 3(0-6) Prerequisite: IST 202 or equivalent.
Career awareness and occupational information on the use of different tools, materials.

540 Power Mechanics 2(1-4) Prerequisite: APSM 345 or equivalent.
Principles of operation, nomenclature, and methods of service.

541 Advanced Automotive 2(0-4) Prerequisite: IST 345 or equivalent.
Use of test and diagnostic equipment, ail phases of auto.

542 Fluid Power 2(0-4) Prerequisite: MET 321 or equivalent.
Curriculum, equipment, methods and application of fluid power courses in secondary and post-secondary schools.

545 Career Education 2(2-0) Prerequisite: IST 345 or equivalent.
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.
Students 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 Education 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 Education 3(3-0) Prerequisite: IST 457.
Shop organizational patterns, administrative duties of the teacher, and new trends in selection and arrangement of equipment and facilities.

562 Introductory Physics of Metals 2(0-4) Prerequisite: MET 152.
Solid, electron theory of metals, electrical and thermal conductivity theory of magnetism, specific heat diffusion and reaction rates.

570 Special Problems in Woodworking 3(0-6) Prerequisite: IST 361.
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: IST 561.
Intensive study in selected areas of the woodworking industry as it relates to materials, processes and construction. Mass production and experimentation.

575 Crafts—Woods 3(0-6) Prerequisite: graduate standing.
Course designed for the teacher to experience use of different tools, materials and supplies available for use.

577 Materials and Techniques of Teaching Industrial Education in the Secondary Schools 3(3-0) Prerequisite: IST 377.
Practical method and techniques in teaching industrial education classes.

580 Problems in Industrial Education 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 a specific area of industrial education. May be repeated.

581 Curriculum Development in Industrial Education 3(3-0) Prerequisite: IST 455 or equivalent.
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 Education 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 Education 3(3-0) Prerequisite: IST 455 and 457.
Organization and administration of industrial education programs as they relate to federal, state and local school administration.

588 Experimentation in Industrial Education 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)
For advanced students. Each selects, outlines and pursues a project. Instructor approval and supervision provided. May be repeated.

591 Special Topics (1-5 VAR)
Individual and small-group activities in individual experimentation and expertise development in industrial education. May be repeated.

592 Research (1-5 VAR)
Original research under professor's supervision. May be repeated.

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)
For advanced students. Each selects, outlines and pursues a project. Instructor approval and supervision provided. May be repeated.

INTERDISCIPLINARY STUDIES (IS)

101 Global Persons 3(3-0)
Problems of contemporary persons in a technological and developing world society. GEN. ED. IIF. (S/U Grades.)

102 Technologic Persons 3(3-0)
Historical background of technologic societies, their manifestations and problems, their possible and probable futures. GEN. ED. IIF. (S/U Grades.)

201 Creative Persons 3(3-0)
Who persons create, the creative processes, and known systems for deliberately increasing creativity. GEN. ED. IK. (S/U Grades.)

202 Inquisitive Persons 3(3-0)
Examines various methodological approaches applied to the human search for knowledge. GEN. ED. IIIG. (S/U Grades.)

291 Special Topics (1-3 VAR)
Inter-disciplinary courses designed to be topical, issue-centered, exploratory and experimental. (S/U Grades.)

301 Social Persons 3(3-0) Prerequisite: four hours previous honors work.
Explores the major paradigms for human relations and the consequences of operating from the paradigms. (S/U Grades.)

302 Possible Persons 3(3-0) Prerequisite: four hours previous honors work.
Reviews the paradigms used to look at self and the world; emphasizes formation of new paradigms; examines trends; introduces future studies as a means for viewing co-creation of a world that works for everyone. (S/U Grades.)

401 Honors Project 3(3-0) Prerequisite: four hours previous honors work.
Individual, directed, independent study; focuses on applying what has been introduced and learned in honors courses. (S/U Grades.)

402 Unifying Persons 3(3-0) Prerequisite: four hours previous honors work.
Reviews, updates, and integrates information and knowledge to identify and clarify contemporary persons' problems, challenges and opportunities in a global society. (S/U Grades.)

491 Special Topics (1-3 VAR)
Inter-disciplinary courses designed to be topical, issue-centered, exploratory and experimental. (S/U Grades.)

ITALIAN (ITL)

Assistant Professor Covi

The Italian minor requires satisfactory completion of 32 credits of Italian, including ITL 111 and 112.

146 Introduction to Italian I 3(3-1)
Pronunciation and grammar with oral-aural training. Easy reading and conversation. GEN. ED. IB.

147 Introduction to Italian II 3(3-1) Prerequisite: ITL 146 or equivalent.
GEN. ED. IB.

246 Intermediate Italian 5(5-0) Prerequisite: ITL 147 or equivalent.
Reading and conversation in Italian, review of grammar, study of idioms, theme writing in Italian.

247 Intermediate Italian II 5(5-0) Prerequisite: ITL 246 or equivalent.

344 Italian Civilization I 3(3-0) Prerequisite: ITL 246 or equivalent.
Italian geography, culture and history from the beginning to the present.

345 Italian Civilization II 3(3-0) Prerequisite: ITL 344 or equivalent.

346 Advanced Italian Grammar I 3(3-0) Prerequisite: ITL 246 or equivalent.
Linguistics analysis, vocabulary building and composition.

347 Advanced Italian Grammar II 3(3-0) Prerequisite: ITL 345 or equivalent.
Linguistics analysis, vocabulary building and composition.

MANAGEMENT (MGMT)

Professor Kochenberger
Associate Professor Reinier
Assistant Professor Ahmadian

UNDERGRADUATE COURSES

301 Introduction to Leadership and Management 3(3-0) Prerequisite: sophomore standing.
Technique and practice in applied leadership in small groups and basic management skills. Includes leadership laboratories.

310 (MILSC 310) Principles of Management 3(3-0) Prerequisite: ENG 211.
Decision-making, communication and leadership principles in business and not-for-profit organizations.

311 Production/Operations Management 3(3-0) Prerequisite: BUSAD 261 and MGMT 310.
Techniques and procedures for efficient production and problem solving.

318 Personnel Management 3(3-0) Prerequisite: MGMT 310.
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.
Behavior of individuals in organizational settings. Behavioral determinants, managerial style, social system analysis, motivation, communication and control processes.

362 Systems Analysis 3(3-0) Prerequisite: MGMT 310.
Tools of organizational process analysis and synthesis: investigation, requirements, definition, alternatives design, feasibility, systems proposal, definition of system inputs and outputs, detailed design, establishment and management of systems life cycle, system changeover.

365 Management Information Systems 3(3-0) Prerequisite: MGMT 310, 362.
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.

366 Organizational Data Systems 3(3-0) Prerequisite: BUSAD 160 and CST 220.
Definitions and concepts of input/output file structures, study of file processing languages. Hands-on experience with the construction of computer-based data structures and with commercial data base management systems.

410 Industrial Relations Legislations 3(3-0) Prerequisite: MGMT 318.
Federal and state legislation and execution and executive orders governing the employer-employee relationship; legal rights of organization and bargaining.

411 Collective Bargaining 3(3-0) Prerequisite: MGMT 318.
Strategies and methods involved in bargaining, administration of contracts, handling grievances, and arbitrating; content of contracts, employer-employee rights; costing of proposals.

412 Methods and Time Analysis 3(3-0) Prerequisite: MGMT 311.
Analysis of methods of performing operations and jobs to determine the most efficient manner and then establishing time standards.

414 Small Business Management 3(3-0) Prerequisite: ACCTG 202, MGMT 310 and MKTG 340.
The environment, management, marketing, accounting and legal considerations facing the small business manager and owner.

460 Computer Systems 3(3-0) Prerequisite: MGMT 365.
Examination of computer systems as they are designed to meet organizational needs. Equipment specification, selection and configuration. Comparative study of local systems. Management of the computer resource.

465 Operations Research/Management Science 3(3-0) Prerequisite: MGMT 310.
Examination of deterministic tools in managerial problem solving: mathematical programming methods, linear, quadratic, and network problems. the decision implications of structure. Computer solutions of structured business problems.

467 Computer Simulation 3(3-0) Prerequisite: BUSAD 261.
Stochastic approach to the solution of business problems. Recognition of problems suited for simulation solution. Construction and solution of simulation problems using computers. Interpretation of simulation solutions.

469 Decision Support Systems 3(3-0) Prerequisite: MGMT 365 and 366.
Conceptual and pragmatic summary of the evolving technology of business and technical decision support. Modular approach to decision models. Integration of data processing, MIS, OR/MSC and data base concepts. Introduction to decision support languages and to graphics.

470 Managerial Decision Making 3(3-0) Corequisite: MGMT 465.
Examination of modern managerial decision-making processes in business and in related fields such as medicine, government, engineering, chemistry and sociology. The course stresses the complex nature of managerial decisions and the need for an integrated approach to problem solution using a varied array of tools and methods.

475 Multinational 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 dean, School of Business.
Integrating prior studies in business into a realistic approach to solve problems faced by selected firms in the community and/or computer simulation of business cases.

485 Management Strategy and Policy 3(3-0) Prerequisite: senior standing in the School of Business and completion of all core courses.
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.

491 Special Topics (1-3 VAR)
Selected management topics which respond to specific and timely informational needs of students.

495 Independent Study in Management (1-3 VAR) Prerequisite: senior standing in School of Business and permission of dean, School of Business.
Individual research directed readings, and/or special assignments.

498 Internship (1-6 VAR) Prerequisite: junior standing in School of Business and permission of dean, School of Business.

GRADUATE COURSES

520 Management Theory and Practice 3(3-0) Prerequisite: graduate standing.
The examination of approaches currently used by behavioral science practitioners to assist organizations in achieving planned change. Specific focus is on the processes of behavioral change at the individual, group and organizational levels. In addition to traditional teaching methods, the concepts and practices of organizational development are examined through the use of cases.

521 Corporate Strategy and Industrial Structure 3(3-0) Prerequisite: graduate standing.
The important relationships between the structural characteristics of an industry and the performance of firms competing in the industry are explored. The nature of the competitive interaction among firms and the rules of the strategic game determined by the industry's structural characteristics are also studied.

523 Strategic Management in Public Sector Companies 3(3-0) Prerequisite: graduate standing.
The major objective of this course is to provide the participants with insights into the strategic and policy difference between service sector companies and organizations whose product is a tangible result of a manufacturing process. Emphasis will be placed upon overall strategy as viewed by the general manager as well as the interrelationships and conflicts between marketing, human resources, finance, and operations.

560 Management Information Systems 3(3-0) Prerequisite: graduate standing.
The development of an overall framework for analyzing the use of information by organizations is presented along with examples of different types of information systems. The analysis and design of information systems is stressed through case study and projects. The role of computing in information systems and the design of computer-based systems and decision support systems will be emphasized.

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.

585 Management Policy and Strategy 3(3-0) Prerequisite: graduate standing.
The study of implementation of strategic decisions at differing managerial levels within a firm. Specific topics will include: 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. The case method will be utilized.

591 Special Topics 3(3-0)
Critical review and discussion of relevant management topics.

592 Research (1-6 VAR)
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.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

MARKETING (MKTG)

UNDERGRADUATE COURSES

340 Principles of Marketing 3(3-0) Prerequisite: ECON 201.
Roles of marketing in the fulfillment of the needs of consumers and industrial users, marketing functions and marketing institutions.

341 Sales Management 3(3-0) Prerequisite: MKTG 340.
Business planning, operating procedures and administration of sales force and its related activities.

342 Advertising 3(3-0) Prerequisite: MKTG 340.
Examines economic and social values of advertising as well as functions and use of advertising. Includes selection of media copy and layout.

343 Retailing 3(3-0) Prerequisite: MKTG 340.
Principles and practices of retail store operation, including buying, merchandising, advertising, sales promotion, service, supervision and control.

344 Marketing Channels 3(3-0) Prerequisite: MKTG 340.
Analysis of distribution channels used by firms engaged in marketing and manufacturing. Consideration of appropriate strategies for marketing channels management.

346 Sales Communications 3(3-0) Prerequisite: junior standing.
Intensive investigation of the art of persuasive sales communication, with emphasis on selection, organization, and effective oral presentation of sales and promotional information.

348 Consumer Behavior 3(3-0) Prerequisite: MKTG 340.
Examines individual and group differences in consumer behavior and their effect on business strategies. Contemporary behavioral science concepts applied to specific business problems.

440 Marketing Research 3(3-0) Prerequisite: MKTG 340.
Modern research methods and techniques applied to problems of collection, interpretation, and presentation of data for marketing management decisions.

441 Marketing Strategies 3(3-0) Prerequisite: MKTG 340.
Marketing policy formulation and implementation. Emphasis on developing student's ability to analyze and solve marketing problems.

480 Small Business Studies 3(3-0) Prerequisite: senior standing and permission of dean, School of Business.
Integrating prior studies in business into a realistic approach to solve problems faced by selected firms in the community and/or computer simulation of business cases.

491 Special Topics (1-3 VAR)
Selected marketing topics which respond to specific and timely needs of students.

495 Independent Study (1-3 VAR) Prerequisite: senior standing and permission of dean, School of Business.
Individual research, directed readings and/or special assignments.

498 Internship (1-6 VAR) Prerequisite: junior standing in School of Business and permission of dean, School of Business.
Supervised field work in selected business, social and governmental organizations to enhance the student's training in marketing, supplemented by written reports.

GRADUATE COURSES

540 Marketing Management Strategies 3(3-0) Prerequisite: graduate standing.
The investigation of strategic decisions necessary to match organizational resources and objectives with market opportunities. The strategy areas of product development and diversification, pricing, communication through advertising and selling and distribution are examined separately and are also studied in their role in the overall marketing plan. The importance of understanding and forecasting market behavior is stressed as is the coordination of marketing with other managerial decisions. Emphasis is on the integration of theory and principles through the use of cases.

541 Cases in Marketing Management 3(3-0) Prerequisite: MKTG 540.
This course is designed to test the application skills of each student 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)
Critical review and discussion of relevant marketing topics.

592 Research (1-6 VAR)
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.

596 Thesis Research (1-6 VAR)
Research conducted under the direction of graduate faculty.

MASS COMMUNICATIONS (MACOM)

Professor Pavlik
Associate Professor Anderson, Orman
Assistant Professors Binkly, Miller

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 its majors for careers in mass media and their 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, the university's television station, 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 publication's 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 or 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)
Mass media in American society, their growth, development and impact on contemporary culture. Open to all students. GEN. ED. ID.

102 Introduction to Broadcasting 3(3-0)
Introductory course in broadcasting with emphasis on the historical and social impact of radio and television on American culture. Open to all students. GEN. ED. ID.

110 Career Orientation 1(1-0)
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.
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.
Reporting campus events via interpretative articles, news features, straight features, seasonal stories and series articles.

210 Photography 2(2-0)
Introductory course in photography with emphasis on its development, uses and impact on contemporary society. Open to all students.

215 Media and Human Relations 3(3-0)
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)
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.
Preparation of copy for a radio/television news reports, interviews and commentary.

224 (SPCOM 224) Broadcast Announcing 3(3-0) Prerequisite: MACOM 102.
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.
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)
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(0-3)
A laboratory course for students involved in university publications and campus broadcast operations. Open to all freshmen and sophomores. Permission of the instructor required. May be repeated for up to four credits.

251 Sports Writing and Statistics 3(2-3) Prerequisite: MACOM 201, 202.
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)
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. Open to all students.

280 Public Relations 2(2-0)
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.
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.
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.
News evaluation, copyreading, rewriting, headline writing, page makeup and similar duties of the newspaper copy editor.

312 Typographic Techniques 3(3-0) Prerequisite: MACOM 311.
Technical introduction to production methods used in newspapers, advertising and public relations; emphasis on printing techniques, typography, photomechanical processes, computerized typesetting and graphic technology.

316 Advertising Campaigns 3(3-0) Prerequisite: MACOM 216 or permission of instructor.
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.
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.
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.
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.
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.
Television studio and control room operation; emphasis on video console equipment, cameras, microphones, stagecraft and lighting.

350 Advanced Media Laboratory (2-4 VAR) Prerequisite: upperclass standing and permission of instructor.
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: upperclass standing and permission of instructor.
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: MACOM 210 or permission of instructor.
Practical course in pictorial reporting; emphasis on spot news features, picture stories and photographic essays.

402 Photojournalism 4(3-2) Prerequisite: MACOM 401.
Practical course in pictorial reporting; emphasis on spot news features, picture stories and photographic essays.

411 Journalism Law and Ethics 5(5-0) Prerequisite: upperclass standing.
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 seniors only, or permission of instructor.
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.
Continuation of MACOM 290; emphasis is to client-community problems, press relations, industrial publications, brochures and other specialized public relations tools.

422 Public Relations Campaigns 3(3-0) Prerequisite: MACOM 421.
Simulated independent public relations agency approach to developing and implementing public relations campaigns; emphasis on practical application of agency-client relations and problem solving.

425 Audience Research Methodology 3(3-0)
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 and permission of instructor.
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.
Instruction and practice in writing nonfiction magazine articles, with emphasis on story research and market selection.

445 Reporting Public Affairs 5(3-4) Prerequisite: MACOM 201, 202.
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.
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: upperclass standing or permission of instructor.
Individualized instruction within a special interest area, under supervision of a member of the department. Repeatable once.

491 Special Topics (1-3 VAR) Prerequisite: upperclass standing or permission of instructor.
Exploration of scholarly and special interest subjects in the mass media and related fields.

493 Seminar 3(3-0) Prerequisite: senior standing.
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: upperclass standing, minimum of 30 hours in major, or permission of program chairman.
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: upperclass standing or permission of instructor.
Individual research, directed reading and/or special assignments under supervision of a member of the department. Repeatable once.

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 COURSE

591 Special Topics (1-3 VAR) Prerequisite: graduate standing.
Exploration of scholarly and special interest subjects in the mass media and related fields.

MATHEMATICS (MATH)

Professors Allen, Blandford, Bronn, Derr, Gill, Li, Miller, Phillips, Withnell
Associate Professors Johnson, Orr, Prater, Redman
Assistant Professor 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;
- offers an endorsement program in mathematics for those previously certified in secondary education; and

Such areas as management and social sciences are discovering numerous applications for mathematical methods. Non-mathematics majors are offered many courses which only require a previous, adequate knowledge of algebra and/or working knowledge of BASIC computer language. Mathematics faculty will provide information on entry requirements.

The role of mathematics in the physical sciences and engineering is well established. Recently, the life and social sciences, economics and management have increasingly relied upon the use of mathematics. The computer's speed, information capacity and decreased cost have been and will continue to be the principal causes for the rapid growth of such applications.

Majors in the mathematical sciences may choose from a broad spectrum of career opportunities. Actuarial science, computer science, mathematical modeling, statistics, industrial control, market forecasting and operations research are among the areas currently in high demand and expected to grow in the coming decade.

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, 224, 271, 307, 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 301, 360, 361, 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, 224, 301, 307, 327, 330, and 377 (total 24 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 or MATH 105.
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.
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.
Trigonometric and circular functions, identities, inverse functions, vectors, complex numbers. GEN. ED. IIIE.

124 Precalculus Math 5(5-0) Prerequisite: MATH 120 or equivalent.
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.
Introduction to analytic geometry, functions, limits, continuity, differentiation and integration of algebraic functions, the theory of calculus and selected applications. GEN. ED. IIIE.

131 Mathematics for Engineering Technology I 4(4-0) Prerequisite: MATH 120 or equivalent.
Integrated sequence (131-132-233) covering topics in algebra, trigonometry, analytic geometry, differential calculus, integral calculus, with engineering applications. GEN. ED. IIIE.

132 Mathematics for Engineering Technology II 4(4-0) Prerequisite: MATH 131.
Continuation of MATH 131. GEN. ED. IIIE.

156 Introduction to Statistics 3(3-0) Prerequisite: MATH 120 or equivalent.
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.

201 Matrix Algebra 1(1-0) Prerequisite: MATH 121/124 or equivalent.
Systems of equations, matrix representation of systems, solution of systems by Gaussian elimination, matrix inverse, Cramer's rule, systems of inequalities, and simplex method. May be offered in a five-week module.

202 Vector Algebra 1(1-0) Prerequisite: MATH 121/124 or equivalent.
Vector arithmetic (including scalar and cross products) and geometry of lines and planes (2- and 3-dimensions), distance formulas, spherical and cylindrical coordinate systems, etc. May be offered in a five-week module.

221 Applied Calculus: An Intuitive Approach 5(5-0) Prerequisite: MATH 121 or equivalent.
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.
Applications of differentiation and integration, operations on trigonometric, logarithmic and other transcendental functions.

233 Mathematics for Engineering Technology III 5(5-0) Prerequisite: MATH 132.
Continuation of MATH 132. GEN. ED. IIIE.

240 Introduction to Computer Programming 1(1-0) Prerequisite: MATH 120 or equivalent.
Principles of computers, numeration systems, data representations, and a general familiarization with computer equipment. Introduction to programming using high level languages. May be offered in a five-week module. GEN. ED. IIIE.

241 Introduction to Digital Computers 2(2-0) Prerequisite: MATH 240.
Continuation of MATH 240. More programming using high level languages and computer terminal usage. May be offered in a 10-week module. GEN. ED. IIIE.

243 Introduction to Computer Modeling 3(3-0) Prerequisite: MATH 120 and 240 or equivalent.
Introduction to mathematical modeling. Emphasis on modeling techniques. Formulated models and existing computer programs will be used.

245 Introduction to Discrete Mathematics 3(3-0) Prerequisite: MATH 121 or equivalent.
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.

271 Introduction to Mathematical Thought 3(3-0) Prerequisite: MATH 224 or its equivalent.
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).

291 Special Topics (1-3 VAR) Prerequisite: permission of instructor and approval of the department chair.

301 Problem Solving 1(1-0) Prerequisite: MATH 224.
The strategy and technique of mathematical problem solving, emphasizing presentation and rigor.

307 Introduction to Linear Algebra 3(3-0) Prerequisite: MATH 126 or equivalent.
Matrices, vectors, vector spaces, linear transformations, and change of basis. Application topics are included.

325 Intermediate Calculus 3(3-0) Prerequisite: MATH 224.
Continuation of MATH 224: solid analytic geometry, vector operations in three dimensions, multivariable calculus, and infinite series.

327 Introduction to Algebraic Systems 3(3-0) Prerequisite: MATH 271 or permission of instructor.
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.
Euclidean, hyperbolic, finite, and transformation geometries, models, and constructions.

337 Differential Equations I 3(3-0) Prerequisite: MATH 224 or equivalent.
First order differential equations, homogeneous and non-homogenous 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.
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.
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.
Sets, numeration systems, whole numbers, algorithms, number theory, integers and intuitive geometry.

361 Mathematics for Elementary Teachers II 3(3-0) Prerequisite: MATH 360.
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) Prerequisite: MATH 327.
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.
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.
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 optimation 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.
Probability space, discrete and continuous random variables; distributions; mathematical expectation; sampling; statistical inference; Bayesian rule; and linear regression.

463 History of Mathematics 2(2-0) Prerequisite: MATH 271.
Survey of the origins of several important mathematical concepts and of the mathematicians responsible for these discoveries.

491 Special Topics (1-3 VAR) Prerequisite: permission of instructor.

493 Seminar (1-3 VAR) Prerequisite: senior standing, permission of instructor.

495 Independent Study (1-3 VAR) Prerequisite: senior standing, permission of instructor.
Allows academically strong seniors to earn credit for independent work done under the guidance of a faculty member.

GRADUATE COURSES

501 Foundations of Mathematics 3(3-0)
Sets, logic, axiomatics, mappings and the various sub-systems of the reals for beginning graduate students.

507 Linear Algebra 3(3-0)
Vector spaces, matrices, eigenvalues, linear functionals and dual space and selected applications.

521 Intermediate Analysis 3(3-0)
Point set theory including the Heine Borel theorem, continuity, differentiation, sequences and series and the Riemann-Stieltjes integral.

527 Abstract Algebra 3(3-0)
Groups, rings, integral domains, quotient rings, ideals, fields, homomorphisms and related topics.

530 Advanced Geometry 3(3-0)
Foundations of geometry, transformations, types of geometry and selected Euclidean and non-Euclidean topics.

541 Computers 3(3-0)
Preparation for teachers in utilizing the computer to teach secondary school mathematics.

544 Mathematical Methods of Applied Science 3(3-0) Prerequisite: graduate standing.
Topics in applied mathematics for engineering and management. Emphasis will be given to 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)
Problems of the curriculum, methods of teaching and evaluation in the elementary school.

577 Concepts in Secondary 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)
Allows students to earn credit independently under guidance of a faculty member.

MECHANICAL ENGINEERING TECHNOLOGY (MET)

Professor Greet
Associate Professor Chen
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 (ABET).

The mechanical engineering technology degree prepares students to become effective members of the engineering team. It emphasizes the practical applications of scientific and engineering principles to develop industrially oriented personnel with competencies which are needed in technology, research, 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 and a nominal fee afford the graduate provisional certification as a manufacturing engineering technologist.

The 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)**
Functions, applications, tooling and operation of saws, lathes, grinders, drilling and milling machines. Basic layout work, cutting tool geometry, machining sequences, establishing operating parameters for high-efficiency machining.

***104 Welding Technology 3(1-4)**
Welding and cutting processes. Arc welding techniques for shielded metal, gas tungsten and gas metal. Oxyacetylene welding, brazing and cutting. Electrode and gas selection, weldability of metals, joint design, welding defects, distortion control and weld testing.

111 Technical Drafting I 3(0-6)
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 Technical Drafting II 3(0-6) Prerequisite: MET 111.**
Dimensioning, tolerances, and allowances, descriptive geometry, pattern development and working drawings.

115 Nondestructive Testing I 3(2-2)
Determination of quality without change to the material by using liquid penetrant, magnetic particles, magnetic rubber and leak testing.

152 Applied Physical Metallurgy 3(2-2)
Properties structure, testing of metals. Behavior of metal during heating, cooling and processing. Heat treatment of steel and surface treatment of metals.

***201 Mechanics 3(3-0) Prerequisite: MATH 132.**
Basic concepts and application of static forces; couples, resultants, equilibrium, trusses, cables, friction, centroids and moments of inertia.

***203 Principles and Application of Engineering Materials 4(3-2) Prerequisite: CHEM 121.**
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.

204 Manufacturing Processes 3(2-2) Prerequisite: MET 103.
Industrial processes used in the manufacturing community. GEN. ED. IIIC.

***205 Computer Programming and Algorithms 3(3-0) Prerequisite: MATH 124 or 131 or equivalent.**
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.

***206 Strength of Materials 3(2-2) Prerequisite: MET 201, 203 and MATH 233 or consent of the instructor.**
Stress-strain relationships, elastic and plastic; tension, compression, shear, torsion, bending and combined stresses, columns and photoelasticity.

***222 Dynamics of Machinery 3(3-0) Prerequisite: MET 112, 201 and PHYS 201.**
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.

304 Industrial Radiography 3(2-2) Prerequisite: MET 203.
Principles and operations of x-ray and gamma ray sources for radiographic examinations. Development of radiographic techniques using a 250 KV x-ray unit.

***308 Industrial Detailing 3(1-4) Prerequisite: MET 112, 205.**
Detail drawings, true position, feasibility and economics. Computer graphics and computer-aided design.

***321 Fluid Mechanics 3(2-2) Prerequisite: MET 201.**
Properties of fluids, fundamentals of fluid flow, viscosity, and fluid friction. Incompressible flow in pipes.

***331 Applied Thermodynamics 3(2-2) Prerequisite: PHYS 201 and MATH 233.**
Fundamental concepts of work, heat and energy. First and second laws of thermodynamics and applications. Heat, energy and power cycles.

***352 Design of Machine Elements 3(2-2) Prerequisite: MET 112, 206, 222 and MATH 233.**
Fundamental concepts in the correct design of the separate elements which compose machines, application of properties and mechanics of materials modified by practical considerations.

***371 Numerical Control Programming 4(3-2) Prerequisite: MET 103 and MATH 131.**
Principles of numerical control (NC) and computerized numerical control (CNC) machine tool programming and operations. NC punched tape codes and formats. Point-to-point drilling and straight-line milling. Contouring using circular and linear interpolation. Tool selection. Specifying cutting speed and feeds. Canned cycles, macros, looping and editing.

***372 Computer-Aided Manufacturing 3(2-2) Prerequisites: MET 371.**
Principles of computer-assisted numerical control programming. Initialization, geometry, and machining statements. Log-in, loading, debugging, postprocessing and plotting the source program. Generating list and machine tape files. Calculation of costs.

***403 Plant Operations 2(2-0) Prerequisite: MET 204.**
Principles of plant layout, material flow, material handling, plant utilities, location and arrangement of equipment and machinery.

***409 Applied Fluid Power 3(2-2) Prerequisite: MET 321.**
Application of physical, thermodynamic and fluid flow principles to the study of applied fluid systems.

***412 Applied Heat Transfer 3(2-2) Prerequisite: MET 331.**
Principles of heat transfer, radiation, conduction and convection; heat exchangers.

420 Combustion Engines 2(1-2) Prerequisite: MET 331.
Thermodynamic analysis of various heat engine cycles. Combustion processes in actual systems and performance characteristics.

441 Energy Technology 2(2-0) Prerequisite: permission of instructor.
Introduction to energy technology and alternative energy sources.

***451 Industrial Robotics 3(2-2) Prerequisite: senior standing.**
History, basic theory, kinematics, geometry, control and application.

452 Refrigeration and Air Conditioning 3(3-0) Prerequisite: MET 331, 412.
Concepts and techniques in principles and applications of heating, ventilation and air conditioning.

***460 Instrumentation and Control Systems 4(3-2) Prerequisites: EET 108 and MET 321.**
Experimental transducers, methods or laboratory instrumentation, logic circuits and feedback control of experimental processes.

473 Advanced Computer-Aided Manufacturing 3(1-4) Prerequisite: MET 372.
Computer-assisted numerical control programming of complex part geometry utilizing conditional branching, looping, subroutines, variables, patterns, sets, rotation, translocation and mirroring. Lathe programming. Part boundary geometry. Mill/drill and lathe links. Interfacing CAM with computer graphics to achieve CAD-CAM.

490 Special Projects 3(0-6) Prerequisite: senior standing in MET.
Research and design of working devices including planning of concept, feasibility, marketing, testing and fabrication. A formal report required.

491 Special Topics (1-3 VAR) Prerequisite: senior standing in MET.
Special interest topics in areas not covered by existing department courses.

493 Seminar (1-3 VAR) Prerequisite: senior standing in MET.
New topics and developments in mechanical design and technology.

496 Cooperative Education Placement (1-5 VAR) Prerequisite: permission of department head.
For juniors and seniors. Work experience under the direction of field supervisor and faculty member.
*Required courses.

MEDICAL TECHNOLOGY (MEDT)

Professor Janes

The major in medical technology leads to a bachelor of science (BS) degree with two options. The student may complete three years of work at the university and a year in an affiliated hospital, or may complete the baccalaureate degree in biology and then the required year in the hospital. Students may apply to the hospital laboratory school in the year prior to the intended internship. Three affiliated hospitals are available, one in Pueblo and two in Colorado Springs. Either option of the program qualifies the graduate for the certification examination of the American Association of Clinical Pathologists.

The 3 + 1 Program. Students who wish a BS in medical technology are subject to terms of the affiliation agreement made between USC and the three affiliate hospitals, Parkview Hospital in Pueblo, and Memorial and Penrose Hospitals in Colorado Springs. The student must complete a minimum of 90 semester hours of work at USC including a) university requirements and general education, b) 16 semester hours of adviser-approved biological science including microbiology and immunology, c) 16 semester hours of adviser-approved chemistry including organic or biochemistry and d) one college-level course in mathematics. At the hospital lab school the student may earn 42 semester hours in the MEDT courses listed below. This curriculum is approved by NAACLS, the National Accrediting Agency for Clinical Laboratory Sciences.

Enrollment is limited by the size of the classes in the three affiliate hospitals; completion of the 42 semester hours of hospital-based work is required for graduation with a degree and eligibility to take the ASCP certifying exam.

Students must earn a C or better grade in the required university courses and a grade-point average of 2.00 or higher. In the hospital-based course work a higher average is required, depending on the policies of the hospital lab school. Credit and grades earned in the hospital-based courses are recorded on the university transcript and the degree is awarded by the university. Regular tuition and fees will be charged by USC during the three university-based years of instruction, and during the internship at the hospital for the 3 + 1 program.

The 4 + 1 Program. Students who earn a BS in biology are able to qualify for application to any hospital-based laboratory program in medical technology in the United States and have career options leading them into many other fields in addition to medical technology. The 42-hour hospital-based credit is not earned in this program although students take the same courses during their internship.

The program director is the adviser for both the 3 + 1 and the 4 + 1 programs.

(Hospital-based)

471 Clinical Chemistry (12-14 VAR) Prerequisite: acceptance to hospital clinical program.
Theory and performance of qualitative and quantitative chemical analysis of blood and body fluids by instrumental and automated methods such as colorimetric, spectrophotometric, gasometric, fluorimetric, electrophoretic and radiommunoassay. Physiological and biochemical rationale for doing various tests.

472 Urinalysis (2-3 VAR) Prerequisite: acceptance to hospital clinical program.
Theory and performance of chemical tests and microscopic studies for kind and quantity of metabolic and cellular constituents of urine and fluids other than blood.

485 Clinical Microbiology (8-13 VAR) Prerequisite: acceptance to hospital clinical program.
Theory and practical experience in isolation and identification of clinically important bacteria, molds and yeasts. Preparation and use of media and staining solutions. Techniques for culturing body fluids and excretions. Techniques for microscopic, biochemical, serological and fluorescent identification. Determining bacterial sensitivity to drugs.

486 Blood Banking (4-5 VAR) Prerequisite: acceptance to hospital clinical program.
Theory, record-keeping and performance of tests and procedures prescribed by the American Association of Blood Banks and Federal Drug Administration relating to preservation and selection of properly matched blood for transfusion and other blood components.

487 Hematology (6-9 VAR) Prerequisite: acceptance to hospital clinical program.
Theory and performance of blood and bone marrow studies. Manual and electronic automated tests to determine number, kind and functional qualities of blood cells.

488 Serology (1-5 VAR) Prerequisite: acceptance to hospital clinical program.
Theory of immunology and clinical performance of tests - complement fixation, precipitation, flocculation, and other procedures on serum and spinal fluid.

489 Clinical Lab Management and Education (1-3 VAR) Prerequisite: acceptance to hospital clinical program.
Principles of management of a clinical laboratory and techniques in teaching clinical laboratory procedures to lab personnel.

MILITARY SCIENCE (MILSC)

(Reserve Officers' Training Corps Program)

Professors Goodman
Assistant Professors Holdaway, Mecurio, Morton, Wolf
Instructor Rogers

The Army ROTC program. The Army Reserve 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 courses of instruction are 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.

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.

This 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. Also, summer session and winter intersession compression programs may provide all the requirements for the first two years.

All courses are approved by the university and credits are applied as electives toward requirements for graduation. Instruction is both academic and practical and 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. Only contracted cadets (normally juniors and seniors) are required to attend the leadership labs.

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 $2,500 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.

101 National Defense Studies 1(1-0)
Organization of the Army and its role in American society. Also, related topics on the U.S. Army Special Organizations. Attendance of leadership laboratories is optional.

102 Basic Survival Skills 1(1-0)
Introduction to basic skills required in the Army environment, appropriate for some civilian endeavors. Includes leadership, rappelling, tactical aircraft control, and others. Attendance of leadership laboratories is optional.

201 Land Navigation Techniques 1(1-0)
Practical exercise in cross-country land navigation. Emphasis on the use of the topographical map and lensatic compass.

202 Applied Survival Skills 1(1-0)
Skills required by both military and civilian leaders and managers, including survival, leadership, and managerial skills.

204 ROTC Basic Camp 4(0-4)
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.

210 Nations at War 3(3-0)
Causes, consequences and prevention of war. Includes study of seven different conflicts. GEN. ED. IIC.

211 Public Speaking (2-3 VAR)
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 Management Development 3(3-0) Prerequisite: sophomore standing.
Technique and practice in applied leadership and management at the small group level. Military and corporate management simulation exercises.

302 Advanced Leadership and Tactics 3(3-0)
Leadership theory and research; emphasis on applicability to the Army leadership phenomenon. Also, theory and practice in preparing and presenting instruction.

304 ROTC Advanced Camp 6(0-6) Prerequisite: 301, 302.
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). Transportation, housing, meals and pay are provided.

310 (MGMT 310) Principles of Management 3(3-0)
Decision making, communication and leadership principles in business and nonprofit organizations.

401 (HIST 401) The American Military Experience 3(3-0)
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 Advanced Leadership and Management 3(3-0)
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.

MUSIC (MUS)

Professors Duncan, Roach, Strobel, Vorcé
Associate Professors Beck, Kellogg, Muller

The degree in music leads to a bachelor of arts (BA) with emphasis in theory, performance, or music education. It is accredited by the National Association of Schools of Music.

The performance emphasis includes concentrations in voice, keyboard, string, woodwind, brasswind, and percussion instruments.

Selected courses and ensembles are open to all students by audition. Facilities include an excellent recital hall and suitable 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.

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.

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 performance block 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 semesters of applied study, four semesters of ensemble and four semesters of symposium.

UNDERGRADUATE COURSES

101 Theory I 4(3-2)
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)
Continuation of 101.

118 Music Appreciation 3(3-0)
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)
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)
Beginning and development of jazz and folk music in the United States. GEN. ED. IE.

121 Survey of Music History I 2(2-0)
Historical style periods in western culture from the Middle Ages to 1800. GEN. ED. IE.

122 Survey of Music History II 2(2-0)
Continuation of 121 from 1800 to present. GEN. ED. IE.

126 Introduction to Opera 3(3-0)
A survey of operas performed in major opera companies today. GEN. ED. IE.

144 Woodwind Class 2(1-2.5)
Techniques employed and problems confronted in teaching and playing woodwind instruments.

145 Brass Class 2(1-2.5)
Techniques employed and the problems confronted in teaching and playing brass instruments.

147 Functional Piano Class 1(0-2)
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)
In-depth study of the performance practices of keyboard, brass, woodwind, percussion or string instrument or voice.

162 Applied Music Major 2(1-6)
Continuation of 161.

165 Performance Block C (1-3 VAR)
For music majors desiring to perform in ensembles other than those required. Also open to students majoring in other departments who wish to perform in any of the available ensembles. Credit depends on the number of ensembles desired.

170 Band 1(0-5) Prerequisite: permission of instructor.
Additional rehearsals and performance activities may be required.

171 Choir 1(0-3) Prerequisite: permission of instructor.
Additional rehearsals and performance activities may be required.

172 Piano Ensemble 1(0-2) Prerequisite: permission of instructor.
Additional rehearsals and performance activities may be required.

173 Guitar Ensemble 1(0-2) Prerequisite: permisison of instructor.
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.
Ensemble specializing in the performance of appropriate string chamber literature. Additional rehearsals and performance activities may be required.

175 Private Lesson 1(0-1)

176 Flute Choir 1(0-2)
Ensemble specializing in the performance of appropriate flute literature. Open to all students who qualify by audition. May be repeated for additional credit.

182 Lab Band 1(0-2)
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. Additional rehearsals and performance activities may be required.

185 Symposium 1(1-0)
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.
For the non-musician. Application of both melodic and chordal (rhythmic) mediums; introduction to the basic folk music of America. Additional rehearsals and performance activities may be required.

187 Beginning Guitar Class II 1(0-2) Prerequisite: MUS 186 or permission of instructor.
For the student with slight knowledge of the instrument. Finger picking techniques and chordal harmonization; chords covering the entire spectrum of the instrument. Additional rehearsals and performance activities may be required.

188 Stage Band 1(0-2) Prerequisite: permission of instructor.
Open to all regularly enrolled university students by audition. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

189 Brass Choir 1(0-2) Prerequisite: permission of instructor.
Explores special brass literature from all style periods. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

192 Percussion Ensemble 1(0-2) Prerequisite: permission of instructor.
Explores unique percussion literature. May be repeated for additional credits. Additional rehearsals and performance activities may be required.

201 Theory II 4(3-2) Prerequisite: MUS 102.
Analytical techniques stressing style and ear-training.

202 Theory II 4(3-2) Prerequisite: MUS 201.
Continuation of 201.

210 Electronic Music 3(3-0)
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)
Techniques employed and problems confronted by the string instrumental teacher.

242 Percussion Class 2(1-2.5)
Techniques employed and problems confronted in teaching and playing percussion instruments, tuned and untuned.

244 Conducting I 2(2-1)
Techniques and methods of conducting both vocal and instrumental ensembles.

245 Conducting II 2(2-1)
Continuation of 244.

261 Applied Music Major 2(1-5) Prerequisite: MUS 162.
In-depth study of performance practices of keyboard, brass, woodwind, percussion or string instruments.

262 Applied Music Major 2(1-5) Prerequisite: MUS 261.
Continuation of MUS 261.

265 Performance Block C (1-3 VAR)
Continuation of MUS 165 for the sophomore student.

275 Beginning Jazz Improvisation 2(2-0)
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)
Continuation of MUS 275. May be repeated for lower-division credit.

291 Special Topics (1-3 VAR)
Special study and/or activity not covered by regular offerings.

301 Counterpoint 2(2-0) Prerequisite: MUS 202.
Directed approach to 16th Century composition. Writing in two, three, four and more voices.

304 Form and Analysis 2(2-0) Prerequisite: MUS 202.
Analytical techniques in music from Gregorian Chant to contemporary music.

311 Arranging I 2(2-0) Prerequisite: MUS 202.
Techniques of scoring for all instrumental combinations.

312 Arranging II 2(2-0) Prerequisite: MUS 311.
Continuation of MUS 311.

321 Music from 1700 to 1850 3(3-0) Prerequisite: MUS 122.
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.
Post-romanticism and contemporary composition.

351 Principles of Music in the Elementary School 1(1-0)
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)
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.
Continuation of MUS 262 for the junior music student.

362 Applied Music Major 2(1-5) Prerequisite: MUS 361.
Continuation of MUS 361.

365 Performance Block C (1-3 VAR)
Continuation of MUS 265 for the junior student.

370 Band 1(0-5) Prerequisite: MUS 170 or permission of instructor.
May be repeated for credit. Upper-division continuation of MUS 170. Additional rehearsals and performance activities may be required.

371 Choir 1(0-3) Prerequisite: MUS 171 or permission of instructor.
May be repeated for credit. Upper-division continuation of MUS 171. Additional rehearsals and performance activities may be required.

372 Piano Ensemble 1(0-2) Prerequisite: MUS 172 or permission of instructor.
May be repeated for credit. Upper-division continuation of MUS 172. Additional rehearsals and performance activities may be required.

373 Guitar Ensemble 1(0-2) Prerequisite: MUS 173 or permission of instructor.
Continuation of MUS 173. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

374 Orchestra 1(0-2.5) Prerequisite: MUS 174 or permission of instructor.
Ensemble specializing in performance of appropriate string chamber literature. May be repeated for additional credit. Upper-division continuation of MUS 174. Additional rehearsals and performance activities may be required.

376 Flute Choir 1(0-2) Prerequisite: MUS 176 or permission of instructor.
Continuation of MUS 176. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

377 Materials and Techniques of Teaching Music in Public Schools I 3(3-0) Prerequisite MUS 144, 145, 241, 242, 245.
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)
Continuation of MUS 377.

383 Percussion Ensemble 1(0-2) Prerequisite: MUS 192 or permission of instructor.
Continuation of MUS 192. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

385 Symposium 1(1-0)
Upper-division continuation of MUS 185. Required course for all music majors. Student performance, both solo and ensemble, guest lectures and clinics, faculty lectures and demonstrations and public performance preparation.

388 Stage Band 1(0-2) Prerequisite: MUS 188 or permission of instructor.
Continuation of MUS 188. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

389 Brass Choir 1(0-2) Prerequisite: MUS 189 or permission of instructor.
Continuation of MUS 189. May be repeated for additional credit. Additional rehearsals and performance activities may be required.

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.
Continuation of MUS 362 for the senior music student.

462 Applied Music Major 2(1-5) Prerequisite: MUS 461.
Continuation of MUS 461.

465 Performance Block C (1-3 VAR)
Continuation of MUS 365 for the senior student.

475 Symphonic Jazz Ensemble 1(0-3) Prerequisite: permission of instructor.
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)
Combination of lecture and lab appropriate to the project. Individual instruction in special interest areas not offered in any course regularly taught.

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.
For graduate students. Practical application of current music techniques to secondary teaching.

NURSING (NSG)

Professor Sczekan
Associate Professors Mettler, Mutzebaugh, Sabo
Assistant Professors Atteberry, Gilbert, King

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. 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. Information regarding the application process for nursing and requirements specific for the major may be obtained from the department office. Academic advising for majors must be provided by a nursing faculty member. Requests for advanced placement through proficiency tests or transfer of equivalent credit must be submitted in writing to the Department of Nursing Academic Standards Committee.

115 Pharmacology in Nursing 3(3-0) Prerequisite: permission of instructor.
Concepts related to drugs, their mechanism of action, potential dangers, and interaction with other drugs. Approach is to broad classifications rather than specific drugs.

117 Women, Health and Society 2(2-0)
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)
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. Laboratory focuses on providing skills necessary for basic safe care of clients.

202L Introduction Health Careers Laboratory 1(0-3)
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) Pre or Corequisite: NSG 202, 202L.
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 4(3-1) Prerequisite: NSG 202, 301.
Directs the systematic assessment of healthy individuals of all ages. Focus on health history, use of instruments used in physical examination and developmental screening.

304 Core Interventions in Nursing I 4(1-3) Prerequisite: NSG 202, 301.
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.

305 Ethical Issues in Health Care (3-0) Prerequisite: permission of instructor.
Selected philosophical theories which influence ethical choice. 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.
Focus is on the nursing process and the healthy individual in community settings. Concepts of primary prevention are stressed.

307 Health and Disease Systems 3(3-0) Prerequisite: permission of instructor.
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.
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 6(3-3) Prerequisite: NSG 301, 302, 304, 306, 307. Corequisite: NSG 354.
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 cycle.

354 Core Interventions in Nursing II 3(2-1) Prerequisite: NSG 304.
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.

362 Nursing Process in Secondary Prevention 5(3-2) Prerequisites: NSG 301, 302, 304, 306, 307. Corequisite: NSG 354.
Application of principles of secondary prevention for short-term acute conditions.

391 Special Topics (1-5 VAR) Prerequisite: permission of instructor.
Topics are considered which serve the interest of 10 or more students focusing on a contemporary trend in nursing practice.

401 Core Concepts in Nursing III 2(2-0) Prerequisite: NSG 351.
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 3(2-3) Prerequisite: NSG 354.
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.

408 Nursing and Psychological Wellness 5(3-2) Prerequisite: NSG 352, 362. Pre or corequisite: NSG 401, 404.
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.

410 Nursing Process in Secondary and Tertiary Prevention 5(3-2) Prerequisite: NSG 352, 362. Corequisite: NSG 401, 404.
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.

451 Core Concepts in Nursing IV 3(3-0) Prerequisite: NSG 401.
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 6(3-3) Prerequisites: NSG 408, 410.
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.

454 Promotion of Health in Individuals, Families, and Groups 4(2-2) Prerequisites: NSG 408, 410.
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.

492 Research 2(2-0) Prerequisite: NSG 309.
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)
In-depth applications of the nursing process in selected areas of nursing practice.

PHILOSOPHY (PHIL)

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 philosophic 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 major 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 minor in philosophy as preparation for advanced professional or graduate study in schools which approve of philosophy as an undergraduate minor 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, 313, 314, 315, 220, 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, political science, and sociology; biology, chemistry, physics, and mathematics.

Only one philosophy course with a grade below C will be accepted toward the major.

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.

Only one philosophy course with a grade below C will be accepted as credit toward the minor. Other philosophy courses with a grade below C must be repeated or additional hours taken.

UNDERGRADUATE COURSES

100 Introduction to Plato 3(3-0)
Introduction to the realm of philosophical thinking through a study of select dialogues by Plato. Special emphasis on his republic. GEN. ED. IF.

101 Introduction to Problems in Philosophy 3(3-0)
Some of the crucial problems of philosophy, with solutions from the major philosophers. GEN. ED. IF.

103 Civilization 1(1-0)
Kenneth Clark's acclaimed film series *Civilisation.* 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)
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: The Supernatural I: Devils, Witches and God 1(1-0) GEN. ED. IF.

109 Philosophy of Religion: The Supernatural II: Life After Death, Ghosts, Reincarnation 1(1-0) GEN. ED. IF.

110 Philosophy of Religion: The Supernatural III: ESP, Miracles, Faith Healing 1(1-0) GEN. ED. IF.

121 Oriental Religions I, India: Hinduism and Buddhism 1(1-0) GEN. ED. IF.

122 Oriental Religions II, China and Japan: Taoism, Confucianism and Shinto 1(1-0) GEN. ED. IF.

123 Oriental Religions III, Lesser Asian Religions: Zoroastrianism, Jainism, Islam and Sikhism 1(1-0) GEN. ED. IF.

205 Deductive Logic 3(3-0)
Study of the principles of methods used to distinguish valid from invalid patterns of deductive reasoning. Especially useful for students in computer or mathematics related fields. GEN. ED. IF.

220 Ethics and Values 3(3-0)
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)
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, allopathic medicine.

313 History of Philosophy Seminar I 3(3-0)
Greek, Latin, and medieval philosophy.

314 History of Philosophy Seminar II 3(3-0)
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)
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, substance, change, freedom, and other topics of metaphysics.

491 Special Topics (1-3 VAR)
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.

PHYSICAL EDUCATION (PE)

Professors Aguilar, Cranmer, Muhic, Stutters
Assistant Professors Banks, McIntosh

The major in physical education 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 physical education includes preparation for teacher certification with endorsements in elementary, secondary or K-12. Certification requirements are accomplished by completing a physical education program listed below and the professional education requirements of the state. Students should consult the education section of this catalog.

The requirements for the major consist of a minimum of 45 credits in approved physical education courses. All courses applied toward the major must be approved by the student's adviser and by the department chair.

The requirements for the minor consist of a minimum of 20 hours in physical education courses which must be approved by the student's adviser and the department chair.

UNDERGRADUATE

101L Basketball 1(0-2)
102L Flag Football 1(0-2)
104L Personal Fitness 1(0-2)
105L Soccer 1(0-2)
106L Softball 1(0-2)

107L Scuba Diving 1(0-2)
108L Windsurfing 1(0-2)
109L Volleyball 1(0-2)
110L Weight Training 1(0-2)
114L Self Defense 1(0-2)
115L Skiing 1(0-2)
116L Camping 1(0-2)
117L Backpacking 1(0-2)
118L Jogging 1(0-2)
120L Rhythmic Aerobics 1(0-2)
150L Archery 1(0-2)
153L Figure Fixers 1(0-2)
157L Swimming 1(0-2)
166L Badminton 1(0-2)
167L Bowling 1(0-2)
170L Golf 1(0-2)
173L Social Dance 1(0-2)
174L Tennis 1(0-2)
175L Racquetball 1(0-2)
176L Advanced Life Saving 1(0-2) Prerequisite: swimming pre-test.
177L Marksmanship 1(0-2)
178L Karate 1(0-2)
180L Intercollegiate Volleyball 2(0-15)
182L Intercollegiate Basketball 2(0-15)
183L Intercollegiate Cross Country 2(0-15)
187L Intercollegiate Track and Field 2(0-15)
188L Elementary Physical Conditioning 2(0-15)
199L Intercollegiate Wrestling 2(0-15)

204L Fitness for Life 2(0-4)
Physical fitness information and training for life. Extensive physical fitness activities; emphasis on cardiovascular adaptation.

231 Cardiopulmonary Resuscitation 1(1-0)
Technique of applying a combination of artificial respiration and artificial circulation in the event cardiac arrest occurs.

232 First Aid 2(2-0)
Knowledge and skills in the latest approved first aid procedures. Advanced Red Cross certification.

233 Introduction and History of HPE and R 3(3-0)
History and philosophies of physical education and recreation and their influences upon contemporary American society.

235 Principles of Physical Education 2(2-0)
Analysis of the scientific principles and contemporary problems faced by the modern physical education instructor.

242 Skills and Techniques of Teaching Perceptual Motor and Self Testing Activities 3(3-0)
Techniques of teaching of elementary physical education activities designed to develop perceptual-motor competency.

243 Skills and Techniques of Teaching Rhythmic Activities 1(1-1)
Fundamentals of folk, square and social dance; emphasis on the teaching techniques involved in basic dance styles and rhythms.

244 Skills and Techniques of Teaching Soccer, Volleyball, Track and Basketball 3(3-0)
Basic skills and techniques of basketball, soccer, volleyball, track and field; emphasis on organization and teaching procedures of these activities.

245 Skills and Techniques of Teaching Weight Training, and Self Defense 2(2-0)
Basic skills and techniques of self defense, weight training and circuit training; emphasis on teaching procedures.

246 Skills and Techniques of Teaching Softball, Bowling, Handball or Racquetball 2(2-0)
Basic skills and techniques of softball, bowling, handball, or racquetball; emphasis on planning, organization and teaching procedures.

247 Skills and Techniques of Teaching Tumbling, Gymnastics and Apparatus Activities 2(2-0) Prerequisite: PE 154.
Basic skills and techniques of tumbling, gymnastics and apparatus activities; emphasis on spotting and teaching procedures.

248 Skills and Techniques of Teaching Badminton and Archery 1(1-0)
Techniques of teaching basic skills and badminton and archery; consideration of equipment, organization and strategy.

249 Skills and Techniques of Teaching Elementary Activities 2(2-0)
Low organization games and enrichment activities appropriate for the elementary and physical education curriculum; emphasis on teaching procedures.

250 Skills and Techniques of Teaching Recreation Sports 2(1-2) Prerequisite: PE 174L.
Skills and techniques of golf and tennis; emphasis on organization and teaching procedures in these activities.

276L Water Safety Instructor Certification 2(0-2) Prerequisite: advanced life saving.
Water safety instruction certification may be earned in this course.

280L Intercollegiate Volleyball 2(0-15)

282L Intercollegiate Basketball 2(0-15)

283L Intercollegiate Cross Country 2(0-15)

287L Intercollegiate Track and Field 2(0-15)

288L Advanced Physical Conditioning 2(0-15)

289L Student Assistant 1(0-2)

291L Special Topics (1-5 VAR)
Specific and unique topics not part of the continuing curriculum.

299L Intercollegiate Wrestling 2(0-15)

322 Elementary School Physical Education 2(2-0)
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.
Procedures utilized in prevention, care and treatment of athletic injuries.

343 Tests and Measurements in Physical Education 2(2-0)
Modern testing programs in physical education; emphasis on preparation and administration of both written and skills tests.

364 Kinesiology 2(2-0) Prerequisite: BIOL 221, 221L.
Fundamental body movements and the primary muscles involved in those movements.

378 Principles and Techniques of Teaching Physical Education Activities 2(2-0) Prerequisite: acceptance into department of teacher education.
Classroom course used to identify and examine methods in teaching of physical education activities.

389L Student Assistant 1(0-2) Prerequisite: PE 289L.

442 Physiology of Exercise 2(2-0) Prerequisite: BIOL 221,221L.
Effects of muscular activity on the various organs and systems of the body; an analysis of intramuscular and extramuscular adaptations which occur with training.

451 Officiating 2(2-0)
General principles and philosophies of officiating and the mechanics involved in the officiating of interscholastic sports.

461 Organization and Administration of HPE and R 3(3-0)
Organizational and administrative processes necessary for the responsible conduct of physical education, recreational activities and interscholastic athletics.

465 Adaptive Physical Education 2(2-0) Prerequisite: BIOL 221, 221L.
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 of Football 2(2-0)
Techniques and strategy of coaching football.

472 Coaching of Basketball 2(2-0)
Techniques and strategy of coaching basketball.

473 Coaching of Track, Field and Cross Country 2(2-0)
Techniques and strategy of coaching track and field.

474 Coaching of Gymnastics 2(2-0)
Techniques and strategy of coaching gymnastics.

475 Coaching of Volleyball 2(2-0)
This course is designed for students with majors or minors in physical education, recreation and coaching and is intended to provide knowledge and experience in coaching volleyball.

482 Coaching of Wrestling 2(2-0)
Techniques and strategy of coaching wrestling.

483 Coaching of Baseball 2(2-0)
Techniques and strategy of coaching baseball.

491 Special Topics (1-5 VAR)
Study and/or activity designed to increase understanding in areas not covered by regular offerings of the department. (S/U grades.)

494 Field Experience (1-5 VAR) Prerequisite: approval of program head.
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 program head.
Individual research, directed reading and/or special assignments under supervision of a member in the department.

GRADUATE COURSES

500 Workshop (1-5 VAR) Prerequisite: approval of program head.
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 head.
Graduate level study and/or activity designed to increase understanding in areas not covered by regular offerings of the department.

PHYSICS/PHYSICAL SCIENCE (PHYS)

Professors Bard, Watkins
Associate Professors Graham, Spenny

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 file a departmentally approved plan of study of the beginning of the junior year.

Students graduating with a BS in physics must have at least a 2.0 grade-point average in the major area of study and no more than four credits in the major 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.

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), 32-38 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 at least one course from among MATH 307, 338, 425, 456) and chemistry.

III. Physics/Options in chemical physics, biophysics, or mathematical physics.
Designed to meet specific career objectives for an individual. Requirements include 32 credits in physics and 32 credits in chemistry, biology or mathematics, as well as approval by the department.

IV. Physics/teaching option
Provide 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 and 204; CHEM 121, 121L, 122, and 122L; BIOL 121, 162, 191 and 191L; MATH 126 (or 221) and 240; 14 additional credits in one of the physical sciences, PHYS 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, 205/205L; GEOL 101, 123; MATH 240 and 241. Other courses may be substituted with the approval of the minor adviser.

UNDERGRADUATE COURSES

100 Physical Science 3(2-2)
Hands-on approach to developing a citizen's understanding of the basic concepts of contemporary physical science. Integrated lecture, lab, discussion periods. GEN. ED. IIIF.

101 Fundamentals of Physics 1(1-0)
The strategy and technique of physics problem solving emphasizing vectors, error analysis, Fermi approximations and the mathematical treatment of data.

110 Elementary Descriptive Astronomy 3(3-0)
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.

121 Introduction to Physics 4(4-0) Prerequisite: MATH 120 or equivalent. Corequisite: PHYS 121L.
Forces, motion, energy, properties of matter, heat, sound, light, electricity and magnetism, and atomic and nuclear physics. For students in the life and health sciences and others who require only a one-semester introductory physics courses. GEN. ED. IIIF.

121L Introduction to Physics Lab 1(0-2) Corequisite: PHYS 121.
A laboratory course to accompany PHYS 121. GEN. ED. IIIF.

130 Physics for Everybody I: Solar Energy 1(1-0)
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)
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)
A five-week, single topic mini-course 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.
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 Lab I 1(0-2) Corequisite: PHYS 201.
A laboratory course to accompany PHYS 201. GEN. ED. IIIF.

202 Principles of Physics II 3(3-0) Prerequisite: PHYS 201. Corequisite: PHYS 202L.
Electrostatics, electromagnetism, light, atomic and nuclear physics. GEN. ED. IIIF.

202L Principles of Physics Lab II 1(0-2) Corequisite: PHYS 202.
A laboratory course to accompany PHYS 202. GEN. ED. IIIF.

221 General Physics I 4(4-0) Prerequisite or Corequisite: MATH 126. Corequisite: PHYS 221L.
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 Lab I 1(0-2) Corequisite: PHYS 221.
A laboratory course to accompany PHYS 221. GEN. ED. IIIF.

222 General Physics II 4(4-0) Prerequisite: PHYS 221. Corequisite: PHYS 222L.
Electrostatics, electromagnetism, elementary circuits, electrical oscillations, geometrical optics and the wave aspects of light. GEN.ED. IIIF.

222L General Physics Lab II 1(0-2) Corequisite: PHYS 222.
A laboratory course to accompany PHYS 222. GEN. ED. IIIF.

291 Special Topics (1-4 VAR)
Meets the needs of special interest groups. Content and credit must be approved by the department. Offered on demand.

301 Theoretical Mechanics 4(4-0) Prerequisite:PHYS 222, MATH 325 and MATH 337.
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.
Introduction to thermodynamic laws and principles, entropy, kinetic theory and statistical mechanics.

322 Advanced Laboratory-Heat 1(0-2) Prerequisite or Corequisite: PHYS 321.
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.
Introduction to special relativity, kinetic theory, quantization, wave mechanics, atomic structure, nuclear physics and spectroscopy.

323L General Physics Lab III 1(0-2) Corequisite: PHYS 323.
A laboratory course to accompany PHYS 323.

341 Optics 3(3-0) Prerequisite: PHYS 222/222L and MATH 325.
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.
Experiments in interference, diffraction, absorption, spectral characteristics and polarization of light.

361 Physics of Sound 3(3-0) Prerequisite: MATH 105 or equivalent.
Sound waves, sources of sound, physics of hearing, acoustical measurements. For speech correction majors and other interested students.

377 Materials and Techniques of Teaching Physics/Physical Science 2(2-0)
Instruction and experience in preparing for and conducting discussion sessions and laboratory exercises in secondary school physics/physical science.

431 Electricity and Magnetism 4(4-0) Prerequisite: PHYS 222/222L, MATH 325 and 337.
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.
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.
Wave packets, operators, the Schroedinger equation, eigenstates, angular momentum, spin, magnetic moments, Heisenberg, formulation.

480 Practicum in Laboratory Instruction 1(0-2)
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)
Meets the needs of special interest groups. Content and credit must be approved by the department. Offered on demand.

492 Research 1(0-2) Prerequisite: eight credits in upper-division physics courses.
The student conducts research under the guidance of a staff member. May be repeated for a maximum of two credits.

493 Seminar 1(1-0) Prerequisite: advanced standing with a major or minor in physics.
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)
For academically strong juniors and seniors only. Each student must choose a supervising professor and obtain approval by the department.

GRADUATE COURSES

501 Science for Elementary Teachers 3(3-0)
Seminar/laboratory course emphasizing elementary school science pedagogy; includes new science programs, utilization of teaching materials, program implementation.

531 Electricity and Magnetism 4(4-0)
Mathematical treatment of electrostatics, currents, magnetism, electromagnetic induction, Maxwell's equations and electrodynamics.

541 Quantum Mechanics 4(4-0)
Wave packets, operators, the Schroedinger equation, eigenstates, angular momentum, spin, magnetic moments, Heisenberg formulation.

POLITICAL SCIENCE (POLSC)

Professor Love

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)
Contemporary political-economic systems and the ideologies which support them. GEN. ED. IIC.

101 American National Politics 3(3-0)
Basic processes in American politics. Principles and structure of national government. GEN. ED. IIC.

102 State and Local Government and Politics 3(3-0)
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)
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)
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 1(1-0)
Techniques and skills used in evaluating historical data. GEN. ED. IIC.

201 Comparative Politics 3(3-0)
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)
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 (SOCAN/SW 210) Techniques of Analysis 3(3-0)
Introduction to the methods of scientific investigation in the social sciences.

250 International Relations 3(3-0)
Analysis of international political behavior and organization. Comparison of national power, goals, and politics. GEN. ED. IIC.

291 Special Topics (1-3 VAR)
Independent study involving research and seminars.

301 Political Parties and Pressure Groups 3(3-0) Prerequisite: previous work in political science.
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)
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)
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.
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.
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 and liberties of individual citizens.

323 Criminal Law and Procedure 3(3-0) Prerequisite: POLSC 101.
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.
Survey of legal issues concerning domestic relations; Supreme Court decisions and legislative enactments.

330 Introduction to Public Service 3(3-0)
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.
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)
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, environmental determiners of national policy and relations.

473 American Political Thought 2(2-0)
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)
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.
Independent study involving seminars and research.

492 Research (1-3 VAR)
Analysis of the research process.

493 Seminar (1-3 VAR)
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.
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 specialities within the field. A modern facility with extensive teaching and research laboratories is available to psychology students. Several of the 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 and 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 psychologist should seriously consider graduate training. The doctoral degree is generally considered 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.

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, 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 3(3-0)
Overview of the field of psychology including learning, perception, motivation, emotion, heredity, personality, development, abnormal and psychotherapy. GEN. ED. IIA.

101L General Psychology Lab I 1(0-2) Corequisite: PSYCH 101.
Laboratory exercises utilizing active student involvement in the topics covered General Psychology I. GEN. ED. IIA.

110 Improving Memory 2(2-0)
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)
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)
Application of psychological principles of everyday problems including stress, coping, self-control, interpersonal relations, friendship and marriage, interpersonal communication and attraction, psychological disorders, etc. GEN. ED. IIA.

151 Introduction to Human Development 3(3-0)
Survey of human development through life span. GEN. ED. IIA.

201 Data Analysis 3(3-0) Prerequisite: PSYCH 101 and MATH 120 or equivalent.
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.
Laboratory course to accompany PSYCH 201.

205 Sports Psychology 2(2-0)
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)
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)
Dynamics of prejudice and discrimination in terms of sex and race; special attention of analysis of strategies for improving relations. GEN. ED. IIA.

220 Drugs and Behavior 2(2-0)
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)
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.

240 Practicum in Individualized Instruction 2(0-4) Prerequisite: PSYCH 101, and permission of instructor.
Individualized systematic learning techniques by serving as learning assistant to professional staff members.

241 Human Sexuality 2(2-0) Prerequisite: sophomore standing, permission of instructor.
Psychological and biological aspects of human sexual behavior.

242 Applied Human Learning 2(2-0) Prerequisite: PSYCH 101.
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.
Physical, mental, 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.
Physical, mental, 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.
Topics include physical, intellectual, social and emotional development, marriage, family and emerging changes in sex roles and special problems associated with old age.

291 Special Topics 2(2-0) Prerequisite: permission of instructor.
Selected aspects of psychology with high interdisciplinary interest in response to specific service requests.

295 Independent Study (1-3 VAR) Prerequisite: psychology major or minor, prior written permission of instructor of record.
Student creates and carries out experimental design under instructor's directions. Team projects may be undertaken.

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.

301 Experimental Psychology 3(3-0) Prerequisite: PSYCH 101, and 201. Corequisite: PSYCH 333L.
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.
Laboratory course to accompany PSYCH 301.

311 Theories of Personality 3(3-0) Prerequisite: PSYCH 101.
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) Prerequisite: PSYCH 101.
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.
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.
Laboratory course to accompany PSYCH 331.

334 Perception 3(3-0) Prerequisite: PSYCH 101, or permission of instructor. Corequisite: PSYCH 334L.
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.
Laboratory course to accompany PSYCH 334.

335 Motivation 3(3-0) Prerequisite: PSYCH 101. Corequisite: PSYCH 335L or permission of instructor.
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.
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 1(0-2) Corequisite: PSYCH 336.
Laboratory course to accompany PSYCH 336.

337 Memory and Cognition 3(3-0) Prerequisite: PSYCH 101.
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)
Laboratory experiments dealing with topics covered in PSYCH 337.

350 The Disabled Minority Child 3(3-0) Prerequisite: PSYCH 101.
Theory and research on current topics relating to the problems of the disabled-minority child. Emphasis will be on the appropriate psychological and behavioral interventions.

351 Psychology of the Exceptional Individual 3(3-0) Prerequisite: PSYCH 101.
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.
General and applied psychological principles of the person's interaction with the group.

362 Introduction to Psychopathology 3(3-0)
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.
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.
Influences that made contemporary psychology possible.

440 Practicum in Individualized Instruction 2(0-4) Prerequisite: PSYCH 101, permission of instructor.
Individualized systematic learning techniques by serving as learning assistant to professional staff members.

463 Psychopathology of Childhood 3(3-0) Prerequisite: PSYCH 101, 362 or equivalent.
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.
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.
Laboratory course to accompany PSYCH 464.

465 Behavior Modification 3(3-0) Prerequisite: PSYCH 101.
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.
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.
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.
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 2(2-0) Prerequisite: permission of instructor.
Selected aspects of psychology in response to specific service requests.

493 Seminar 2(2-0) 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 application.

494 Field Experience (4-12 VAR) Prerequisite: PSYCH 101, prior written permission of instructor of record.
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.
Student creates and carries out experimental design under instructor's directions. Team projects may be undertaken.

496 Cooperative Education Placement (1-4 VAR) Prerequisite: PSYCH 101, 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. 12 credits maximum allowed toward graduation.

GRADUATE COURSES

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/progessional ethics emerge as a major course focus.

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.

592 Research 2(2-0)
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)
Designed to provide the student with actual field work experience in counseling and guidance.

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.

READING (RDG)

Associate Professor Whitmer

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

UNDERGRADUATE COURSES

301 Reading and Language Arts in the Elementary School 3(3-0) Prerequisite: initial testing in basic competencies.
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 201.
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 201 or 425 and initial testing in basic competencies.
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)
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 201.
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: admission to teacher education program.
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)
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 201.
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 201.
Diagnostic and evaluation procedures used in reading techniques for remediation of problems and individualized instruction. Appropriate for elementary and secondary teachers.

491 Special Topics (1-2 VAR)
Special interest course for reading minors and teachers.

495 Independent Study (1-2 VAR)
Individual projects and problem solving experiences designed to meet student's 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.
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.
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.
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)
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.
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 and teacher certification or initial testing in basic competencies.
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 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 201 or 425 and teacher certification or initial testing in basic competencies.
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.
Innovations and current concerns in reading. Designed to meet expressed needs of students. Each topics course will have a subtitle and no subtitle may be repeated for credit.

595 Independent Study 1(0-2) Prerequisite: beginning course in reading.
Special projects in reading relative to needs of advanced students. Research, special topics, curriculum development under close supervision.

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 recreation services 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 53 credits is required for the BS in recreation, 31 of which are included in the recreation core. In addition to the core, each student must select a minimum of six credits from among allied courses and credits from among 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 this list:
ACCTG 201, 202; BIOL 101, 121; MACOM 201; MGMT 310, 318; POLSC 330; PSYCH 151, 251, 252, 253, 351, 352, 475; SOC 154, 155; SPCOM 211, 221.

Methods Courses (16 credits) must be chosen from this list:
ART 118; BIOL 101; IST 202; MUS 118, 251; PE 116, 117, 232, 243, 244, 245, 246, 247, 248, 249, 250, 332, 378, 451, 471-483; SPCOM 111, 131, 312.

A recreation minor requires 21 credit hours; PE 233, 465; REC 340, 481 and 482. The other eight hours are methods courses which must be approved by the adviser.

340 Principles of Community Recreation Programming 2(2-0)
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)
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.
Minimum of 150 hours of practical experience in a selected recreation agency.

480 Recreation for Special Populations 3(3-0)
Community recreation and leisure services for the physically or mentally disabled and the elderly.

481 Outdoor Recreation 3(2-1)
Lecture and practical outdoor experience relating to problems, trends in outdoor recreation and camping.

482 Recreation Management 3(3-0)
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)
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 director of recreation program.
400 hours of supervised, full-time experience in a selected recreation agency. Management/supervision level experience expected. (S/U grades)

RUSSIAN (RUS)

161 Introduction to Russian I 3(3-1)
Pronunciation, conversation, grammar. Alphabet, easy reading and writing. GEN. ED. IB.

162 Introduction to Russian II 3(3-1) Prerequisite: RUS 161 or equivalent.
GEN. ED. IB.

261 Russian Conversation 2(2-0) Prerequisite: RUS 162 or equivalent.
Intensive practice.

271 Intermediate Russian I 5(5-0) Prerequisite: RUS 162 or equivalent.
Advanced grammar and vocabulary. Reading of short stories, oral and written reports.

272 Intermediate Russian II 5(5-0) Prerequisite: RUS 271 or equivalent.

361 Advanced Russian Conversation 2(2-0) Prerequisite: RUS 162 or 271 or equivalent.
Intensive practice.

375 Russian Short Story 2(2-0) Prerequisite: RUS 162 or equivalent.
Selected short stories. Discussion of ideas, or art and of 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. They investigate all aspects of human society. Their research provides insights that help in

understanding the ways in which individuals and groups make decisions, exercise power or respond to change. Their function is to 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, greater need for "people-oriented" specialists is occurring.Thus, job opportunities in applied fields are increasing. These include areas such as program administration, 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; 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, social science, sociology and psychology.

The student must contact the adviser for all tracks within the major. No grade below C is acceptable; either the course must be repeated or additional hours assigned by the faculty adviser in consultation with the student must be taken.

A 2.50 grade-point average in the major is required for student teaching. Program guidance in the selection of general education courses will be available to the student.

The minor consists of work in four of the subject disciplines listed in the major and requires 25 semester hours. The minor is intended primarily for students entering teaching, especially elementary education.

UNDERGRADUATE COURSES

111 Career Orientation 1(1-0)
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)
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)
Analysis of black cultural experiences from African origins and civilization to the present. GEN. ED. IIB.

209 Blacks in America Today 2(2-0)
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)
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)
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)
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 social work major leads to a baccalaureate degree (BSW) and prepares students for entrance-level social work practice, for graduate study and for responsible, effective involvement in their communities and society.

The BSW leads to a variety of employment opportunities. Students who seek careers as professional social workers should consider graduate training, because the master of social work is considered the appropriate terminal degree in the discipline.

Students admitted to the university must be approved by the social work faculty for admission to the degree program. 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. Information regarding preacceptance requirements may be obtained from the faculty.

The social work major consists of a minimum of 63 semester credit hours, of which 51 are social work courses and 12 are non-social work course requirements. The regular curriculum includes SW 100, 101, 102, 205, 210, 320, 322, 324, 350, 401, 420, 460, 493, and 494. Required non-social work courses include CS 101, PSYCH 211, BIOL 221, and PSYCH 313.

No grade below C is accepted toward the major or toward English and mathematic requirements, which must be satisfied before the student enrolls in upper-division social work course (300 and 400 level).

100 Introduction to Social Welfare 3(3-0)
The field of social work; what a social worker does and to a limited degree how he/she does it. Role of social worker, professional skills and philosophy of social work practice. GEN. ED. IIC.

101 Human Behavior and Social Environment I 3(3-0)
Man in relation to environment; working knowledge of individual patterns of development during each maturational phase; physical, emotional and environmental forces which affect potential for social functioning. GEN. ED. IIC.

102 Human Behavior and Social Environment II 3(3-0)
Individual and family patterns of behavior. Selected number of maladaptive responses. Inter-relatedness of physical, psychological, and social systems in diagnosis and treatment planning.

205 Social Welfare in the United States 3(3-0) Prerequisite: SW 100.
Where social work has come from and where it is going. Terminology, history, structure and scientific basis of social work.

210 (POLSC/ANTHR 210) Techniques of Analysis 3(3-0)
Introduction to the methods of scientific investigation in the social sciences.

290 Special Projects (1-5 VAR) Prerequisite: permission of instructor.
Student develops and carries out social work project under instructor's guidance. Team projects may be undertaken.

296 Cooperative Education Placement (1-4 VAR) Prerequisite: program approval and placement.
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. 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.

320 Emergence and Counseling of Minorities 3(3-0) Prerequisite:SW 100, 101, 102.
Process of emergence of ethnic and minority groups in the United States. The traditional counseling role, which is presently being criticized by minority authors, suggestion of new directions for the student when dealing with minorities.

322 Social Work Intervention I 3(3-0) Prerequisite: SW 100, 101, 102.
Elements of social casework methodology, social study, diagnosis and treatment; relationships of the casework to the community, the social agency, and the individual seeking help.

323 Social Work Intervention II 3(3-0) Prerequisite: SW 322.
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.
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.
Nature of social policy; process of policy formulation; factors influencing choice of social objectives within goals and values of social work profession.

401 Human Foundations of Social Work 3(3-0) Prerequisite: program permission.
Specialized study related to human behavior. Attention to interaction of individual role performances with social institutional structure and to common-role disruptive threats or stresses.

420 Social Work Theory 3(3-0) Prerequisite: program permission.
Sociobehavioral approaches relevant to interpersonal helping in social work and methods of behavioral change as reinforcement and shaping, extinction, discrimination, punishment and imitative modeling.

460 Social Work Seminar 3(3-0) Prerequisite: program permission.
Selected topics in social work developed for in-depth study.

490 Special Projects (1-5 VAR) Prerequisite: SW 101, 102; social work major, prior written permission of instructor of record.
Student develops and carries out social work project under instructor's guidance. Team projects may be undertaken.

493 Seminar (1-3 VAR)
Seminar taken by students in field placement that integrates and supports the practical experiences gained in that placement.

494 Field Experience (3-9 VAR) Prerequisite: program permission and placement.
Controlled educational experience in social work practice supervised by qualified professional in established agency and supervised directly by social work faculty member.

495 Independent Study (1-3 VAR) Prerequisite: permission of instructor.
Experience in planning and outlining a course of study through student's own initiative; topics not covered in a regular course or in-depth exploration and analysis of subject matter presented in a regular course.

496 Cooperative Education Placement (1-4 VAR) Prerequisite: program permission and placement.
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.

SOCIOLOGY (SOC)

Professor Kashner
Associate Professors Hughes, Keller, 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 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 to work for agencies or institutions which deal with the mentally or physically ill, or with the aged. Students are familiarized with policy issues, current findings and a range of commonly applied theories. BS degree.

A minor in sociology requires a minimum of 21 semester hours, of which six hours must be 300/400 level courses. SOC 101 is required for the minor. The remaining courses must be selected by the student in consultation with his/her minor adviser in the sociology department. No grades below C are accepted toward the minor.

101 General Sociology I 3(3-0)
Introduction to the field of sociology; emphasis on basic principles and concepts. GEN. ED. IIB.

102 General Sociology II 3(3-0)
Continuation of 101; emphasis on social institutions. GEN. ED. IIB.

152 Marriage and Family 3(3-0)
Historical, cross-cultural and intra-cultural comparisons of family formation, interaction and dissolution. GEN. ED. IIB.

153 Introduction to Criminology 3(3-0)
Nature and extent of crime in American society. GEN. ED. IIB.

154 Juvenile Delinquency 3(3-0)
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)
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)
Organizational features of police, courts, and corrections as subsystems of the American criminal justice system. GEN. ED. IIB.

204 Community Corrections 3(3-0)
Examination of correctional alternatives to incarceration.

205 Crime and Women 3(3-0)
Exploration of social, cultural and political variables that create both women victims and women criminals.

206 Sociology of Gender 3(3-0)
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)
Introduction to the methods of scientific investigation in the social sciences.

291 Special Topics (1-3 VAR)
Topics identified by subtitles taught. Students may enroll as often as new topics are introduced.

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)
From classical to contemporary theory in sociology and anthropology.

351 Social Deviance 3(3-0)
Sociological perspective on behavior defined as deviant, abnormal or socially unacceptable.

352 Social Psychology 3(3-0) Prerequisite: PSYCH 101, or permission of instructor.
General and applied psychological principles of the person's interaction with the group.

353 Penology 3(3-0)
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)
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 or 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)
Special areas of faculty/student interest within the discipline.

401 (ANTHR 401) Health, Culture and Society 3(3-0)
Analysis of how social, cultural, and psychological factors influence health and health care.

402 (ANTHR 402) Aging, Culture and Society 3(3-0)
Cultural, sociological and psychological dimensions of aging.

403 Human Sexuality and Social Behavior 3(3-0)
Sexuality and sexual conduct from a sociological and developmental perspective.

404 Poverty 3(3-0)
Poverty in the United States, its measurement and extent, perpetuating conditions, lifestyle and anti-poverty programs.

405 Sociology of Law 3(3-0)
Laws in Western society and criminological theory are examined.

406 Sociology of Small Groups 3(3-0)
Microsociological analysis of group structure, interaction and dynamics in institutional settings in modern society.

407 Family Violence 3(3-0)
Family violence explores the extent, seriousness, and impact of the major forms of domestic violence. This includes an overview of such types of family violence as wife battering, courtship violence, and child abuse. A sociological analysis provides clues as to why family violence exists, what can be done to prevent it and how the victims can be helped.

408 Science, Technology, and the Future 3(3-0)
A look at the many and unexpected social reverberations of science and technology. Included will be discussions of robotics and artificial intelligence, genetic engineering and biotechnology, communications and information, environment and health, and nuclear weapons as they impact on society.

430 Industrial Organization 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)
The changing patterns, structure, and attitudes toward work will be explored. Included will be discussions of automation, the decline of manufacturing, unions, the professions, and worker-management relations. Also the effects of the increased participation of women on both and family.

432 Organization Theory 3(3-0)
Prevailing theoretical model of large organizations and suggested alternatives.

491 Special Topics (1-3 VAR)
Topic identified by subtitles taught. Students may enroll as often as new topics are introduced.

492 Research 3(3-0)
Analysis of the research process in sociology and anthropology.

493 Seminar (2-4 VAR)
Major principles, propositions and concepts which establish sociological understanding.

494 Field Experience (3-12 VAR)
Practical on-the-job experience in an agency setting. Only with permission of instructor.

495 Independent Study (1-10 VAR) Prerequisite: previous work in sociology and permission of instructor.
Directed study of students interested in specific areas of anthropological or sociological concerns.

*NOTE: A maximum of 10 credit hours from SOCAN 111, 211, 311, 411 count toward completion of a major. Five credit hours from these courses may be used for upper-division requirement. Fifteen credit hours from these courses may be used toward number of hours required toward baccalaureate degree.

SPANISH (SPN)

Professor Bright
Associate Professor Milne

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 Spanish major consist 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	191, 192	10
SPN	281, 282	6
SPN	286, 287	4
SPN	288, 289	6
		34

The Spanish major with bilingual emphasis for elementary teachers requires:

FL	100, 389	5
ENG	222, 304, 340, 342, 351, 377	16
SPCOM	370	2
SPN	191, 192	10 (or waivers)
SPN	281, 282	6
SPN	286, 287	4
SPN	288, 289	6
SPN	385	3
SPN	488	1
		43-53

The minor in Spanish requires satisfactory completion of 32 credit hours, including SPN 385 and 386.

181 Introduction to Spanish: Reading/Culture I 3(3-1)
Introduction to culture and language. Emphasis on correct pronunciation and reading skills. Comparison of grammatical structures and vocabulary of English and Spanish. GEN. ED. IB.

182 Introduction to Spanish: Reading/Culture II 3(3-1) Prerequisite: SPN 181 or equivalent. GEN. ED. IB.

191 Beginning Spoken Spanish I 5(5-1)
Oral-aural training, also some reading and writing; introduction to Hispanic culture. GEN. ED. IB.

192 Beginning Spoken Spanish II 5(5-1) Prerequisite: SPN 191 or equivalent.
Students are placed by the department. Practice in oral, aural, reading and writing experiences. GEN. ED. IB.

281 Readings in Hispanic Civilizations I 3(3-0) Prerequisite: one year of college Spanish or equivalent.
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.
Reading and discussion based on Hispanic America. GEN. ED. IB.

286 Intermediate Spanish Conversation I 2(1-2) Prerequisite: one year of college Spanish or equivalent.
Conversation in small groups divided according to students' fluency.

287 Intermediate Spanish Conversation II 2(1-2) Prerequisite: one year of college Spanish or equivalent.

288 Spanish Grammar and Composition I 1(3-0) Prerequisite: one year of college Spanish or equivalent.
Intermediate review of grammar plus practice in writing compositions.

289 Spanish Grammar and Composition II 3(3-0) Prerequisite: SPN 288 or consent of instructor.
Further study of grammar, increased emphasis on composition.

380 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.

381 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.

382 19th Century Spanish Literature 3(3-0) Prerequisite: two years of college Spanish or equivalent.
Literature of 1808 to 1898. Emergence of romanticism in Spain and its gradual development toward costumbrismo and realism.

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.

384 Spanish American Novel 2(2-0) Prerequisite: two years of college Spanish or equivalent.
Outstanding Spanish American novels, concentrating on their artistic and social significance.

385 Advanced Spanish Grammar and Conversation 3(3-0) Prerequisite: SPN 289.
Required of all Spanish majors.

386 Advanced Spanish Composition and Conversation 3(3-0) Prerequisite: SPN 289.
Required of all Spanish majors.

387 Contemporary Hispanic America 3(3-0) Prerequisite: two years of college Spanish or equivalent.
Sociology, geography, internal and external politics, economics, and the role of the United States in Spanish America and Brazil.

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.

482 Hispanic Thought 3(3-0) Prerequisite: two years of college Spanish or equivalent.
Essay in Spanish.

484 Mexican Literature 2(2-0) Prerequisite: two years of Spanish or equivalent.
Main currents of Mexican literature, primarily of the 20th century.

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.

486 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.

487 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.

488 Studies in Spanish Linguistics I 1(1-0) Prerequisite: two years of college Spanish or equivalent.
Sound patterns of Spanish contrasted and compared with English sound patterns.

489 Studies in Spanish Linguistics II 1(1-0) Prerequisite: two years of college Spanish or equivalent.
Review of the most recent research in linguistics.

SPEECH COMMUNICATION AND THEATRE (SPCOM)

Professors Benton, Plonkey
Associate Professors Bradley, O'Leary, Sherman
Instructor Podgurski

The major in speech communication and theatre leads to the degrees of bachelor of arts (BA) and bachelor of science (BS).

Students in speech communication and theatre participate actively in extracurricular activities closely integrated with the academic curriculum. Open to all students, regardless of their majors, SPCOM 115, and 315 and SPCOM 168, 368 provide experience both in inter-collegiate competition and in community service. In the nationally acclaimed forensic program, students may participate in debate, dramatic reading, interpretation of literature and other individual and group events. The theatre program seeks to provide public performances of the highest quality to the university, the community and the region. Performances include one-act plays, major dramatic productions, muscial comedies, children's plays and a summer stock theatre, providing experience in both technical theatre, production and performance.

Career opportunities for graduates of the program will vary according to the emphasis area studied. The program prepares students for graduate school where they can receive advanced degrees in communication disorders, theatre, and general speech communication. Graduates typically find work in educational institutions, clinics and in professional theatre.

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, 331, 493), plus an additional 17 elective SPCOM hours of which a minimum of eight must be upper level. 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 an emphasis in theatre, students must complete 36 hours: core courses (15 hours), plus an additional 21 elective SPCOM hours of which a minimum of eight hours must be upper level.

For the BA degree in speech communication education, students must complete 33 hours: core courses (15 hours), plus SPCOM 100, 115, 212, 221, 241, 242, 312, 315, 360, 375, 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 (15 hours), plus three 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)
Five-week course scheduled prior to SPCOM 101. Builds self-confidence and introduces communication principles. GEN. ED. IG.

101 Expository Speaking 2(2-0)
Institutional requirement in speech. 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 the continuing education program.

103 Effective Listening 2(2-0)
Principles of good listening introduced and applied through demonstrations and exercises.

105 Responsibility and Freedom of Speech 3(3-0)
Examination of the problem of freedom embodied in the First Amendment, emphasizing both the individual and collective dangers and benefits. GEN. ED. IG.

111 Introduction to Theatre 3(3-0)
A course for non-majors emphasizing understanding and appreciation of the theatre. GEN. ED. IH.

112 Understanding Motion Pictures 3(3-0)
A study of the function of the screenwriter, actor, director, producer, technician, designer and critic in the film entertainment industry.

115 Speech Activity I 1(0-4)
On- and off-campus activities including intercollegiate forensic competition, programs for students and public. Communication skill and experience development. May repeat twice for credit.

131 Introduction to Theatre Technology 3(3-0)
Beginning techniques of stagecraft. GEN. ED. IH.

135 Introduction to Theatrical Performance 3(3-0)
Beginning techniques of acting. GEN. ED. IH.

168 Company Class (1-6 VAR)
Theatre production laboratory for the beginning student. Credit is given for rehearsal and performance in productions, and/or participation in technical theatre crews. May be repeated for credit.

201 Beginning Sign Language 2(2-0)
Introduction to the fundamentals of communicative interaction with and among the deaf by means of hand symbolization.

211 Public Speaking (2-3 VAR)
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)
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.

214 Parliamentary Practice 1(1-0)
Laboratory and discussion course, providing practical experience in a variety of parliamentary situations. Students become familiar with rules of order and appropriate usage. GEN. ED. IG.

216 Theatre Survey I 3(3-0)
Survey of theatre history from primitive origins to 1800. GEN ED. IH.

217 Theatre Survey II 3(3-0)
Survey of theatre history from 1800 to present. GEN. ED. IH.

221 Interpersonal Communications 3(3-0)
The principles and skills of speaking applied to informal speaking situations. Topics covered include openness, genuineness, and talking appropriately to people. GEN. ED. IG.

222 Group Discussion 3(3-0)
Emphasis is on cooperative speaking within a small group in order to improve understanding, solve problems and stimulate thought. GEN. ED. IG.

224 (MACOM 224) Broadcast Announcing 3(3-0) Prerequisite: MACOM 102.
Study and application of the principles of oral communication to radio and television announcing.

231 Oral Interpretation (2-3 VAR)
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.

232 Intermediate Theatre Technology 3(3-0) Prerequisite: SPCOM 131.
Intermediate principles of scenic and lighting design and theatre technology.

235 Film and T.V. Acting 3(3-0)
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)
Instruction in characterization techniques for actors and directors. Emphasis on dialects.

241 Organizational Communication 3(3-0)
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)
Principles and techniques of interviewing in a variety of situations and concepts of participation and leadership in task-oriented groups. GEN. ED. IG.

249 Communication and the Law 1(1-0)
Role that persuasive communication plays in the application of law and the establishment of justice in the courtroom and communication roles of the lawyer, juror, witness and judge. GEN. ED. IG.

250 Introduction to Communication Disorders 2(2-0)
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)
Voice improvement course for teachers, actors, broadcasters, professional speakers. Emphasis on breath support, phonation, resonation, articulation and pronunciation. Individual attention stressed.

291 Special Topics (1-3 VAR)
Directed study not contained within content of a regular course. Class activity supervised by the department, with credit specified in accord with academic value.

295 Independent Study (1-3 VAR) Prerequisite: permission of instructor.
Designed to permit flexibility in exploration of areas of speech communication or theatre not otherwise available. The student works individually, with advisement, on project of own design.

301 Intermediate Sign Language 3(3-0) Prerequisite: SPCOM 201 or permission of instructor.
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)
Uses incidents and patterns of personal language in participants' lives to explore humans as semantic reactors who can deceive, coerce or nurture with their forms of language.

312 Persuasion 2(2-0) Prerequisite: SPCOM 211, 212 or permission of instructor.
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)
On- and off-campus activities including intercollegiate forensic competition, programs for students and public. Continuation of SPCOM 115. May repeat twice for credit.

324 (BIOL 324) Anatomy of the Head, Neck and Chest 2(2-0) Prerequisite: BIOL 221 or BIOL 321. Corequisite: SPCOM 324L.
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.
Dissection and examination of the anatomical structure of the head, neck and chest.

331 Direction 3(3-0) Prerequisite: SPCOM 131, 135 or permission of instructor.
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.

351 Articulation Disorders 2(2-0) Prerequisite: SPCOM 250 or permission of instructor.
Causation, diagnosis and clinical management of articulation disorders.

352 Voice Disorders 2(2-0) Prerequisite: SPCOM 250 or permission of instructor.
Causation, diagnosis and clinical management of voice disorders.

353 Stuttering 2(2-0) Prerequisite: SPCOM 250 or permission of instructor.
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)
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)
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.
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.

368 Company Class (1-6 VAR)
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 2(2-0)
Classroom techniques in dramatics for the teacher.

376 Directing Speech Activities 2(2-0)
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.

412 Speech Composition 2(2-0) Prerequisite: SPCOM 211, 312 or permission of instructor.
Writing of speeches. Manuscript models are studied to reveal how speeches are written for aural qualities.

416 Theatre Survey III 3(3-0)
Survey of dramatic literature from the classic period through the 18th century.

417 Theatre Survey IV 3(3-0)
Survey of dramatic literature from the 19th century to the present.

418 Theatre Criticism 3(3-0)
Survey of the current professional season with emphasis on writing play reviews.

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.

443 Conflict Management 3(3-0) Prerequisite: SPCOM 241 or permission of instructor.
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.
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.
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.
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.
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.
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.)

475 Communication Disorders in the Classroom 2(2-0)
Identification and classification of common communication disorders found in the classroom. Speech improvement techniques and referral procedures are included. Recommended for all teachers.

491 Special Topics (1-3 VAR) (When appropriate) Prerequisite: permission of instructor.
Advanced study not touched upon in regular courses. Academic value consistent with senior level requirements.

493 Seminar (1-3 VAR) Prerequisite: junior or senior standing and permission of instructor.
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.
Designed to permit flexibility in exploration of areas of speech communication or theatre not otherwise available. Student works individually with advisement on project of own design.

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

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 2(2-0) Prerequisite: graduate standing.
Graduate-level creative dramatics for the classroom teacher.

575 Communication Disorders in the Classroom 2(2-0) Prerequisite: graduate standing, permission of instructor.
Identical with SPCOM 375, but with additional requirement for individual activity and research reports.

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.
Similar to SPCOM 491 above, but with more demanding requirements of quality and significance. A research report is required.

595 Independent Study (1-3 VAR) Prerequisite: graduate standing.
Similar to SPCOM 495 above, but with more demanding requirements of quality and significance. A research report is required.

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). Although the latter program is offered on the USC campus, the actual degree is awarded by Adams State College and graduate regulations pertaining to the degree follow the policies of that institution.

GRADUATE ADMISSIONS

A student who has received a baccalaureate degree from an accredited institution and who wishes to take either additional undergraduate courses or begin graduate courses must submit:

1) A completed application for admission to graduate studies and a $10 application fee. The fee is non-refundable and is not applicable toward tuition. For students previously enrolled as undergraduate students at

USC, the fee is not required. For those students in the consortium program in elementary education, the application fee should be a check made payable to Adams State College. An application form may be obtained in the Office of Research and Graduate Studies.

2) An official transcript of all college and university work to be sent directly to the Office of Research and Graduate Studies by the student's undergraduate institution. 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 from 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 student intends to enroll.** Contact the Office of Research and Graduate Studies for testing locations and dates; and

4) A copy of teacher certification for those students in elementary education.

5) 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 Research and Graduate Studies.

The student is admitted according to one of the three categories below, following the criteria for admission as approved by the University Graduate Council and the program admission requirements as approved by the program department.

Admission to the graduate program does not constitute admission to candidacy for an advanced degree.

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 Research and Graduate Studies.

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 director of Research and Graduate Studies. 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. Students may petition the director of Research and Graduate Studies for a change of status from conditional to regular. Such a change will be granted if the student has a complete admissions file, has a graduate GPA of 3.2 or better, has a minimum of 12 semester hours of graduate work, and is approved for the change in status by the appropriate program and the director of Research and Graduate Studies. Any stipulations imposed as undergraduate deficiencies must be removed before regular status can be granted.

GRADUATION REQUIREMENTS

Each graduate program at the university has specific graduation requirments 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 a minimum of 30 semester hours of approved coursework. The MBA degree requires a minimum of 36 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 24 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 Research and Graduate Studies.

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 in the Office of Research and Graduate Studies.

PROGRAMS OF STUDY

MASTER OF BUSINESS ADMINISTRATION (MBA)

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 will make 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. Admission to candidacy will not be given until leveling requirments are satisfied. 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:

Courses		Credits
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).

INDUSTRIAL EDUCATION (MA)

A Master of Arts in Industrial Education degree currently is offered but no new students will be admitted to the program after December 1986.

Students currently enrolled in this program have until summer 1988 to complete the degree.

All graduate courses for the MA in Industrial Education are listed in the Courses of Instruction section of this catalog in the prefix Industrial Science and Technology (IST).

ELEMENTARY EDUCATION (MA)

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 began in fall 1985. To accommodate working students, the program is scheduled for delivery 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 Office of Research and Graduate Studies.

The MA in elementary education will be conferred upon those students who complete 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 Office of Research and Graduate Studies. A maximum of six semester hours of graduate work will be accepted in transfer, only if the transfer credits correspond to specific courses in the program. Requests to take the comprehensive exam must be filed with the Office of Research and Graduate Studies at USC.

A minimum of 24 months is required to complete the program. The courses are scheduled evenings and summers. Students are encouraged to enter at the beginning of the cycle. Students entering at other times are accepted, but continuation of the program from one cycle to another is not guaranteed. Specific information on schedules for courses is available from the Office of Research and Graduate Studies.

All graduate courses for the MA in elementary education are listed in the Courses of Instruction section of this catalog in the prefix areas of Education (ED), Bilingual-Bicultural Education (BBE), and Reading (RDG). A list of other graduate courses for MA students is available from the Office of Research and Graduate Studies.

APPLIED NATURAL SCIENCE (MS)

The graduate program leading to the degree of Master of Science in Applied Natural Science 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. A unique feature of the program is a course that addresses the ethical issues raised by scientific change.

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 nine 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. Twelve 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

Courses		Credits
MATH	544	3
NS	501	2
NS	510	1
NS	520	1
NS	593	2
		9

REQUIRED COURSES FOR EACH MSANS EMPHASIS

Biological Sciences Emphasis Core

Courses		Credits
BIOL	540/540L	3
BIOL	552/552L	4
BIOL	596	6
		13

Chemical Sciences Emphasis Core

CHEM	503	3
CHEM	529	2
CHEM	550	2
CHEM	596	6
		13

Biochemical Sciences Emphasis Core

BIOL	540/540L	3
CHEM	512	4
BIOL	596 or	
CHEM	596	6
		13

ELECTIVE COURSES FOR EACH MSANS EMPHASIS

Biological Sciences Emphasis Electives (A minimum of 12 credit hours must be selected from courses listed below.)

Courses		Credits
BIOL	526/526L	3
BIOL	532/532L	4
BIOL	541/541L	4
BIOL	543/543L	4
BIOL	572/572L	4
BIOL	581/581L	3
BIOL	582/582L	3
BIOL	585/585L	4
BIOL	591	1-4
		30-33

Chemical Sciences Emphasis Electives (A minimum of 12 credit hours must be selected from courses listed below.)

Courses		Credits
CHEM	501	3
CHEM	512	4
CHEM	525	3
CHEM	531	2
CHEM	591	1-4
PHYS	531	4
PHYS	541	4
		21-24

Biochemical Sciences Emphasis Electives (A minimum of 12 credit hours must be selected from courses listed below.)

Courses		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
		36-39

SYSTEMS ENGINEERING (MS)

Systems Engineering deals with the design and analysis of large-scale, complex, man/machine/software systems. The interdisciplinary graduate program relies upon the methods and techniques from the engineering disciplines, as well as those from the mathematical, behavioral and physical sciences. Coursework emphasizes the elements of probability and statistics, optimization and operations research, decision making, systems theory, and use of the digital computer in the solution of systems problems.

Field of study. 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.

Specifically, systems engineers:

- develop overall system operational concepts (generally involving several interactive groups of equipment);
- prepare systems performance specifications;
- perform studies of equipment, sub-systems, and systems for suitability to operational environments, cost, and performance considerations;
- develop "make or buy" recommendations;
- revise designs offered by subcontractors;
- develop and control system and sub-system interfaces;
- identify, analyze, and provide solutions to system technical problems for development through installation/test and acceptance;

- develop lower-level system requirements, e.g. performance (time, speed, volume) and function (what the system should accomplish);
- develop system-level test approaches and methods to verify performance and functional requirements;
- perform lead design and control coordination between technical disciplines (hardware, software, logistics); and,
- perform analysis and system loading to insure that a design meets requirement specifications.

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 proving equivalent coursework was taken prior to admission.

PREREQUISITE BACKGROUND COURSES:

Courses		Credits
CST	105 or 122	3
ECON	202	3
EN	340	3
EN	342	3
EN	442	3
EN	456	3
EN	473	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 with 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 who have an adequate preparation in mathematics, engineering statistics, and computer programming. 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 advisor 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. Degree-seeking students may claim a maximum of nine semester hours of graduate coursework earned while holding non-degree seeking status.

International students whose native language is not English are required to demonstrate English language 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

Courses		Credits
EN	501	3
EN	503	3
EN	540	3
EN	571	3
EN	596	6
		18

REQUIRED COURSES - NON-MAJOR

Courses		Credits
ECON	500	3
MATH	544	3
MGMT	567	3
		9

APPROVED ELECTIVES

Courses		Credits
ACCTG	510	3
EN	500	3
EN	504	3
EN	510	3
EN	530	3
EN	575	3
EN	577	3
EN	590	(1-3 VAR)
EN	591	(1-3 VAR)

All graduate 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 1986-87

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Wade, Martha (1986) director, Admissions and Records; AB, University of Tennessee; M.Ed., Indiana University

Ward, Donna J. (1981) special projects coordinator, KTSC-TV; BSEd., University of Kansas

Watkins, Sallie A. (1966) professor of physics, and dean, College of Science and Mathematics; BS, Notre Dame College; MS, Ph.D., The Catholic University of America

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

Zeleny, Richard D. (1964) coordinator, Veterans Affairs; BA, MA, University of Northern Colorado; Ed.D., University of Wyoming

Zimmerman, Bruce (1986) director, Auxiliary Services; BS, Rhode Island College; MS, Indiana University

EMERITUS FACULTY

Anderson, Norris D. 1965; BA, MA, Ed.D., professor emeritus of education
Bartlett, Thomas J. 1967; BS, MA, professor emeritus of mathematics
Blake, Marvin 1949; BE, professor emeritus of manufacturing engineering technology
Blasing, James A. 1956; AA, professor emeritus of physical education
Bond, John A. 1967; BS, MA, Ph.D., professor emeritus of political science
Boss, Marion L. 1964; BSBA, MSBE, Ed.D., professor emeritus of business administration
Cotner, Jane 1960; AB, BSLS, professor emeritus of library sciences
Davison, Earle 1950; BS, professor emeritus of industrial technology
Dudley, Lloyd P. 1956; BA, MA, professor emeritus of speech communication
Ervin, Dwain T. 1964; BA, MA, Ph.D., professor emeritus of history
Farwell, Hermon W. 1966; AB, MA, professor emeritus of speech communication
Fouts, Kenneth B. 1962; AA, BFA, MA, Ph.D., professor emeritus of speech communication
Griffith, Gerald V. 1947; BS, MA, professor emeritus of agriculture
Hobbs, Harold C. 1966; BA, MA, Ph.D., professor emeritus of psychology
Hobson, Henry 1948; BE, professor emeritus of air conditioning/refrigeration
Howard, Maurice L. 1962; Th.B., AB, MA. Ed.D., professor emeritus of psychology
Ihrig, Paul R. 1946; BS, MA, professor emeritus of fine arts
Jurie, Carl A. 1956; BA, MA, professor emeritus of geology
Kahn, Theodore C. 1965; BA, MA, Ph.D., Sc.D., professor emeritus of behavioral science
Kenyon, Gordon R. 1960; BA, MA, Ph.D., professor emeritus of history
Kurtin, Alfred D. 1945; BA, MA, emeritus registrar
Levy, Ralph W. 1957; BA, MA, professor emeritus of music
Lund, Carl 1957; professor emeritus of welding
McClary, William B. 1946; BA, MA, professor emeritus of economics
McCown, Dean A. 1963; BS, MS. Ph.D., professor emeritus of physics
Middleton, Donald S. 1948; BA, M.Ed., professor emeritus of electronics
Mikkelsen, Harry E. 1958; BA, M.Basic Science, professor emeritus of physics
Miller, Robert E. 1952; BS, MS, professor emeritus of chemistry
Orman, Leonard M. 1970; BS, MA, professor emeritus of mathematics
Rudd, John P. 1965; BA, MA. Ed.D., professor emeritus of psychology
Sanderson, James M. 1947; BS, MA, professor emeritus of history
Shih, Tsang Yu (Tom) 1964; BSM, professor emeritus of metallurgical engineering technology

Simmons, Harry H. 1946; BABE, M.Ed., professor emeritus of physical education
Simms, Houston, C. 1947; BA, MA, professor emeritus of biology
Taussig, Anna 1960; AB, MA, professor emeritus of foreign language
Tilley, Lewis L. 1965; BFA, MFA, professor emeritus of art
Townley, Rodney D. 1945; M.Mus.Ed., professor emeritus of music

RANKED FACULTY

The following individuals were ranked faculty members in the 1986-87 academic year. The date in parentheses indicates the initial year of regular appointment as ranked faculty.

Abebe, Teshome (1983) associate professor of finance, and interim dean, School of Business; BA, MA, Illinois State University; Ph.D., Northern Illinois University

Aguilar, M. Kay (1964) professor of physical education; 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 University

Ahmadieh, Aziz A. (1982) professor of engineering technology; BS, University of Tehran; BS, University of Idaho; MS, University of Kansas; Ph.D., University of California, Berkley

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) associate 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; DBA, Texas Technological 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

Baldauf, Boyd J. (1964) professor of education; BS, Nebraska State College; MA, Ed.D., University of Northern Colorado

Banks, Jessie F. (1966) assistant professor of physical education; BS, Central State University; MA, Adams State College

Bard, Eugene D. (1965) professor of physics; BS, MS, Oklahoma State University; Ed.D., University of Northern Colorado

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, Southern Colorado State College; 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

Binkly, Gail N. (1986) assistant professor of mass communications; BS, University of Southern Colorado; MS, The Ohio State University

Blandford, Robert D. (1965) professor of mathematics; BS, Eastern New Mexico University; MA, Bowling Green State University; DA, University of Northern Colorado

Borton, John M. (1983) assistant professor of computer science technology; BA, Purdue University; MS, University of Northern Colorado

Bottini, Patrick W. (1968) associate professor industrial science and technology; BS, Southern Colorado State College; MA, Adams State College

Bradley, Lawrence B. (1966) associate professor of theatre; BA, University of Northern Colorado; MA, San Jose State College

Bramlett, Lindsey L. (1982) instructor of mathematics; BA, University of California; MA, California State University

Brassill, Joann A. (1967) professor of art; BA, Notre Dame College; MA, Western Reserve University; MFA, University of Notre Dame

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

Bronn, Stephen D. (1971) professor of mathematics, and director, Budget/Institutional Research; BS, University of Nebraska; MS, Ph.D., Northwestern University

Buckles, William G. (1965) professor of anthropology; BA, MA, Ph.D., University of Colorado

Burand, John P. (1986) associate professor of biology; BS, The Defiance College; MS, Miami University; Ph.D., Washington 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 computer science technology; 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

Chinn, Jacqueline (1970) assistant professor of reading; BBA, The Colorado College; MA, University of Colorado

Clay, Samuel O., Jr. (1971) assistant director, Counseling and Health Services; BA, University of Southern Colorado; MA, University of Denver

Connelly, Jerald L. (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

Cottrell, Donald E. (1970) professor of electronics engineering technology; BSEE, University of Denver; MSEE, University of Colorado; Ph.D.EE, University of Denver

Covi, Silvio (1986) assistant professor of foreign language; MA. Ph.D., State University of New York at Buffalo

Cranmer, Joseph W., (1965) professor of physical education; BS, Brigham Young University; MA, University of Wyoming; Ed.D., University of Utah

Croxton, Carol I. (1978) associate professor of English; BA, MA, Ph.D., Ball State University

Daxton, Lawrence E. (1966) professor of history; BA, MA, University of Northern Colorado; Ph.D., University of Colorado

Derr, James B. (1984) assistant professor of mathematics; BA, College of St. Thomas; Ph.D., Michigan State University

Dhatt, Yashwant S. (1983) assistant professor of finance; 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; 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; BA, University of Denver; MA, Claremont Graduate School

Farris, Gerald C. (1967) professor of biology; BA, Dakota Wesleyan University; MS, University of Utah; Ph.D., Colorado State University

Flynn, Patrick (1986) professor of music (The Thatcher Pueblo Symphony Professor of Music); LRAMA Diploma, Royal Academy of Music

Forsyth, Dan W. (1984) assistant professor of anthropology; BA, University of California; MA, University of Chicago; Ph.D., University of California

Freark, Dorman G. (1982) professor of engineering; ME, MS, Stevens Institute of Technology; Ph.D., University of Cincinnati

Gardner, Rick M. (1969) professor of psychology; BA, Humboldt State University; MA, Ph.D., University of Nevada

Gilbert, Gail L. (1980) assistant 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

Gloe, Esther M. (1981) assistant professor of English; BA, University of Missouri at Kansas City; MA, M.Ed., University of Oklahoma; Ph.D., Oklahoma State University

Goodman, Jon B. Lieutenant Colonel, U.S. Army (1985) professor of military science; BS, United States Military Academy; MA, University of Southern California

Graham, Robert E. (1980) associate professor of physics; BS, University of Tulsa; MS, Ph.D., University of Arkansas

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

Hammond, William A. (1957) professor of accounting; BSBA, MBA, University of Denver

Haskin, Daniel L. (1985) associate professor of accounting; BS, Western Texas State University; BBA, MS, DBA, Texas Tech University

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; BSE, 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

Holdaway, Boyd J. Major, U.S. Army (1986) assistant professor of military science; BA, Weber State College; MBA, Southern Illinois University

Holderness, Ward L. (1969) assistant professor of civil engineering technology; AAS, BS, Southern Colorado State College

Hostetler, Charles E. (1964) professor of education; BA, MA, University of Northern Colorado; Ed.D., University of Denver

Howard, John R. (1967) associate professor of geography; BA, MA, University of Washington

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

Jacobs, William L., II. (1975) instructor of physical education; BA, Wittenberg University; M.Ed., Kent State University

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; BA, Indiana Central University; MAT, Indiana University; MFA, University of New Mexico

Johnson, Roger W. (1977) associate professor of mathematics; BA, Fort Lewis College; MS, DA, Idaho State University

Jorgenson, Avis E. (1972) assistant professor of education: BS, University of Colorado; M. Ed., University of Illinois; Ed.D., University of Northern Colorado

Kashner, James B. (1969) professor of sociology; BA, Ashland College; MA, Ph.D., The Pennsylvania State University

Keller, Robert L. (1974) associate 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, Nebraska University

King, Karmyn M. (1979) assistant professor of nursing; ADN, Community College of Denver; BSN, MS, University of Colorado

Knight, Douglas W. (1980) associate professor computer science technology; BS, MS, Ph.D., Arizona State University

Kochenberger, Gary (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

Kulkosky, Paul J. (1984) associate professor of psychology; BA, Columbia College; MA, Columbia University; Ph.D., University of Washington

Latka, Nicholas (1986) 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

Lipp, Richard (1962) professor of reading; BS, Moorhead State College; MA, Ed.D., University of Northern Colorado

Love, Alan P. (1961) professor of political science; BA, University of Colorado; doctor rerum politicarum, University of Vienna, Austria

Lovin, Keith H. (1986) professor of philosophy, and provost and vice president for Academic and Student Affairs; BA, Baylor University; Ph.D., Rice University

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 University Teachers College

Martinet, Anthony (1969) associate professor of automotive parts and service management; BS, University of Southern Colorado; M.Ed., Colorado State University

Mason, Charles E. (1983) assistant professor of automotive parts and service management; BS, Ferris State College

Massey, Frank A., Jr. (1963) associate professor of engineering; BSIE, 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; BA, Oberlin College; MA, Ed.D., University of Denver

McIntosh, Donald V. (1967) assistant professor of physical education; BS, MS, Brigham Young University

Means, Gary (1987) associate professor of social work; BA, MBA, San Diego State University; Ph.D., University of Denver

Mercurio, Sally B. Captain, U.S. Army (1985) assistant professor of military science; BA, University of Colorado

Mettler, Marilynn V. (1980) associate professor of nursing; RN, William Newton Memorial Hospital School 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

Miller, Wilbur C. (1967) professor of mathematics; BA, University of Washington; MBS, University of Colorado; Ph.D., Colorado 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

Morgan, J.B. (1964) professor of industrial science and technology; BSEd, Central Missouri State College; MSEd, University of Missouri; Ed.D., University of Northern Colorado

Morton, Henry B. Major, U.S. Army (1985) assistant professor of military science; AAS, El Paso Community College

Muhic, Thomas J. (1967) professor of physical education; BS, MA, Western State College; Ph.D., University of Utah

Muller, Doyle K. (1963) associate professor of music; BM, BA, Huron College; MM, University of Colorado

Murphy, John H. (1966) associate professor of foreign language; BA, University of Oklahoma; MA, University of California; Ed.D., University of Northern Colorado

Murray, Hallard T., Jr (1969) associate professor of biology; BA, MS, University of Arizona; Ph.D., Purdue University

Mutzebaugh, Carole A. (1981) associate 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) professor of finance; BA, MA, California State University, L.A.; 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; MS, Ph.D., University of New Mexico

Padgett, John H. (1969) assistant 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, Colorado State College; 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; BS, Manchester College; MS, Ph.D., University of Georgia

Powell, Mildred A. (1982) assistant professor of geology; AB, Carleton College; MA, Ph.D., Harvard University

Prater, Joseph C., Jr. (1956) associate professor of mathematics; BS, MS, University of Arkansas

Rao, Gujar N.S. (1981) associate professor of civil engineering technology; BS, BE, University of Mysore, India; MS, Ph.D., University of Oklahoma

Redman, Ralph J. (1965) associate professor of mathematics; BA, MA, Western State College; MAT, The Colorado College

Reiff, Glen A. (1978) professor of electronics engineering technology; BS, U.S. Naval Academy; MS, U.S. Naval Postgraduate School

Reinier, R. Edward (1964) associate professor of management; BS, MA, University of Iowa

Roach, George F. (1966) professor of music; AB, MM, University of Michigan

Rogers, Herman T. Master Sergeant, U.S. Army (1986) instructor of military science;

Romero, Frank S. (1968) assistant professor of reading; AA, Pueblo College; BA, Adams State College; MA, University of Northern Colorado

Ryan, John E. (1980) associate professor of reading; BA, University of California at Los Angeles; MA, California State University, 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

Sadler, George (1965) associate professor of economics; BS, MS, Columbia University; Ph.D., Texas Tech University

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

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) assistant 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

Schlegel, Walter L. (1984) assistant professor of computer science technology; AAS, Pikes Peak Community College; BS, Brigham Young University; MA, Ed.D., University of Northern Colorado

Schnur, Paul (1978) professor of psychology; BA, Queens College; MA, North Carolina State University; Ph.D., Indiana University

Sczekan, Marjorie (1982) professor of nursing; RN, BS, MS, University of Colorado; MA, Ph.D., University of Tennessee, Knoxville

Seilheimer, Jack A. (1963) professor of biology; BS, Western Michigan University; Ph.D., University of Louisville

Senatore, Margaret L. (1964) assistant professor of English; BA, The Colorado College; MA, University of Colorado

Sherman, John R. (1971) associate professor of speech communication/theatre; BA, Hunter College; MA, Ph.D., Southern Illinois University

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

Smith, John E. (1962) professor of chemistry; AA, Pueblo College; BA, Ph.D., University of Colorado

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

Steeples, Douglas W. (1985) professor of history, and dean, College of Liberal and Fine Arts; BA, University of Redlands; MA, Ph.D., The University of North Carolina, Chapel Hill

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 physical education; BA, MA, Southwestern Oklahoma State College; Ed.D., University of Colorado

Su, Robert K. (1986) assistant professor of accounting; BS, MS, National Cheng-Chi University; MS, Ph.D., Louisiana State University

Sublette, James E. (1984) professor of biology, and director of Research and Graduate Studies; BS, MS, University of Arkansas; Ph.D., University of Oklahoma

Sweet, Jerry L. (1976) assistant professor of mechanical engineering technology; AAS, Pueblo College; BS, University of Southern Colorado

Tappen, John B. (1982) assistant professor of computer science technology; BA, Wesleyan University; BS, University of Utah; MS, University of Arizona; Ph.D., University of Tennessee Space Institute

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

Threlkeld, Budge (1964) professor of speech communication/theatre; AA, Trinidad State Junior College; BA, Western State College; MA, University of Denver; Ph.D., The Ohio 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

Vunovich, Bogdan (1967) associate professor of mathematics; AB, MA, University of Northern Colorado

Wade, Robert A. (1970) associate professor of automotive parts and service management; AA, Treasure Valley Community College; BS, M.Ed., Colorado State University

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, Sallie A. (1966) professor of physics, and dean, College of Science and Mathematics; BS, Notre Dame College; MS, Ph.D., The Catholic University of America

Whitmer, Jean E. (1970) professor of education; BA, University of Southern Colorado; MA, Ph.D., University of Colorado

Whitsitt, Ronald G. (1959) associate professor of English; BA, MA, University of Northern Colorado

Wilkes, Linda M. (1983) assistant 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

Wolf, Percival D. Captain, U.S. Army (1985) assistant professor of military science; BA, Kearney State College

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

OTHER FACULTY

Cedrone, Frank J. (1969) artist-in-residence; artist diploma in piano, Boston Conservatory

Markowski, Victoria (1969) artist-in-residence; BM, Boston Conservatory

Molzer, Richard D. (1985) artist-in-residence; BME, MA, University of Denver

ACADEMIC CALENDARS 1987-90

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 SEMESTER

Summer semester consists of an eight-week term, which may include classes scheduled for one to eight week's duration. Specific information about summer semester is available in the bulletin published prior to the beginning of the term.

1987-88

Summer Semester 1987

June 8 ..... Registration
*June 9 ..... Summer semester begins
July 6 ..... Independence Day - no holiday
July 31 ..... Summer semester ends

Fall Semester 1987

August 27, 28 ..... Registration
August 31 ..... First day of classes
September 7 ..... Labor Day - holiday
September 15 ..... End of drop/add period
November 25, 26, 27 ..... Thanksgiving vacation
November 30 ..... Classes resume
December 14, 15, 16, 17 .. Final examinations
December 17 ..... Last day of fall semester

Spring Semester 1988

January 18, 19 ..... Registration
January 20 ..... First day of classes
February 3 ..... End of drop/add period
*March 21-25 ..... Spring vacation
April 4 ..... Classes resume
May 9, 10, 11, 12 ..... Final examinations
May 12 ..... Last day of spring semester
May 14 ..... Commencement

*To be announced, based upon School District 60's schedule.
(These calendars are planned in advance and are subject to change.)

1988-89

Summer Session 1988

June 6 ..... Registration
*June 7 ..... Summer semester begins
July 4 ..... Independence Day - holiday
July 29 ..... Summer semester ends

Fall Semester 1988

August 25, 26 ..... Registration
August 29 ..... First day of classes
September 5 ..... Labor Day - holiday
September 13 ..... End of drop/add period
November 23, 24, 25 ..... Thanksgiving
November 28 ..... Classes resume
December 12, 13, 14, 15 .. Final examinations
December 15 ..... Last day of fall semester

Spring Semester 1989

January 16, 17 ..... Registration
January 18 ..... First day of classes
February 1 ..... End of drop/add period
*TBA ..... Spring vacation
April 3 ..... Classes resume
May 8, 9, 10, 11 ..... Final examinations
May 11 ..... Last day of spring semester
May 13 ..... Commencement

*To be announced, based upon School District 60's schedule.
(These calendars are planned in advance and are subject to change.)

1989-90

Summer Session 1989

June 5 ..... Registration
*June 6 ..... Summer semester begins
July 4 ..... Independence Day - holiday
July 28 ..... Summer semester ends

Fall Semester 1989

August 24, 25 ..... Registration
August 28 ..... First day of classes
September 4 ..... Labor Day - holiday
September 11 ..... End of drop/add period
November 22, 23, 24 ..... Thanksgiving vacation
November 27 ..... Classes resume
December 11, 12, 13, 14 .. Final examinations
December 14 ..... Last day of fall semester

Spring Semester 1990

January 15, 16 ..... Registration
January 17 ..... First day classes
January 31 ..... End of drop/add period
*TBA ..... Spring vacation
April 2 ..... Classes resume
May 7, 8, 9, 10 ..... Final examinations
May 10 ..... Last day of spring semester
May 12 ..... Commencement

Summer Session 1990

June 4 ..... Registration
*June 5 ..... Summer semester begins
July 4 ..... Independence Day - holiday
July 27 ..... Summer semester ends

*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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